INVITATION FOR BID
J20385

REQUIREMENTS and SPECIFICATIONS
TO CONSTRUCT

KAPUAIWA BUILDING
SEPARATE STORM DRAIN AND BASEMENT
SANITARY SEWER SYSTEMS
JUDICIARY PROJECT IDENTIFIER: JUD-1718-07-014
TAX MAP KEY: 2-1-025:003
OAHU, HAWAIʻI

FOR **THE JUDICIARY**
STATE OF HAWAIʻI

RODNEY MAILE
ADMINISTRATIVE DIRECTOR OF THE COURTS
THE JUDICIARY - STATE OF HAWAIʻI

January 2020

Civil Engineer:	The Limtiaco Consulting Group
Structural Engineer:	Nagamine Okawa Engineers Inc.
Electrical Engineer:	Ronald N.S. Ho and Associates, Inc.
Environmental Consultant:	EnviroServices and Training Center, LLC Sara Marvin
Asbestos Certificate No.:	HIASB-4361
Expiration Date:	01/24/20

A.K.

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NOTICE TO BIDDERS

This solicitation is provided to you for information purposes. Bidders wishing to receive notices of addenda for this specific solicitation must register by fax at (808) 538-5802 or email to **Kelly.Y.Kimura@courts.hawaii.gov**.

SEALED BIDS (Chapter 103D, HRS) For:

KAPUAIWA BUILDING
SEPARATE STORM DRAIN AND BASEMENT
SANITARY SEWER SYSTEMS
JUD-1718-07- 014

Will be received at The Judiciary, State of Hawaii, Financial Services Department, Kauikeaouli Hale, 1111 Alakea Street, Sixth Floor, Honolulu, Hawaii, 96813-2807. The solicitation documents, including the Solicitation, Offer and Contract Forms, drawings and specifications may be obtained in electronic format from either our Judiciary web site at http://www.courts.state.hi.us under "General Information" and "Business with the Judiciary" or from the State Procurement Office web site at http://spo.hawaii.gov.

Submit the Competitive SOLICITATION, OFFER AND CONTRACT FORM up to 2:00 PM, February 27, 2020.
At that time, bids will be publicly opened. Bids received after the due time and date will not be considered.

The work generally consists of realignment of an existing stormwater force main, installation of a new sewer lift station and force main, and surface restoration.

The estimated construction cost is between $300,000 and $400,000.

All interested parties are invited to attend a pre-bid meeting and Judiciary-conducted site visit.

The pre-bid meeting and the accompanying Judiciary-conducted site visit will be held at: Ali'iolani Hale, 417 S. King St., Hon., HI 96813; on February 5, 2020, at 10:00 AM, meet at the Mauka Rotunda inside the front entrance of the building.

Bidders and interested parties are required to sign-in at the meetings to confirm attendance.

The estimated value of the public works contract is $250,000 or more and the apprenticeship agreement preference pursuant to Hawaii Revised Statutes § 103-55.6 (ACT 17, SLH 2009) shall apply.

The Hawaii products preference pursuant to ACT 175, SLH 2009 may be applicable for items of this solicitation. Persons wishing to certify and qualify a product not currently listed as a Hawaii Product shall submit a Certification for Hawaii Product Preference (form SPO-38) to: Department of Accounting and General Services, Public Works Division, 1151 Punchbowl Street, Room 426, Honolulu, Hawaii, Attn: Jolie Yee. The product shall meet the specifications of this project. The submittal must be received by The Judiciary by 4:30 p.m. on February 27, 2020. View the current Hawaii Products List on the State Procurement Office (SPO) website at http://hawaii.gov/spo, click on 'For Vendors'; and select 'Hawaii Product Preferences'.

For each product, one form shall be completed and submitted (i.e. 3 products should have 3 separate forms completed). The form is available on the SPO webpage at http://hawaii.gov/spo under the 'Forms' menu; click on 'SPO-038' to view and complete form SPO-38 online.

Late submittals for this solicitation will not be reviewed by this agency.

Campaign Contributions by State and County Contractors Prohibited.
If awarded a contract in response to this solicitation, Offeror agrees to comply with HRS section 11-355, which states that campaign contributions are prohibited from a State and County government contractor during the term of the contract if the contractor is paid with funds appropriated by the legislative body between the execution of the contract through the completion of the contract.

To be eligible to submit a Bid, the Bidder must possess a valid State of Hawai'i Contractor's license classification (s) "A" General Engineering Contractor Classification.

Refer to the **GENERAL NOTICE**, published with the project specifications for additional information.

/s/ Rodney A. Maile
RODNEY MAILE
ADMINISTRATIVE DIRECTOR OF THE COURTS
The Judiciary - State of Hawai'i

GENERAL NOTICE

TAX CLEARANCE AND HAWAII BUSINESS CERTIFICATES
Refer to Instructions to Bidders for information regarding tax clearance and business certificates.

OTHER INFORMATION
Bid results and the Contract Award notice will be posted at
http://www.courts.state.hi.us/fy-2018-invitation-for-bids-awards

Refer to Instructions to Bidders for other conditions and requirements to award a contract.

Any protest shall be submitted to the Administrative Director of the Courts. Bidders shall comply with the GENERAL CONDITIONS Article 2.13 Protests.

SECTION 00210 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.01 GENERAL

A. Only bidders with the required Contractor's license(s) are eligible to submit a Bid.

B. Bidders (Contractors) shall be incorporated or organized under the laws of the State or be registered to do business in the State as a separate branch or division that is capable of fully performing under the contract. The following definitions are used in the solicitation documents.

1. Hawaii Business §3-122-112 HAR: A bidder who is registered and incorporated or organized under the laws of the State is a "Hawaii Business" and eligible for an award.

2. Compliant non-Hawaii Business §3-122-112 HAR: A bidder not incorporated or organized under the laws of the State, but is registered to do business in the State and complies with or is exempt from the requirements of §3-122-112 HAR, is a "Compliant Non-Hawaii Business" and eligible for an award.

3. Non-compliant Bidder: If a bidder is a non-Hawaii business and is not registered with the DCCA Business Registration Division (BREG) or cannot comply with §3-122-112 HAR, then the bidder is non-compliant and is ineligible for an award.

C. When announced by the NOTICE TO BIDDERS, all bidders who intend to submit a bid must attend an initial pre-bid meeting and the accompanying site visit(s). Other interested parties may attend the initial pre-bid meeting and the accompanying site visit(s). For other site visits not conducted by the Department, bidders shall contact and make arrangements with the Project Contact Person listed in SECTION 00800 - SPECIAL CONDITIONS of these specifications.

D. Bidders shall submit the "Solicitation, Offer and Contract Form", bid bond (if required), and any other documents required by these solicitation documents.

E. The *GENERAL CONDITIONS* set forth additional terms and conditions for the bid and award process. The *GENERAL CONDITIONS* will be part of the contract documents by which the State and the bidder (prospective Contractor) will be bound. Bidders are directed to the *GENERAL CONDITIONS*, for contract and statutory requirements and for Bidding and Execution of Contract Requirements. Bidders are also directed to SECTION 00700 - GENERAL CONDITIONS and SECTION 00800 - SPECIAL CONDITIONS of these specifications for definitions and modifications to the *GENERAL CONDITIONS.*

1.02 OFFEROR(S) or BIDDER(S)

A. The terms "Offeror" and "Bidder" are synonymous when used in this Section 00210 and other solicitation documents.

1.03 PRE-BID MEETING AND SITE VISIT(S)

A. General

1. The attendance of pre-bid meetings and site visits is strongly encouraged.
2. Failure to attend the pre-bid meeting(s) and site visit(s) for a project DOES NOT absolve the bidder from its responsibilities under section 2.4.1 of the General Conditions.
3. Verbal responses and discussions may occur during the course of the pre-bid meeting or site visit and shall not be considered to alter any information in the solicitation documents (see Section 2.5.1 of the Interim General Conditions).

B. Mandatory Pre-bid Meetings and Site Visits

1. The Project Coordinator may require all prospective bidder/offerors to attend a mandatory Pre-bid Meeting(s) and Site Visit(s).
2. All bidders/offerors will be required to sign the attendance sheet.
3. Failure to attend mandatory pre-bid meetings and site visits, if required, will automatically be cause for rejection of the bid.

1.04 ADDENDA AND CLARIFICATIONS

A. The Department may periodically issue addenda and bid clarifications which may provide additional information or alter the plans and specifications.

B. The Department will make addenda and bid clarifications available to Bidders via the Department's website and at the physical locations indicated in the Notice to Bidders for pickup of the solicitation documents. Bidders are responsible for the information contained in the addenda and bid clarifications whether or not the bidder receives the addenda or clarifications.

C. Bidders discovering an ambiguity, inconsistency, or error when examining the bid documents or the site and bidders with questions or clarification requests shall transmit said discoveries, questions, and/or requests to the Department's Contracts Engineer in writing. Bidders may use the form entitled 'Questions and Clarifications' at the end of Section 00800 - SPECIAL CONDITIONS which contains options for physical delivery and transmittal by fax. Bidders choosing not to use the form provided shall bear the responsibility for clearly labeling their submittal to allow its proper identification and routing and for following the instructions cited above for physical delivery or fax transmittal.

D. All written transmittals shall be brief, concise, but complete enough to properly evaluate and determine the merits of the question or request. Include references to appropriate section numbers, paragraphs, drawings, details, schedule numbers, and provide other information as appropriate.

E. Requests transmitted or otherwise communicated directly to the Consultant will not be considered to be transmitted to the Department and will not be addressed.

F. Bidders shall submit all discoveries, questions, and/or requests no later than 14 calendar days prior to the submission date for sealed bids.

G. Requests for Substitution will only be entertained prior to bid opening if Section 00800 - SPECIAL CONDITIONS indicates that substitutions before award are

allowed for this project. If allowed, requests of this nature must be submitted before the deadline specified for this purpose in the Notice to Bidders.

1.05 SOLICITATION, OFFER AND CONTRACT FORM (BID FORM)

A. Bidder shall fill out the "Solicitation, Offer and Contract Form" completely. This includes the "Offer" portion of the form and all remaining fill-ins. Write in ink or type. Bidders must also comply with the supplemental instructions contained within the "Solicitation, Offer and Contract Form." Do not alter the "Solicitation, Offer and Contract Form", and maintain the form intact. When the State makes changes to the "Solicitation, Offer and Contract Form", a completely new bid form with appropriate addendum notation will be issued. Bidders shall use the most current version. Bidders shall use their exact legal name as registered with the Department of Commerce and Consumer Affairs, if applicable; and to indicate exact legal name in the appropriate space on the Solicitation, Offer and Contract Form.

B. Schedule for Work: Note the provisions of this article, the referenced COST, TIME AND SCHEDULE article, and specification SECTION 01100 - PROJECT REQUIREMENTS for the construction dates including: project schedule, project start date, jobsite start date, jobsite completion date, contract completion date and contract duration, if provided.

C. Allowances: If applicable to this project, bidder shall include in its total lump sum (base) bid price all cash allowances that are itemized in the COST, TIME AND SCHEDULE article on the "Solicitation, Offer and Contract Bid Form" and described in SECTION 01210 - ALLOWANCES of these specifications. Unless otherwise provided in the contract documents, the bidder shall include costs for unloading and handling materials and equipment at the site, labor, installation costs, overhead, profit, coordination, insurance and other incidental expenses in the lump sum bid price and not in the allowance.
   1. For testing and inspection allowances, the allowance costs shall include the cost of engaging testing agencies, actual tests and inspections and reporting results. Allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspection result in failure.

D. Variable Quantities Unit Prices: If applicable to this project, bidder shall include in its total lump sum (base) bid price a total cost for Variable Quantities Unit Prices (VQUP) that are described in SECTION 01270 - VARIABLE QUANTITIES UNIT PRICES. Bidder shall complete the VQUP schedule by extending costs for unit prices, subtotals and totals. The unit costs provided shall include all materials, labor, tools and equipment required to install the work complete, in addition to all charges for overhead, coordination, profit, insurance, and other incidental expenses. Bidder shall make sure to enter the variable quantities unit prices total amount in the bid form, COST, TIME AND SCHEDULE article.

E. Alternates: If applicable to this project, bidder shall include its total cost(s) in the COST, TIME AND SCHEDULE article for the alternates that are described on the drawings or in SECTION 01230 - ALTERNATES. Bidder must completely fill in the cost for each listed alternate. Where the respective alternate's work will be performed at no cost to the State, bidder shall fill in '$0.00' as the cost. **If the**

cost for any alternate is left blank, the "Solicitation, Offer and Contract Form" will be rejected as an irregular bid.

1. For the purposes of evaluating the bid, the alternates are listed in the COST, TIME AND SCHEDULE article and in specification SECTION 01230 - ALTERNATES in the order of precedence from highest (listed first) to lowest for additive alternates and from lowest (listed first) to highest for deductive alternates.

2. Bidders are directed to the COST, TIME AND SCHEDULE article that lists additional or deductive consecutive calendar days that will be allowed for each accepted alternate.

F. Preference: If applicable to this project, preferences are considered when evaluating bids to determine the ranking of the respective bidders. The award of the contract will be in the amount of the bid exclusive of any preference adjustments.

G. Hawaii Product Preference:

1. In accordance with ACT 175, SLH 2009, the Hawaii products preference is applicable to this solicitation. Hawaii Products are available for those items noted on the offer form.

2. The Hawaii products list is available on the SPO webpage at http://spo.hawaii.gov, click on '*Procurement of Goods, Services, and Construction-Chapter 103D, HRS'*; under '*Procurement*' click on '*Preferences*', '*Hawaii Products'* and select '*Hawaii Products List'* to view.

3. Offeror offering a Hawaii Product (HP) shall identify the HP on the solicitation offer page(s). Any person desiring a Hawaii product preference shall have the product(s) certified and qualified if not currently on the Hawaii products list, prior to the deadline for receipt of offer(s) specified in the procurement notice and solicitation. The responsibility for certification and qualification shall rest upon the person requesting the preference.

4. Persons desiring to qualify their product(s) not currently on the Hawaii product list shall complete form SPO-38*, Certification for Hawaii Product Preference* and submit to the Procurement Officer, and provide all additional information required by the Procurement Officer. For each product, one form shall be completed and submitted (i.e. 3 products should have 3 separate forms completed). Form SPO-38 is available on the SPO webpage at http://spo.hawaii.gov under the *'Quicklinks'* menu; click on '*Forms for Vendors, Contractors, and Service Providers'*.

5. When a solicitation contains both HP and non-HP, then for the purpose of selecting the lowest bid or purchase price only, the price offered for a HP item shall be decreased by subtracting 10% for the class I or 15% for the class II HP items offered, respectively. The lowest total offer, taking the preference into consideration, shall be awarded the contract unless the offer provides for additional award criteria. The contract amount of any contract awarded, however, shall be the amount of the price offered, exclusive of the preferences.

6. Change in availability of Hawaii product. In the event of any change that materially alters the offeror's ability to supply Hawaii products, the offeror shall immediately notify the procurement officer in writing and the parties shall enter into discussions for the purposes of revising the contract or terminating the contract for convenience.

H. Recycled Product Preference: If applicable to this project, a recycled product preference of at least 5 percent of the price of the item is available. All bidders, either proposing or not proposing to use the recycled product preference shall complete the "Recycled Product Schedule". If choosing to use a recycled product, enter the respective costs for the recycled product; otherwise, enter the cost for the non-recycled product. Make sure a cost is entered for each listed product. Each product cost shall be complete, including jobsite delivery and applicable taxes.

1. For each recycled product the bidder chooses to use, the bidder shall include in its bid package the complete "Certification of Recycled Content Form" (SPO-Form 8) along with all supporting information. A sample of the certification form is in the GENERAL CONDITIONS.

2. The "Recycled Product Schedule" shows the percent preference used for each listed recycled product.

I. Apprenticeship Agreement Preference:

1. If applicable to this project, any bidder seeking the preference must be a party to an apprenticeship agreement registered with the State Department of Labor and Industrial Relations (DLIR) at the time the bid is submitted for each apprenticeable trade the bidder will employ to construct the project. "Employ" means the employment of a person in an employer-employee relationship.
   a. The apprenticeship agreement shall be registered with the DLIR and conform to the requirements of Hawaii Revised Statutes Chapter 372.

   b. Subcontractors do not have to be a party to an apprenticeship agreement for the bidder to obtain the preference.

   c. The bidder is not required to have apprentices in its employ at the time the bid is submitted to qualify for the preference.

2. Self Certification. A bidder seeking the preference must identify each apprenticeable trade the bidder will employ to perform the work by completing the self-certification in the solicitation, offer and contract form. "Apprenticeable trade" shall have the same meaning as "apprenticeable occupation" pursuant to Hawaii Administrative Rules (HAR) §12-30-5.

3. The certification of bidder's participation (Form 1)

   a. The *Certification of Bidder's Participation - Form 1* shall be authorized by an apprenticeship sponsor listed on the DLIR list of registered apprenticeship programs. "Sponsor" means an operator of an apprenticeship program and in whose name the program is approved and registered with the DLIR pursuant to HAR §12-30-1.

b. The authorization shall be an original signature by an authorized official of the apprenticeship sponsor.

c. The completed *Certification of Bidder's Participation - Form 1* for each trade must be submitted with the bid. A facsimile or copy is acceptable to be submitted with the bid, however the signed original must be submitted within five (5) working days of the bid open date. If the signed original is not received within this timeframe, the preference may be denied. Previous certifications shall not apply.

d. When filling out the *Certification of Bidder's Participation - Form 1*, the name of Apprenticeable Trade and Apprenticeship Sponsor must be the same as recorded in the List of Construction Trades in Registered Apprenticeship Programs that is posted on the State Department of Labor and Industrial Relations website. "Registered apprenticeship program" means a construction trade program approved by and registered with the DLIR pursuant to HAR §12-30-1 and §12-30-4.

e. The *Certification of Bidder's Participation - Form 1* and the List of Construction Trades in Registered Apprenticeship Programs is available on the DLIR website at: http://labor.hawaii.gov/wdd/files/2012/12/Form-1-Certification-of-Bidders-Participation.pdf

4. Upon receiving the Self Certification and *Certification of Bidder's Participation - Form 1*, the Procurement Officer will verify that the apprenticeship program is on the List of Construction Trades in Registered Apprenticeship Programs and that the form is signed by an authorized official of the Apprenticeship Program Sponsor. If the programs and signature are not confirmed by the DLIR, the bidder will not qualify for the preference.

5. If the bidder is certified to participate in an apprenticeship program for each trade which will be employed by the bidder for the project, a preference will be applied to decrease the bidder's bid amount by five (5) percent for evaluation purposes.

6. Should the bidder qualify for other preferences (for example, Hawaii Products), all applicable preferences shall be applied to the bid price.

J. Other Conditions: Bidder acknowledges and agrees to the provisions and certifications stated in this article.

K. Receipt of Addenda: Bidder shall fill in the appropriate dates any addenda were received.

L. Listing Joint Contractors or Subcontractors:
1. Bidder shall complete the "Joint Contractors or Subcontractors List". It is the sole responsibility of the bidder to review the requirements of this project and determine the appropriate specialty Contractor's licenses that are required to complete the project. Failure of the bidder to provide the correct names and specialty Contractor's nature of work to be performed, may cause the bid to be rejected.

2. Bidder agrees the completed listing of joint Contractors or Subcontractors is required for the project and that the bidder, together with the listed joint Contractors and Subcontractors, have all the specialty Contractor's licenses to complete the work.

3. Based on the Hawaii Supreme Court's January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Hawaii 450 (2002), the bidder as a general Contractor ('A' or 'B' license) is prohibited from undertaking any work solely or as part of a larger project, which would require the bidder ('A' or 'B' general Contractor) to act as a specialty ('C' license) Contractor in any area in which the bidder ('A' or 'B' general Contractor) has no specialty Contractor's 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. The bidder ('A' or 'B' general Contractor) must have the appropriate 'C' specialty Contractor's licenses either obtained on its own, or obtained automatically under HAR §16-77-32.

4. General Engineering 'A' Contractors automatically have these 'C' specialty Contractor's licenses: C-3, C-9, C-10, C-17, C-24, C-31a, C-32, C-35, C-37a, C-37b, C-38, C-43, C-49, C-56, C-57a, C-57b, and C-61.

5. General Building 'B' Contractors automatically have these 'C' specialty Contractor's licenses: C-5, C-6, C-10, C-12, C-24, C-25, C-31a, C-32a, C-42a, and C-42b.

6. Instructions to complete the Joint Contractors or Subcontractors List:
   a. Describe the specialty Contractor's nature of work to be performed for this project and provide the complete firm name of the joint Contractor or Subcontractor in the respective columns.

   b. List only one joint Contractor or Subcontractor per required specialty Contractor's classification, unless the nature of work to be performed by each such joint contractor is both distinct and separate. (i.e. two C-13 contractors are listed but one has the responsibility for AC controls (nature of work listed as "electrical – AC controls") and the other for AC power (nature of the work listed as "electrical – AC power").

   c. For projects with alternate(s), fill out the respective "Joint Contractors or Subcontractors List for the Alternate(s)". Bidder shall describe the specialty Contractor's nature of work to be performed on this project for the respective alternate. Bidders shall fill in the complete firm name and nature of work to be performed by the respective joint Contractor or Subcontractor. If the joint Contractor or Subcontractor was previously listed under base bid, listing under Alternate(s) is not required.

M. Cost, Time and Schedule: Bidder shall completely fill out the article and enter the cost for the Project Bid Price, Variable Quantities Unit Prices and Alternates when provided. Bidder shall tabulate the Project Bid Price, Variable Quantities Unit Prices and Allowances when provided, and the Bidders shall then enter the

Total Lump Sum Bid Price. **BE SURE TO ENTER THE TOTAL LUMP SUM BID PRICE IN WORDS AND NUMERALS**. Refer to Bidder's Instructions located within the article.

1. If provided, bidder shall fill in total costs for each alternate.

2. The bidder is directed to the construction time information Article entitled "TIME" for the contract duration and construction time for alternates. Bidder shall refer to SECTION 01100 - PROJECT REQUIREMENTS of these specifications for additional construction time information, as applicable.

N. Offer Page: Bidder shall completely fill out Blocks 11 through 22C. Bidder shall indicate if it is a "Hawaii Business" or a "Compliant Non-Hawaii Business" in Block 21. Also, bidder shall refer to Bidder's Instructions located near end of section.

1.06 EVALUATION CRITERIA

A. Evaluating Bids: The lowest responsive, responsible bid is determined by the following procedures:
   1. Chapter 103D, HRS, which provides for the preferences, shall apply.

   2. The total lump sum bid price is adjusted to reflect the applicable preferences.
      a. For projects with alternates, the total lump sum base bid price and alternates will be adjusted to reflect the applicable preferences.

   3. Project control budget is established prior to the submission of bids.

   4. If there is more than one alternate for a project, the State will determine the precedence of the alternates for each project prior to the submission of bids.

   5. The project will be evaluated based on the adjusted bid price.

B. Evaluating Bids with Additive Alternates:
   1. Prior to opening bids, the State will announce the project control budget. All bids will be evaluated on the basis of the same alternate item.

   2. After adjusting for applicable preferences, the alternates, in their precedence order, are added to the total lump sum base bid price. This (these) sum(s) are compared to the project control budget, and must be within the project control budget.

   3. If adding another alternate would make the aggregate amount exceed the project control budget for all bidders, that alternate will be skipped and the next alternate will be added, provided an award might be made within the project control budget. This procedure will continue, until adding any remaining alternates will result in the aggregate total amount for all the bidders to exceed the project control budget, or until no additional alternates remain.

   4. The bidder with the lowest aggregate amount, within the project control budget (after application of the various preferences), for the total lump sum base bid plus the alternates in their precedence order, is the "Low Bidder" for that project and is designated for award.

5. Additive Alternate Example: The project control budget available is $100,000. In the order of precedence, alternates A-1, A-2 and A-3 are additive alternates. After applying the preferences, the bids are ranked lowest price to highest price and are “Bid A”, “Bid B” and “Bid C”. Bid A’s total lump sum base bid price and three additive alternates (in the precedence order) are $80,000, $16,000, $10,000 and $5,000 respectively. Bid B’s total lump sum base bid price and three additive alternates (in the precedence order) are $82,000, $10,000, $9,000 and $3,000 respectively. Bid C’s total lump sum base bid price and three additive alternates (in the precedence order) are $85,000, $10,000, $8,000 and $4,000 respectively.
   a. In adding the alternates to the bids, alternate A-1 is under the project control budget for all bids. The second alternate A-2 is initially skipped since it would cause the aggregate amount of all bids to exceed $100,000. The third alternate A-3 is added and the aggregate amounts, including base bid price plus alternates A-1 and A-3, of both Bid B and Bid C, are under the project control budget.
   b. Bid A’s aggregate total is $101,000. Bid B’s aggregate total is $95,000. Bid C’s aggregate total is $99,000.
   c. Bid B’s price including alternates A-1 and A-3 is the lowest bid price (over Bid C) and has an aggregate amount within the adjusted project control budget, and therefore is designated the “Low Bidder” for the project.

6. Should the Lump Sum Base Bid of all bidders exceed the project control budget, the bidder with the lowest total lump sum base bid after application of the preferences is designated the low bidder for the project.

1.07 METHOD OF AWARD

A. The contract will be awarded to the lowest responsive and responsible Bidder whose bid (including any alternates which may be selected) meets the requirements and criteria set forth in the solicitation documents and as determined by the Comptroller.

B. In the event the total lump sum bid for bids without alternates or with additive alternates of all bidders exceeds the project control budget, the Department reserves the right to make an award to the apparent Low Bidder if additional funds are available or by reducing the scope of work through negotiation.

C. Not used.

D. Additional Requirements for Bids with Alternates: After determining the designated Low Bidder for the project, an award may be made on the amount of the Low Bidder’s total lump sum base bid alone or on any combination of alternates exclusive of any preferences. The combination of alternates may include substituting any of the alternates that were included in the designated Low Bidder’s aggregate price with an alternate that was not included, provided:
   1. It is in the best interest of the State,
   2. Funds are available at the time of award, and
   3. The combination of the total lump sum base bid plus alternate(s) does not change the established Low Bidder for the project.

1.08 OTHER CONDITIONS FOR AWARD

A. The Administrative Director of the Courts may reject any or all bids and waive any defects if the Administrative Director believes the rejection or waiver is in the best interest of the State.

B. The Administrative Director of the Courts may hold all bids up to 60 calendar days from the date bids were opened. Unless otherwise required by law, bids may not be withdrawn without penalty.

C. The award of the contract is conditioned upon funds made available for the project (or projects if applicable).

D. Any agreement or contract is subject to approval by the Department of the Attorney General, and the approval of the Governor, as required by statute, regulation, rule, order, or other directive.

1.09 RESPONSIBILITY OF AWARDED BIDDER

A. Pursuant to Section 103D-310(c), HRS, the responsive bidder recommended for contract award, if any, shall be compliant with all laws governing entities doing business in the State including the following chapters:
   1. Chapter 237, tax clearance;
   2. Chapter 383, unemployment insurance;
   3. Chapter 386, workers' compensation;
   4. Chapter 392, temporary disability insurance;
   5. Chapter 393, prepaid health care; and
   6. Chapter 103D-310(c), Certificate of Good Standing (COGS) for entities doing business in the State.

B. The State will verify compliance on Hawaii Compliance Express (HCE). The HCE is an electronic system that allows vendors/contractors/service providers doing business with the State to quickly and easily obtain proof that they are compliant with applicable laws. The HCE certificate, 'Certificate of Vendor Compliance', allows this single printable electronic certificate to be substituted for the tax clearance, labor certificate, and a Certificate of Good Standing required in Hawaii Revised Statutes (HRS), Section 103D-310(c), and Hawaii Administrative Rules (HAR), Section 3-122-112. The HCE provides compliance status in real time.

C. Bidders are advised to register with Hawaii Compliance Express at https://vendors.ehawaii.gov before submitting an offer. Bidders are strongly encouraged to submit a 'Certificate of Vendor Compliance' with their bid package to ensure the State's ability to quickly verify compliance at the time of award. If an offeror is not compliant at the time of award, an otherwise responsive and responsible offeror may not receive the award.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SOLICITATION, OFFER AND CONTRACT FORM

1. JUD Project Identifier:	2. TYPE OF SOLICITATION	3. PAGE OF PAGES
1718-07-014	☒ SEALED BID (IFB) ☐ SEALED PROPOSAL (RFP)	1 of

IMPORTANT – The "offer" section must be fully completed by offeror.

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder."

4. ISSUED BY:	5. ADDRESS OFFER TO:
THE JUDICIARY – STATE OF HAWAIʻI CONTRACTS AND PURCHASING 6TH FLOOR KAUIKEAOULI HALE 1111 ALAKEA STREET HONOLULU, HAWAI'I 96813	THE JUDICIARY – STATE OF HAWAIʻI CONTRACTS AND PURCHASING 6TH FLOOR KAUIKEAOULI HALE 1111 ALAKEA STREET HONOLULU, HAWAI'I 96813

6. FOR INFORMATION Call: Or Visit:	A. NAME [TBD]	B. TELEPHONE NO. *(NO COLLECT CALLS*) (808) phone no.

SOLICITATION

7. THE STATE OF HAWAII REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS TO CONSTRUCT:

KAPUAIWA BUILDING
SEPARATE STORM DRAIN AND BASEMENT SANITARY SEWER SYSTEMS
FOR THE JUDICIARY
TMK: 2-1-025:003
Honolulu, Oahu, Hawaii

After carefully examining the bid documents including the specifications, drawings, addenda, and other proposed contract documents, the bidder shall furnish all labor, materials, machinery, tools, superintendence, transportation, and other construction accessories, services, and facilities necessary to construct and complete, at its own risk and expense, the work and requirements of the Project for the cost and time stipulated in the COST, TIME AND SCHEDULE article of Attachment A of this Form. The bidder agrees to the conditions and requirements stipulated in this SOLICITATION, OFFER ANDCONTRACT FORM and any attachments thereto.

8. The Contractor shall complete the work as stipulated in the COST, TIME AND SCHEDULE article of Attachment A. This performance period is mandatory.

9. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS WITHIN 10 CONSECUTIVE CALENDAR DAYS AFTER DATE OF THE LETTER OF AWARD. IF ALTERNATE FORMS OF SECURITY WILL BE SUBMITTED, REFER TO STATE OF HAWAII, GENERAL CONDITIONS 3.7.1.3. INCORPORATED HEREIN BY REFERENCE.

10. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed bids/offers to perform the work required are due at the place specified in Block 5, by the date and time specified in the Notice to Bidders. If this is a sealed bid solicitation, offers will be publicly opened at that time. Offers must be submitted in sealed envelopes that shall be marked to show the offeror's name and address, the DAGS Job number, and the date and time offers are due.

B. Bid Security is required and must be submitted with the offer if the offer amount is $250,000 or more including alternates. Bid Security is not required with the offer if the offer amount is less than $250,000 (Section 3-122-223(a)(1) HAR and Section 103D-305 HRS) including alternates.

C. Hawaii Product Preference –Any offeror proposing to use the Hawaii product preference must complete the Hawaii product preference schedule form in the solicitation and submit it with the offer.

D. Apprenticeship Agreement Preference – Any offeror seeking the apprenticeship agreement preference must complete the self certification form and the DLIR Certification of Bidder's Participation - Form 1.

E. Listing of Joint Contractors and Subcontractors – Any offeror must submit with its offer, the name of each person or firm to be engaged by the offeror as a joint contractor or subcontractor in the performance of the contract and the nature and scope of the work to be performed by each. The offeror is directed to complete the joint contractors and subcontractors list form included in the solicitation and submit it with the offer.

F. The Offeror be registered and compliant with Hawaii Compliance Express, link found at http://vendors.ehawaii.gov/hce/splash/welcome.html.

G. All offers are subject to the requirements of the solicitation, including the Specifications, Notice to Bidders, Instruction to Bidders, General Conditions, and Drawings, any Special Conditions, Addenda, Bid Clarifications, and any other provision whether incorporated in full text or by reference in, or attached to, the solicitation.

H. Contractors are hereby notified of the applicability of Section 11-355 HRS, 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.

I. Recycled Product Preference – Certain recycled products are acceptable for use in this project. Any offeror proposing to use the recycled product preference must complete the recycled product preference schedule form in the solicitation and submit it with the offer.

OFFER ***(Must be fully completed by offeror)***	
11. NAME AND ADDRESS OF OFFEROR *(Include Zip Code) (*1)*	12. REMITTANCE ADDRESS *(Include only if different than item 11)*
13. TELEPHONE NO. *(Include area code)* FAX NO.	14. EMAIL ADDRESS
15. FEDERAL EMPLOYER ID # (FEIN)	16. HAWAII GENERAL EXCISE ID #
17. BUSINESS ORGANIZATION (*2)	18. CONTRACTOR'S LICENSE NO.
19. The offeror agrees to perform the work required at the price(s) specified in the COST, TIME AND SCHEDULE article of Attachment A in strict accordance with the terms of this solicitation, including any attachments thereto, if this offer is accepted by the State of Hawaii within 60 calendar days after the date offers are due.	
20. The offeror has completed Attachment A.	
21. COMPLIANCE WITH §3-122-112 (HAR) *{BIDDER'S INSTRUCTIONS: Mark one box only. If a Non-Hawaii Business, write your State's name where incorporated.}* The undersigned represents: ☐ A Hawaii Business incorporated or organized under the laws of the State of Hawaii. Or ☐ A Compliant Non-Hawaii Business not incorporated or organized under the laws of the State of Hawaii, but registered at the State of Hawaii, Department of Commerce and Consumer Affairs, Business Registration Division to do business in the State of Hawaii. State of incorporation: _____	
22A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	
22B. SIGNATURE: I declare under penalty of law that the foregoing is true and correct to the best of my knowledge. (*3)	22C. DATE:

BIDDERS INSTRUCTIONS AND SOLICITATION, OFFER AND CONTRACT FORM FOOTNOTES (footnotes relate to boxes 11, 17 & 22B)

*(*1) If the Offeror is a "dba" of a sole proprietor, furnish the exact legal name as registered with the Department of Commerce and Consumer Affairs.*
If Offeror is a "dba" or a "division" of a corporation, furnish the exact legal name of the corporation under which the awarded contract will be executed.
The address included in this box will be used for correspondence.

*(*2) For Business Organization, enter one of the following: Sole Proprietor, Partnership, Corporation, Joint Venture, or Other.*

*(*3) MANUAL SIGNATURE REQUIRED: attach to this page evidence of the authority of this signatory to submit bids on behalf of the Offer, and also the names and residence addresses of all officers of the company.*

Fill in information in all blank spaces or the bid may be invalidated. SOLICITATION, OFFER AND CONTRACT FORM MUST BE INTACT; MISSING PAGES OR ANY ALTERATIONS MAY INVALIDATE THE BID. TYPE OR WRITE ALL INFORMATION IN INK. USE INK FOR MANUAL SIGNATURE.

CONTRACT *(To be completed by State of Hawaii)*	
23. CONTRACT NO.	23A. CONTRACT DATE:
24. ITEMS ACCEPTED:	
25. AMOUNT:	27. PAYMENT WILL BE MADE BY: (Department) By _____ Signature _____ Print Name _____ Title
26. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 4 UNLESS DIFFERENT ADDRESS STIPULATED HERE *(7 copies unless otherwise specified)*	
COMPTROLLER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE	
☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return ____ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work for the consideration slated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) any document incorporated by reference in or attached to this contract.	☐ 29. AWARD *(Contractor is not required to sign this document.)* Your offer on this solicitation is hereby accepted as to the items listed in Block 24. This award consummates the contract, which consists of (a) The Judiciary State of Hawaii solicitation and your offer, and (b) this contract award. No further contractual document is necessary.
28A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*	29A. NAME OF ADMINISTRATIVE DIRECTOR OF THE COURTS *(Type or print)*
28B. SIGNATURE: I declare under penalty of law that the foregoing is true and correct to the best of my knowledge.	29B. STATE OF HAWAI'I By:
28C. DATE	

ATTACHMENT A

A. COST, TIME AND SCHEDULE

KAPUAIWA BUILDING
SEPARATE STORM DRAIN AND BASEMENT SANITARY SEWER SYSTEMS
Judiciary Project Identifier:1718-07-014

1. COST

Project Bid Price $_____

Allowance

Allowance A $_____
Allowance B $_____

TOTAL LUMP SUM BID PRICE $_____

_____ DOLLARS

{BIDDER'S INSTRUCTIONS: Fill in the total lump sum bid price in numbers and write out the total lump sum bid price in words.}

2. TIME

See Section 01100 – PROJECT REQUIREMENTS for additional time and duration requirements.

Contract Duration _____ Calendar Days

3. SCHEDULE FOR WORK

Contractor shall commence and complete all work within the contract duration stipulated and as follows:

a. After the project is awarded, the contractor shall begin preparatory work, obtain approvals, permits, process submittals or conduct other work as directed. The contractor shall not start any work at the jobsite or order any materials, unless the Contracting Officer specifically issues a written authorization to proceed with designated work.

b. Upon receipt of the executed contract and a written authorization from the Contracting Officer, the contractor may proceed with ordering materials, doing offsite fabrication and similar work, approved by DAGS, prior to issuance of the formal Notice to Proceed. The Contractor shall not start any work at the jobsite before the formal Notice to Proceed is issued, unless the Contracting Officer specifically issues a written authorization to proceed with designated work. Payment for materials ordered and received prior to THE JUDICIARY'S issuance of the formal Notice to Proceed are subject to the following conditions:

1. The contractor is responsible for all storage costs incurred. No additional compensation will be made;
2. Ordering materials prior to the formal Notice to Proceed will not decrease or increase the specified contract time; and

3. Conditions as specified in the DAGS 1999 INTERIM GENERAL CONDITIONS, and other conditions required by the contract documents.

c. After issuance of the formal Notice to Proceed or upon written authorization from the Contracting Officer to proceed with designated work, the contractor shall order approved materials, do off-site fabrication and similar work. The contractor shall start and complete the jobsite work per the dates, times and durations noted in the COST, TIME AND SCHEDULE article.>

4. ALLOWANCES

Bidder includes in the Lump Sum Bid Price, cash allowances that are itemized in the COST, TIME AND SCHEDULE article and described in specification SECTION 01210 - ALLOWANCES. (The allowance is an estimate and may increase or decrease, depending on the actual cost of the vendor who will perform the work.)

B. BID SECURITY – Required for this project.

Mark the applicable box. State in words and numerals the Bid Bond dollar amount. See the Bidder's Instructions at the end of this section for additional information.

Enclosed with this BID FORM:

☐ Surety Bond *(*4)*	☐ Legal Tender *(*5)*
☐ Cashier's Check *(*6)*	☐ Certificate of Deposit *(*6)*
☐ Certified Check *(*6)*	☐ Official Check *(*6)*
☐ Share Certificate *(*6)*	☐ Teller's Check *(*6)*
☐ Treasurer's Check *(*6)*	☐ Not applicable

{BIDDER'S INSTRUCTIONS: * See below for footnotes.

*(*4) Surety bond underwritten by a company licensed to issue bonds in this State (Note: Surety bond shall be substantially in the form of the sample in the Appendix to the Interim General Conditions);*

*(*5) Legal tender; or*

*(*6) A certificate of deposit; share certificate; or cashier's, treasurer's, teller's, or official check drawn by, or a certified check accepted by, and payable on demand to the State by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration.*

a. These instruments may be utilized only to a maximum of $100,000.

b. If the required security or bond amount totals over $100,000, more than one instrument not exceeding $100,000 each and issued by different financial institutions shall be accepted.}

In the amount of:

_____

_____ DOLLARS ($_____)

(Bid Security shall be no less than 5% of the total lump sum bid amount) as required by law.

C. RECEIPT OF ADDENDA AND BID CLARIFICATIONS

Bidder acknowledges receipt of the following Addenda and Bid Clarifications issued by the Department, and the bidder shall indicate by marking each applicable box:

☐	Addendum No. 1	☐	Bid Clarification No. 1
☐	Addendum No. 2	☐	Bid Clarification No. 2
☐	Addendum No. 3	☐	Bid Clarification No. 3
☐	Addendum No. 4	☐	Bid Clarification No. 4
☐	Addendum No. 5	☐	Bid Clarification No. 5

D. PREFERENCE

Bidder agrees that:

1. Preferences are considered in the evaluation of bids; however, the award of the contract will be in the amount of the bid offered exclusive of any preferences.

2. If granted Hawaii product or recycled product preference and awarded the contract, the Contractor must use the designated products in the work; otherwise, the Contractor may be in default of the contract.

3. If granted the Apprenticeship Agreement Preference and awarded the contract, the Contractor must, for the duration of the contract, certify each month that work is being conducted on the project, that it continues to be a participant in the relevant apprenticeship program for each trade it employs.

4. Regardless of whether a bidder requests to use the recycled product preference or chooses any other preference, all bidders are required to complete the RECYCLED PRODUCT PREFERENCE article. Failure to complete this article is sufficient cause to reject the bid.

E. HAWAII PRODUCT PREFERENCE

Hawaii Product Preference applies to this project. Offerors shall indicate in the Hawaii Product Schedule below whether pre-approved Hawaii Products are offered. Offerors offering a Hawaii Product shall fill-in the quantity, unit measure, unit price and total price for the Hawaii Product they desire to be considered for preference. Products not pre-approved shall not be considered. Hawaii Products not meeting the requirements of the specifications shall not be considered.

Offerors selecting the Hawaii Product Preference may be required to submit additional information on the cost basis of their selected Hawaii Product Preference items when requested after the bid opening to verify cost of the Hawaii Products, including the computations for the estimated quantities, manufacturer's or supplier's quotations, and delivered material cost Free on Board (FOB) at the jobsite. The Hawaii Product Cost shall not include installation costs.

Hawaii Product Schedule

Item. No.	Pre-Approved Hawaii Product Description & Manufacturer	Class (I or II)	Quantity	Unit Measure	Unit Price	Total Price
1.	*Aggregates* *- Grace Pacific Corporation*	*I*				
2.	*Asphalt and Paving Materials* *- Grace Pacific Corporation* *- Ala Imua LLC*	*I*				

F. RECYCLED PRODUCT PREFERENCE

This project allows a price preference for recycled products of at least 5 percent of the price of the item. Irrespective of choosing any other preference, bidder shall complete this Recycled Product Schedule; otherwise, the bid may be rejected. Bidder shall fill in the cost for either the recycled product or non-recycled product.

Recycled Product Schedule

DESCRIPTION	PERCENT	RECYCLED PRODUCT COST	NON-RECYCLED PRODUCT COST
Paving Material & Base		$ _____	$ _____
Sub-Base		$ _____	$ _____
Previous Backfill Material		$ _____	$ _____

G. APPRENTICESHIP AGREEMENT PREFERENCE

The estimated value of the public works contract is $250,000 or more and the apprenticeship agreement preference pursuant to Hawaii Revised Statutes §103-55.6 (Act 17, SLH 2009) shall apply. Complete self-certification form below.

IMPORTANT: THIS SECTION MUST BE COMPLETED BY ALL BIDDERS REQUESTING THE APPRENTICESHIP PROGRAM PREFERENCE.

By submission of this offer, the Bidder certifies that it has indicated all apprenticeable trades it will employ for this project (excluding subcontractors) by checking all applicable boxes below:

- ☐ Bricklayer/Mason
- ☐ Carpenter
- ☐ Cement Finisher
- ☐ Construction Craft Laborer
- ☐ Construction Equip Operator
- ☐ Drywall
- ☐ Electrician
- ☐ Elevator Constructor
- ☐ Fire Sprinkler Fitter
- ☐ Floor Layer
- ☐ Glazier
- ☐ Heat & Frost Asbestos Insulator
- ☐ Heavy Duty Repairman/Welder
- ☐ Ironworker
- ☐ Painter
- ☐ Paving Equip Operator
- ☐ Plasterer
- ☐ Plumber
- ☐ Pointer/Caulker/Weatherproofer
- ☐ Refrig/AC
- ☐ Roofer
- ☐ Sheet Metal Worker

☐ Steamfitter/Welder
☐ Stone Mason
☐ Taper
☐ Telecommunication/CATV
☐ Tile Setter Installer Technician
☐ Truck Operator

The Contractor **must** submit a complete, valid Form1 for each apprencticeable trade indicated above to qualify for the preference.

H. OTHER CONDITIONS

1. Bidder agrees to pay liquidated damages as specified in SECTION 00800 - SPECIAL CONDITIONS.

2. Bidder declares that its firm was not assisted or represented by an individual who has, in a State capacity, been involved in this project or this proposed contract in the past two consecutive years.

3. **Anti-collusion Certification** - In accordance with §3-122-192 (HAR), the bidder declares that the price submitted for this bid is independently arrived at without collusion.

4. **Certification for Safety and Health Programs for Offers in excess of $100,000** - In accordance with HRS 396-18, the bidder certifies that its organization will have a written safety and health plan for this project that will be available and implemented by the date when onsite construction starts. Bidder may obtain the requirements for the safety plan from the Department of Labor and Industrial Relations, Occupational, Safety and Health Division (HIOSH).

5. **Labor and Wage Certification** (Chapter 104 HRS) - For projects in excess of $2,000, the bidder shall comply with the requirements of Chapter 104 HRS, “Wages and Hours of Employment on Public Works Construction Projects” and shall certify that:
   a. Individuals engaged in the performance of the contract on the job site shall not be paid less than wages the Director of Labor and Industrial Relations determines to be prevailing for corresponding classes of laborers and mechanics employed on public works projects, including any periodic adjustments to the prevailing wages during the performance of the contract; and

   b. Overtime compensation shall be at one and one-half times the basic hourly rate plus fringe benefits for hours worked on Saturday, Sunday, or legal holiday of the State or in excess of eight hours on any other day; and

   c. 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.

6. Upon the acceptance of the bid by the Procurement Officer, the bidder must enter into and execute a contract and furnish a performance and payment bond. These bonds shall conform to the provisions of HRS Sections 103D-324 and 325, and any law applicable thereto.

7. **Compliance with §103D-310 HRS**: Bidder shall be incorporated or organized under the laws of the State or registered to do business in the State as a separate branch or division that is capable of fully performing under the contract.

I. LISTING JOINT CONTRACTORS OR SUBCONTRACTORS (HRS, 103D-302)

It is the sole responsibility of the bidder to review the requirements of this project and determine the appropriate specialty contractor's licenses that are required to complete the project. The bidder acknowledges that as a general contractor ('A' or 'B' license) the bidder is prohibited from undertaking any work solely or as part of a larger project, which would require the bidder ('A' or 'B' general contractor) to act as a specialty ('C' license) contractor in any area in which the bidder ('A' or 'B' general contractor) has no specialty contractor's license. The bidder ('A' or 'B' general contractor) must have the appropriate 'C' specialty contractor's licenses either obtained on its own, or obtained automatically under HAR §16-77-32.

General Engineering 'A' Contractors automatically have these 'C' specialty contractor's licenses: C-3, C-9, C-10, C-17, C-24, C-31a, C-32, C-35, C-37a, C-37b, C-38, C-43, C-49, C-56, C-57a, C-57b, and C-61.

General Building 'B' Contractors automatically have these 'C' specialty contractor's licenses: C-5, C-6, C-10, C-12, C-24, C-25, C-31a, C-32a, C-42a, and C-42b.

Bidder agrees the completed listing of joint contractors or subcontractors is required for the project and that the bidder, together with the listed joint contractors and subcontractors, have all the specialty contractor's licenses to complete the work.

Joint Contractors or Subcontractors List

{BIDDER'S INSTRUCTIONS: Refer to SECTION 00210 - INSTRUCTIONS TO BIDDERS for detailed instruction to fill out this list. Write in the complete firm name and nature of work to be performed by the required joint contractor or subcontractor.}

COMPLETE FIRM NAME JOINT CONTRACTOR OR SUBCONTRACTOR	NATURE OF WORK TO BE PERFORMED

J. LIQUIDATED DAMAGES

Liquidated damages in the sum stated in the Special Conditions will be deducted from the Contractor's final payment if the work is not completed within the time specified in this solicitation and any time extensions granted in writing to the Contractor by the State.

K. COMPENSATION

All payments shall be made in the manner and at the times indicated in the Contract Documents.

It is understood and agreed that the compensation paid by the State to the Contractor shall include all expenses incurred by the Contractor for all loss or damage arising out of the nature of the work, from the action of the elements, or from any delay or unforeseen obstruction or difficulty encountered in the prosecution of the work; for all risks of every description connected with the work; and for all expenses incurred by or in consequence of the suspension or discontinuation of the work, except as set forth in the General Conditions.

It is further agreed by the parties that any portion of the Contract price payable to the Contractor out of federal funds shall be paid to the Contractor only when such federal funds are received, and this contract shall not be construed as binding the State to pay said portion out of any fund other than those which are received from the Federal government.

L. GUARANTY OF WORK

The Contractor agrees to guaranty all work under this Contract for the period(s) stipulated in the Contract Documents from the project acceptance date.

If any unsatisfactory condition or damage develops within the time of this guaranty due to materials or workmanship that are deficient, inferior, or not in accordance with the contract, the Contractor shall, when notified by the State, immediately place such guaranteed work in a condition satisfactory to the State and make repairs of all damage to the buildings, equipment and grounds made necessary in fulfillment of the guaranty. Everything necessary for the fulfillment of any guaranty shall be done without any expense to the State. It is understood that the performance and payment bond furnished by the Contractor under this Contract may be used to secure performance of Contractor's guaranty.

M. CONTRACT DOCUMENTS

It is understood and agreed that the following documents, and any amendments or addenda thereto, comprise this contract and are fully a part of this Contract as though attached hereto or set forth at length herein: (1) Contractor's accepted proposal; (2) General Conditions; (3) Drawings; (4) Specifications, including the Notice to Bidders, Instructions to Bidders, and Special Conditions, Addenda, Bid Clarifications, if any; (5) Combination Performance and Labor and Material Payment Bond; and (6) this Contract Agreement.

N. ENTIRE AGREEMENT

This Contract is the entire agreement between parties, and no alterations, changes, or additions thereto shall be made, except in writing approved by the parties.

O. ATTACHMENTS TO BE PROVIDED BY OFFER AS APPLICABLE

- ☐ Corporate Resolution
- ☐ Certificate of Vendor Compliance (HCE)
- ☐ Surety Bid Bond
- ☐ Power of Attorney

END OF SECTION

SECTION 00700 - GENERAL CONDITIONS

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

A. The publication by the Public Works Division, Department of Accounting and General Services, State of Hawaii, titled "INTERIM GENERAL CONDITIONS 1999 Edition," known as the "GENERAL CONDITIONS", forms part of the State of Hawaii Contract between the Contractor and the State of Hawaii. The GENERAL CONDITIONS are not physically included with these specifications, but are included by reference. Copies of the GENERAL CONDITIONS may be obtained from the Department of Accounting and General Services, Public Works Division, Oahu Office, State of Hawaii, fourth floor of the Kalanimoku Building, Room 422, 1151 Punchbowl Street, Honolulu, Hawaii or at the DAGS District Offices on Kauai, Maui and Hawaii. GENERAL CONDITIONS are also available for download at:
http://pwd.hawaii.gov/wp-content/uploads/2014/12/InterimGeneralConditions1999Edition.pdf.

B. The GENERAL CONDITIONS and SECTION 00800 - SPECIAL CONDITIONS shall govern the Work specified in all DIVISIONS and SECTIONS.

C. Wherever the term 'Interim General Conditions' appears in the Contract Documents, it shall be replaced with the term "GENERAL CONDITIONS."

1.02 REVISIONS TO THE GENERAL CONDITIONS - The following changes shall govern over the respective items in the published "INTERIM GENERAL CONDITIONS, 1999 Edition."

A. Under ARTICLE 1 - DEFINITIONS, replace existing sections (1.4, 1.5, 1.9, 1.11, 1.12, 1.18, 1.24, 1.26, 1.28, 1.37, 1.43, 1.44, 1.49, and 1.50 respectively) and add new sections (1.65 through 1.76 respectively):

"**1.4 ADMINISTRATOR** - Administrative Director of the Courts

1.5 ADVERTISEMENT - A public announcement soliciting bids or offers.

1.9 BID - See Offer.

1.11 BIDDER - See Offeror.

1.12 BIDDING DOCUMENTS (or SOLICITATION DOCUMENTS) - The advertisement solicitation notice and instructions, Offer requirements, Offer forms, and the proposed contract documents including all addenda, and clarifications issued prior to receipt of the Offer.

1.18 COMPTROLLER – Administrative Director of the Courts.

1.24 CONTRACT TIME (or CONTRACT DURATION) - The number of calendar (or working) days provided for completion of the contract, inclusive of authorized time extensions. The number of days shall begin

running on the effective date in the Notice to Proceed. If in lieu of providing a number of calendar (or working) days, the contract requires completion by a certain date, the work shall be completed by that date.

1.26 DEPARTMENT – The Judiciary

1.28 ENGINEER – The Administrative Director of the Courts, or the authorized person to act in the Administrator's behalf.

1.37 INSPECTOR - The person assigned by the Contracting Officer to inspect and monitor construction operations.

1.43 NOTICE TO CONTRACTORS - See Solicitation.

1.44 NOTICE TO PROCEED - A written notice from the Department to the Contractor establishing the applicable Contract Duration, Project Start Date, Jobsite Start Date, Jobsite Completion Date, and Contract Completion Date.

1.49 PROPOSAL (Bid) - See Offer (or Bid).

1.50 PROPOSAL FORM - See Offer Form (or Bid Form).

1.65 CONTRACTING OFFICER - See Engineer.

1.66 JOBSITE START DATE - The date when on-site construction may start.

1.67 JOBSITE COMPLETION DATE - The date when on-site construction must be completed.

1.68 OFFER (or BID) - The executed document submitted by an Offeror 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.

1.69 OFFEROR (or BIDDER) - Any individual, partnership, firm, corporation, joint venture or other legal entity submitting directly or through a duly authorized representative or agent, an Offer for the work or construction contemplated.

1.70 OFFER FORM (or BID FORM) - The form prepared by the Department on which the Offeror submits the written offer or bid. By submitting an offer or bid, the Offeror adopts the language on the form as its own.

1.71 PROJECT CONTROL BUDGET -The amount of funds set aside for the construction of the Project.

1.72 PROJECT START DATE - The date established in the Notice to Proceed when the Contractor shall begin prosecution of the work and the start of contract time.

1.73 RESIDENT – A person who is physically present in the State of Hawaii at the time the person claims to have established the person's domicile in the State of Hawaii and shows the person's intent is to make Hawaii the person's primary residence.

1.74 SHORTAGE TRADE – A construction trade in which there is a shortage of Hawaii residents qualified to work in the trade as determined by the Department of Labor and Industrial Relations.

1.75 SOLICITATION - An Invitation to Bid or Request for Proposals or any other document issued by the Department to solicit bids or offers to perform a contract. The solicitation may indicate the time and place to receive the bids or offers and the location, nature and character of the work, construction or materials to be provided."

1.76 PUBLIC WORKS ADMINISTRATOR - See Engineer.

B. Under ARTICLE 2 – PROPOSAL REQUIREMENTS AND CONDITIONS, modify section 2.1 – QUALIFICATION OF BIDDERS, by deleting 2.1.1, through 2.1.2.8 and substitute the following 2.1.1 through 2.1.2:

"**2.1.1 Notice of Intention to Bid**

2.1.1.1 In accordance with section 103D-310, Hawaii Revised Statutes, and Section 3-122-111, Hawaii Administrative Rules, a written notice of intention to bid need not be filed for construction of any public building or public work. A written notice of intention to bid need not be filed for mere furnishing and installing of furniture, equipment, appliances, material and any combination of these items when a Contractor's license is not required under Chapter 444 of the Hawaii Revised Statutes, as amended, and the rules and regulations of the Contractor's License Board.

2.1.1.2 If two (2) or more prospective bidders desire to bid jointly as a joint venture on a single project, they must file an affidavit of joint venture. Such affidavit of joint venture will be valid only for the specific project for which it is filed. No further license is required when all parties to the joint venture possess current and appropriate contractor's licenses. Joint ventures are required to be licensed in accordance with Chapter 444 of the Hawaii Revised Statutes, as amended, and the rules and regulations of the Contractor's License Board when any party to the joint venture agreement does not hold a current or appropriate contractor's license. The joint venture must register with the office of the Director of Commerce and Consumer Affairs in accordance Chapter 425 of the Hawaii Revised Statutes, as amended.

2.1.1.3 No persons, firm or corporation may bid where (1) the person, firm, or corporation, or (2) a corporation owned substantially by the person, firm, or corporation, or (3) a substantial stockholder or an officer of the corporation, or (4) a partner or substantial investor in the firm is in arrears in any payment owned to the State of Hawaii or any of its political subdivisions or is in default of any obligation to the State of Hawaii or to all or to any of its political

subdivisions, including default as a surety or failure to perform faithfully and diligently any previous contract with the Department.

2.1.2 Compliance Certificate 103D-310(c), Hawaii Revised Statutes – The Contractors are required to provide proof of compliance in order to receive a contract of $25,000 or more. To meet this requirement, Bidders may apply and register at the "Hawaii Compliance Express" website: http://vendors.ehawaii.gov/hce/splash/welcome.html

C. Under ARTICLE 2 - PROPOSAL REQUIREMENTS AND CONDITIONS, modify section 2.6 - SUBSTITUTION OF MATERIALS AND EQUIPMENT BEFORE BID OPENING, by renaming section 2.6 SUBSTITUTION BEFORE CONTRACT AWARD and deleting subsections 2.6.1, through 2.6.6 and substitute the following three new subsections and related paragraphs 2.6.1 through 2.6.3:

"**2.6.1** For Substitutions after the Letter of Award is issued; refer to Section 6.3 SUBSTITUTION AFTER CONTRACT AWARD.

2.6.2 Unless specifically required otherwise in the contract documents, Offerors shall not submit products, materials, equipment, articles or systems for review or approval prior to submitting their Offers.

2.6.3 Offerors shall prepare their Offer forms based on the performance requirements of the materials, equipment, articles or systems noted on the drawings and specifications. If trade names, makes, catalog numbers or brand names are specified, Offerors shall infer that these items indicate the quality, style, appearance or performance of the material, equipment, article, or systems to be used in the project."

D. Under ARTICLE 2 – PROPOSAL REQUIREMENTS AND CONDITIONS, modify section 2.7 – PREPARATION OF PROPOSAL, by deleting subsection 2.7.3 and substituting the following 2.7.3:

"**2.7.3** Pursuant to the requirements of Section 103D-302, HRS, each Bidder shall include in its bid the name of each person or firm to be engaged by the Bidder on the project as joint contractor or subcontractor indicating also the nature and scope of work to be performed by such joint contractor and/or subcontractor. If the Bidder fails to list a joint contractor or subcontractor, the State may accept the bid if it is in the State's best interest and the value of the work to be performed by the joint contractor or subcontractor is equal to or less than one percent of the total bid amount. The Bidder shall be solely responsible for verifying that their joint contractor or subcontractor has the proper license at the time of the submitted bid."

E. Under ARTICLE 2 – PROPOSAL REQUIREMENTS AND CONDITIONS, modify section 2.8 – BID SECURITY Section 3-122-223(d) HAR, by deleting subsection 2.8.1 and substituting the following 2.8.1:

"2.8.1 Subject to the exceptions in Section 3.122.223(d) HAR, all lump sum base bids of $250,000 and higher, or lump sum base bids including alternates of

$250,000 and higher, that are not accompanied by bid security are non-responsive. Bid security shall be one of the following: Section 3-122-222(a) HAR"

F. Under ARTICLE 2 – PROPOSAL REQUIREMENTS AND CONDITIONS, modify section 2.13 – PROTEST, by deleting subsections 2.13.2 and 2.13.3 and substituting the following 2.13.2 & 2.13.3:

"2.13.2 No Protest based upon the contents of the solicitation shall be considered unless it is submitted in writing to the Public Works Administrator prior to the date set for the receipt of proposals.

2.13.3 A protest of an award or proposed award pursuant to §103D-302 or §103D-303, HRS, shall be submitted in writing to the Public Works Administrator within five (5) working days after the posting of the award of the Contract."

G. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, replace section 3.2.8 with the following:

"**3.2.8** Where there is an incomplete or ambiguous listing of joint contractors and/or subcontractors, the offer may be rejected. Bidders are solely responsible to ensure that their subcontractor listing is complete (i.e. all work which is not listed as being performed by joint contractors and/or subcontractors can be performed by the bidder using its license(s)). Additions to the subcontractor listing by the bidder will not be allowed after bid opening. When there is an ambiguity, as determined by Judiciary, as to the completeness of the listing, Judiciary reserves the right to seek information from the bidder to determine whether, in Judiciary's discretion, the listing is an error that may be forgiven."

H. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.3 CORRECTION OF BIDS AND WITHDRAWAL OF BIDS §3-122-31 HAR, by deleting subsection 3.3.2 and substituting the following 3.3.2:

"**3.3.2** Withdrawal of bids after bid opening but prior to award may be made when the bid contains a mistake attributable to an obvious error which affects price, quantity, quality, delivery, or contractual conditions, and the bidder requests withdrawal in writing by submitting proof of evidentiary value which demonstrates that a mistake was made. The Comptroller shall prepare a written approval or denial in response to this request."

I. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.4 AWARD OF CONTRACT, by deleting subsection 3.4.4 and substituting the following 3.4.4:

"**3.4.4** The contract will be drawn on the offer forms and accepted by the Comptroller. The contract will not be binding upon the Department until all required signatures have been affixed thereto and written certification that funds are available for the work has been made."

J. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.7 REQUIREMENT OF PERFORMANCE AND PAYMENT BONDS by deleting subsections 3.7.1, 3.7.1.2, and 3.7.1.3 and substituting the following new subsections 3.7.1, 3.7.1.1, and 3.7.1.2:

"3.7.1 Performance and Payment Bonds shall be required for contracts $25,000 and higher. At the time of contract award, the successful Bidder shall file good and sufficient performance and payment bonds on the form furnished by the Department (see Appendix), each in an amount equal to one hundred percent (100%) of the amount of the contract price unless otherwise stated in the solicitation of bids. Acceptable performance and payment bonds shall be limited to the following:

3.7.1.1 Surety bonds underwritten by a company licensed to issue bonds in this State; or

3.7.1.2 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, and payable on demand to the State by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration.

(a) These instruments may be utilized only to a maximum of $100,000.

(b) If the required amount totals over $100,000, more than one instrument not exceeding $100,000 each and issued by different financial institutions shall be acceptable."

K. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.7 REQUIREMENT OF PERFORMANCE AND PAYMENT BONDS by adding the following new subsection 3.7.3:

"3.7.3 For additional Performance and Payment Bond requirements due to changes in the contract amount after contract award, see section 4.2.4.2 Additional Performance and Payment Bond Increases."

L. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, add new Section 3.8 as follows:

"**3.8 CAMPAIGN CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS** - Contractors are hereby notified of the applicability of Section 11-355 HRS, 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."

M. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.8 EXECUTION OF THE CONTRACT, by renumbering the section number to 3.9, related subsection numbers to 3.9.1, 3.9.2 , by deleting former subsection 3.8.1 and substituting the following new 3.9.1:

"**3.9.1** Upon acceptance of the successful bidder's offer by the Comptroller, the Contractor shall provide satisfactory performance and payment bonds within ten (10) calendar days after award of the contract or within such further time as granted by the Comptroller. No proposal or contract shall be considered binding

upon the State until the contract has been fully and properly executed by all parties thereto and the Comptroller has endorsed thereon its certificate, as required by Section 103D-309, HRS, that there is an available unexpended appropriation or balance of an appropriation over and above all outstanding contracts sufficient to cover the State's amount required by such contract."

N. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.9 FAILURE TO EXECUTE THE CONTRACT, by renumbering the section number to 3.10, related subsection numbers to 3.10.1, 3.10.2, 3.10.3, by deleting former subsection 3.9.2 and substituting the following new 3.10.2:

"**3.10.2 After the Award** – If the Bidder to whom contract is awarded shall fail or neglect to furnish satisfactory security within ten (10) calendar days after such award or within such further time as the Comptroller may allow, the State shall be entitled to recover from such Bidder its actual damages, including but not limited to the difference between the bid and the next lowest responsive bid, as well as personnel and administrative costs, consulting and legal fees and other expenses incurred in arranging a contract with the next low responsive bidder or calling for new bids. The State may apply all or part of the amount of the bid security to reduce damages. If upon determination by the State of the amount of its damages the bid security exceeds that amount, it shall release or return the excess to the person who provided same."

O. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, renumber Section 3.10 NOTICE TO PROCEED and related subsection numbers to 3.11, 3.11.1, 3.11.2, 3.11.3 and 3.11.4.

P. Under ARTICLE 4 - SCOPE OF WORK, modify Section 4.2 CHANGES, by deleting subsection 4.2.4.2 and substituting the following new subsection 4.2.4.2:

"4.2.4.2 Performance and Payment Bond Increases. When the contract price is increased, performance and payment bonds shall each be increased in amounts equal to one hundred percent (100%) of the increase in contract price. The Contractor is responsible to increase the penal amounts of each of the existing bonds or to obtain additional bonds in order to secure additional protection for the Department.

(a) Upon request of the Contracting Officer, the Contractor shall provide evidence in the form of a Bond Rider (See attached form at the end of Section 00700 – General Conditions) from the surety documenting the additional performance and payment bond protections.

(b) If the Contractor fails to deliver the required additional performance and payment bonds, the Department shall have remedies provided under Section 7.27 Termination of Contract for Cause."

Q. Under ARTICLE 4 - SCOPE OF WORK, modify Section 4.2 CHANGES, by deleting subsection 4.2.4.3 and substituting the following two new subsections:

"4.2.4.3 Upon receipt of a change order, that the Contractor does not agree with any of the terms or conditions or the adjustments or non adjustments of

the contract price or contract time; the Contractor shall not execute or sign the change order, but shall return the unsigned change order, along with a written notification of the conditions or items that are in dispute.

4.2.4.4 If the Contractor signs or executes the change order, this constitutes an agreement on the part of the Contractor with the terms and conditions of the change order. A change order that is mutually agreed to and signed by the parties of the contract constitutes a contract modification."

R. Under ARTICLE 4 - SCOPE OF WORK, modify section 4.2 CHANGES, by adding the following three new subsections 4.2.5 through 4.2.7:

"**4.2.5 Claim Notification** - The Contractor shall file a notice of intent to claim for a disputed change order within 30 calendar days after receipt of the written order. Failure to file the protest within the time specified constitutes an agreement on the part of the Contractor with the terms, conditions, amounts and adjustment or non-adjustment to contract price or contract time set forth in the disputed change order. The requirement for timely written notice shall be a condition precedent to the assertion of a claim.

4.2.6 Proceeding with Directed Work - Upon receipt of a contract modification, change order, or field order, the Contractor shall proceed with the directed changes and instructions. The Contractor's right to make a claim for additional compensation or an extension of time for completion is not affected by proceeding with the changes and instructions described in a change order and field order.

4.2.7 Pricing or Negotiating Costs Not Allowed - The Contractor's cost of responding to requests for price or time adjustments is included in the contract price. No additional compensation will be allowed unless authorized by the Contracting Officer."

S. Under ARTICLE 4 - SCOPE OF WORK, modify section 4.3 Duty of Contractor to Provide Proposal for Changes, by deleting subsection 4.3.4.

T. Under ARTICLE 4 - SCOPE OF WORK, modify section 4.4 PRICE ADJUSTMENT, by deleting subsection 4.4.1 and substituting subsection 4.4.1 and adding a new subsection 4.4.2 and modify section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT, by deleting subsections 4.5.1, 4.5.2 and 4.5.3 and substituting subsections 4.5.1, 4.5.2 and 4.5.3 as follows:

"4.4 PRICE ADJUSTMENT HRS 103D-501

4.4.1 A fully executed change order or other document permitting billing for the adjustment in price under any method listed in paragraphs (4.4.1.1) through (4.4.1.5) shall be issued within ten days after agreement on the price adjustment. Any adjustment in the contract price pursuant to a change or claim in this contract shall be made in one or more of the following ways:

4.4.1.1 By agreement to a fixed price adjustment before commencement of the pertinent performance;

4.4.1.2 By unit prices specified in the contract or subsequently agreed upon before commencement of the pertinent performance;

4.4.1.3 Whenever there is a variation in quantity for any work covered by any line item in the schedule of costs submitted as required by Section 7.2 COMMENCEMENT REQUIREMENTS, by the Department at its discretion, adjusting the lump sum price proportionately;

4.4.1.4 FORCE ACCOUNT METHOD. At the sole option of the Contracting Officer, by the costs attributable to the event or situation covered by the change, plus appropriate profit or fee, all as specified in Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT and the force account provision of Section 8.3 PAYMENT FOR ADDITIONAL WORK before commencement of the pertinent performance;

4.4.1.5 In such other manner as the parties may mutually agree upon before commencement of the pertinent performance; or

4.4.1.6 In the absence of an agreement between the two parties:

4.4.1.6.a For change orders with value not exceeding $50,000 by documented actual costs of the work, allowing for overhead and profit as set forth in Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT. A change order shall be issued within fifteen days of submission by the contractor of proper documentation of completed force account work, whether periodic (conforming to the applicable billing cycle) or final. The contracting officer shall return any documentation that is defective to the contractor within fifteen days after receipt, with a statement identifying the defect; or

4.4.1.6.b For change orders with value exceeding $50,000 by a unilateral determination by the Contracting Officer of the reasonable and necessary costs attributable to the event or situation covered by the change, plus appropriate profit or fee, all as computed by the Contracting Officer in accordance with applicable sections of Chapters 3-123 and 3-126 of the Hawaii Administrative Rules, and Section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT. When a unilateral determination has been made, a unilateral change order shall be issued within ten days. Upon receipt of the unilateral change order, if the contractor does not agree with any of the terms or conditions, or the adjustment or nonadjustment of the contract time or contract price, the contractor shall file a notice of intent to claim within thirty days after the receipt of the written unilateral change order. Failure to file a protest within the time specified shall constitute agreement on the part of the contractor with the terms, conditions, amounts, and adjustment or nonadjustment of the contract time or the contract price set forth in the unilateral change order.

4.4.2 Cost or Pricing Data - Contractor shall provide and certify cost or pricing data for any price adjustment to a contract involving aggregate increases and decreases in costs plus applicable profits expected to exceed $100,000. The certified cost or pricing data shall be subject to the provisions of HAR chapter 3-122, subchapter 15.

4.5 ALLOWANCES FOR OVERHEAD AND PROFIT HRS103D-501

4.5.1 In determining the cost or credit to the Department resulting from a change, the allowances for all overhead, including, extended overhead resulting from adjustments to contract time (including home office, branch office and field overhead, and related delay impact costs) and profit combined, shall not exceed the percentages set forth below:

4.5.1.1 For the Contractor, for any work performed by its own labor forces, twenty percent (20%) of the direct cost;

4.5.1.2 For each subcontractor involved, for any work performed by its own forces, twenty percent (20%) of the direct cost;

4.5.1.3 For the Contractor or any subcontractor, for work performed by their subcontractors, ten percent (10%) of the amount due the performing subcontractor.

4.5.2 Not more than three markup allowance line item additions not exceeding the maximum percentage shown above will be allowed for profit and overhead, regardless of the number of tier subcontractors.

4.5.3 The allowance percentages will be applied to all credits and to the net increase of direct costs where work is added and deleted by the changes."

U. Under ARTICLE 5 - CONTROL OF THE WORK, modify section 5.4 SHOP DRAWINGS AND OTHER SUBMITTALS, by deleting subsection 5.4.14 and 5.4.15 and substitute the following new subsections:

"5.4.1.4 Descriptive Sheets and Other Submittals - When a submittal is required by the contract, the Contractor shall submit to the Contracting Officer five (5) complete sets of descriptive sheets such as shop drawings, brochures, catalogs, illustrations, calculation, material safety data sheets (MSDS), certificates, reports, warranty, etc., which will completely describe the material, product, equipment, furniture or appliance to be used in the project as shown in the drawings and specifications and how it will be integrated into adjoining construction. Prior to the submittal, the Contractor shall review and check all submittal sheets for conformity to the contract requirements and indicate such conformity by marking or stamping and signing each sheet. Where descriptive sheets include materials, systems, options, accessories, etc. that do not apply to this contract, non-relevant items shall be crossed out so that all remaining information will be considered applicable to this contract. It is the responsibility of the Contractor to submit descriptive sheets for review and acceptance by the Contracting Officer as required at the earliest possible date after the date of award in order to meet the Contract Duration. Delays caused by the failure of the Contractor to submit descriptive sheets as required will not be considered as justification for contract time extension.

5.4.1.5 Material Samples and Color Samples - When material and color sample submittals are required by the contract, the Contractor shall submit to the Contracting Officer no less than three (3) samples conforming to Section 6.6 MATERIAL SAMPLES. One sample will be retained by the Consultant, one sample will be retained by the State, and the remaining sample(s) will be

returned to the Contractor. Prior to the material and color submittal, the Contractor shall review and check all samples for conformity to the contract requirements and indicate such conformity by marking or stamping and signing each sample. It is the responsibility of the Contractor to submit samples for review and acceptance by the Contracting Officer as required at the earliest possible date after the date of award in order to meet the Contract Duration. Delays caused by the failure of the Contractor to submit material and color samples as required will not be considered as justification for contract time extension.

5.4.1.6 Unless the technical sections (Divisions 2 - 16) specifically require the Contractor furnish a greater quantity of shop drawings and other submittals, the Contractor shall furnish the quantities required by this section."

V. Under ARTICLE 5 - CONTROL OF THE WORK, modify section 5.8 COOPERATION BETWEEN THE CONTRACTOR AND THE DEPARTMENT, by deleting the subsection 5.8.1 and substitute the following new subsection 5.8.1:

"**5.8.1 Furnishing Drawings and Specifications** - The Judiciary will not furnish hard copies of contract plans and specifications to Contractors. Contractors who receive award for projects through HIePro shall download the files of drawings and specifications from the HIePro website:
https://hiepro.ehawaii.gov/welcome.html,
and make their own hard copies. Contractors who receive award for projects through Invitations for Bid shall download the files for drawings and specifications from the Judiciary website:
http://www.courts.state.hi.us/fiscal/IFB_RFP/FY_2015%20IFB%20RFP
or the State Procurement Office website:
https://hands.ehawaii.gov/hands/admin/search/opportunity/14097,
and make their own hard copies. Contractor shall have and maintain at least one hard copy of the Contract Drawings and Specifications on the work site, at all times."

W. Under ARTICLE 5 - CONTROL OF THE WORK, modify section 5.12 SUBCONTRACTS, by deleting the subsection 5.12 and related paragraphs and substitute the following new subsection 5.12 and related paragraphs:

"**5.12 SUBCONTRACTS -** Nothing contained in the contract documents shall create a contractual relationship between the State and any subcontractor. The contractor may subcontract a portion of the work but the contractor shall remain responsible for the work that is subcontracted.

5.12.1 Replacing Subcontractors - Contractors may enter into subcontracts only with subcontractors listed in the offer form. The contractor will be allowed to replace a listed subcontractor if the subcontractor:

5.12.1.1 Fails, refuses or is unable to enter into a subcontract consistent with the terms and conditions of the subcontractor's offer presented to the contractor; or

5.12.1.2 Becomes insolvent; or

5.12.1.3 Has any license or certification necessary for performance of the work suspended or revoked; or

5.12.1.4 Has defaulted or has otherwise breached the subcontract in connection with the subcontracted work; or

5.12.1.5 Agrees to be substituted by providing a written release; or

5.12.1.6 Is unable or refuses to comply with other requirements of law applicable to contractors, subcontractors, and public works projects.

5.12.2 Notice of Replacing Subcontractor - The Contractor shall provide a written notice to the Contracting Officer when it replaces a subcontractor, including in the notice, the reasons for replacement. The Contractor agrees to defend, hold harmless, and indemnify the State against all claims, liabilities, or damages whatsoever, including attorney's fees, arising out of or related to the replacement of a subcontractor.

5.12.3 Adding Subcontractors - The Contractor may enter into a subcontract with a subcontractor that is not listed in the offer form only after this contract becomes enforceable.

5.12.4 Subcontracting - Contractor shall perform with its own organization, work amounting to not less than twenty (20%) of the total contract cost, exclusive of costs for materials and equipment the Contractor purchases for installation by its subcontractors, except that any items designated by the State in the contract as "specialty items" may be performed by a subcontract and the cost of any such specialty items so performed by the subcontract may be deducted from the total contract cost before computing the amount of work required to be performed by the Contractor with its own organization."

X. Under ARTICLE 6 - CONTROL OF MATERIALS AND EQUIPMENT, Modify Section 6.3 SUBSTITUTION OF MATERIALS AND EQUIPMENT AFTER BID OPENINGS, by renaming section 6.3 SUBSTITUTION AFTER CONTRACT AWARD and by deleting subsections 6.3.1 through 6.3.3 and related paragraphs, and substitute the following two new subsections 6.3.1 and 6.3.2 and related paragraphs:

"**6.3.1** Materials, equipment, articles and systems noted on the drawings and specifications, establish a standard of quality, function, performance or design requirements and shall not be interpreted to limit competition. Should trade names, makes, catalog numbers or brand names be specified, the contractor shall infer that these items indicate the quality, style, appearance or performance of the material, equipment, article, or systems to be used in the project. The contractor is responsible to use materials, equipment, articles or systems that meet the project requirements. Unless specifically provided otherwise in the contract documents, the contractor may, at its option, use any material, equipment, article or system that, in the judgment of the Contracting Officer, is equal to that required by the contract documents.

6.3.1.1 If after installing a material, equipment, article or system a variance is discovered, the contractor shall immediately replace the material, equipment, article or system with one that meets the requirements of the contract documents.

6.3.2 Substitution After Contract Award - Subject to the Contracting Officer's determination; material, equipment, article or system with a variant feature(s) may be allowed as a substitution, provided it is in the State's best interest. The State may deny a substitution; and if a substitution is denied, the Contractor is not entitled to any additional compensation or time extension.

6.3.2.1 The Contractor shall include with the submittal, a notification that identifies all deviations or variances from the contract documents. The notice shall be in a written form separate from the submittal. The variances shall be clearly shown on the shop drawing, descriptive sheet, and material sample or color sample; and the Contractor shall certify that the substitution has no other variant features. Failures to identify the variances are grounds to reject the related work or materials, notwithstanding that the Contracting Officer accepted the submittal. If the variances are not acceptable to the Contracting Officer, the Contractor will be required to furnish the item as specified on the contract documents at no additional cost or time.

6.3.2.2 Acceptance of a variance shall not justify a contract price or time adjustment unless the Contractor requests an adjustment at the time of submittal and the adjustments are explicitly agreed to in writing by the Contracting Officer. Any request shall include price details and proposed scheduling modifications. Acceptance of a variance is subject to all contract terms, and is without prejudice to all rights under the surety bond.

6.3.2.3 The Contractor can recommend improvements to the project, for materials, equipment, articles, or systems by means of a substitution request, even if the improvements are at an additional cost. The Contracting Officer shall make the final determination to accept or reject the Contractor's proposed improvements. If the proposed material, equipment, article or system cost less than the specified item, the Department will require a sharing of cost similar to value engineering be implemented. State reserves its right to deny a substitution; and if a substitution is denied, the Contractor is not entitled to additional compensation or time extension."

Y. Under Article 7 - PROSECUTION AND PROGRESS, modify section 7.2 SCHEDULE OF PRICES by deleting paragraph 7.2.4.1 and substitute the following paragraph 7.2.4.1:

"7.2.4.1. The Contractor shall estimate at the close of each month the percentage of work completed under each of the various construction items during such month and submit the Monthly Payment Application to the Contracting Officer for review and approval. The Contractor shall be paid the approved percentage of the price established for each item less the retention provided in Section 8.4 PROGRESS PAYMENTS."

Z. Under Article 7 - PROSECUTION AND PROGRESS, add the following paragraph 7.2.4A:

"**7.2.4A Subcontracts.** Upon award of a contract and prior to starting any construction work, the Contractor shall submit to the Contracting Officer a list of all subcontractors and the actual subcontracted dollar amount for each of its subcontractors regardless of the amount of the subcontract. See section 7.39 – Employment of State Residents Requirements."

AA. Under ARTICLE 7 – PROSECUTION AND PROGRESS, modify section 7.2.5 PROOF OF INSURANCE COVERAGE, by deleting subsection 7.2.5 and substitute the following:

"**7.2.5 Proof of Insurance Coverage** - Certificate of Insurance or other documentary evidence satisfactory to the Contracting Officer that the Contractor has in place all insurance coverage required by the contract. The Certificate of Insurance shall contain wording which identifies the Project number and Project title for which the certificate of insurance is issued. Refer to Section 7.3 INSURANCE REQUIREMENTS."

BB. Under ARTICLE 7 – PROSECUTION AND PROGRESS, modify section 7.3 INSURANCE REQUIREMENTS, by deleting subsection 7.3.3 and substitute the following new subsection 7.3.3:

"7.3.3 Certificate(s) of Insurance acceptable to the State shall be filed with the Contracting Officer prior to commencement of the work. Certificates shall identify if the insurance company is a "captive" insurance company or a "Non-Admitted" carrier to the State of Hawaii. The best's rating must be stated for the "Non-Admitted" carrier. Certificates shall contain a provision that coverages being certified will not be cancelled or materially changed without giving the Contracting Officer at least thirty (30) days prior written notice. Should any policy be canceled before final acceptance of the work by the State, and the Contractor fails to immediately procure replacement insurance as specified, the State, in addition to all other remedies it may have for such breach, reserves the right to procure such insurance and deduct the cost thereof from any money due to the Contractor."

CC. Under ARTICLE 7 – PROSECUTION AND PROGRESS, modify section 7.3 INSURANCE REQUIREMENTS, by deleting subsection 7.3.7.2 and substitute the following new subsection 7.3.7.2:

"7.3.7.2 General Liability - The Contractor shall obtain General Liability insurance with a limit of not less than $2,000,000 per occurrence and in the Aggregates. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." The required limit of insurance may be provided by a single policy or with a combination of primary and excess polices. Refer to SPECIAL CONDITIONS for any additional requirements."

DD. Under ARTICLE 7 – PROSECUTION AND PROGRESS, modify section 7.3 INSURANCE REQUIREMENTS, by deleting subsection 7.3.7.3 and substitute the following new subsection 7.3.7.3:

"7.3.7.3 Auto Liability - The Contractor shall obtain Auto Liability Insurance covering all owned, non-owned and hired autos with a Combined single Limit of not less than $1,000,000 per occurrence. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." The required limit of insurance may be provided by a single policy or with a combination of primary and excess polices. Refer to SPECIAL CONDITIONS for any additional requirements."

EE. Under ARTICLE 7 – PROSECUTION AND PROGRESS, modify section 7.3 INSURANCE REQUIREMENTS, by deleting subsection 7.3.7.4 and substitute the following new subsection 7.3.7.4:

"7.3.7.4 Property Insurance (Builders Risk)

(a) New Building(s) - The Contractor shall obtain Property Insurance covering building(s) being constructed under this Contract. The limit shall be equal to the completed value of the building(s) and shall insure against all-loss excluding earthquakes and floods. The coverage shall be provided by a company authorized to write insurance in the State of Hawaii as an insurer. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." Refer to SPECIAL CONDITIONS for any additional requirements.

(b) Building Renovation and / or Installation Contract - The Contractor shall obtain Property Insurance with a limit equal to the completed value of the work or property being installed and shall insure against all-loss excluding earthquakes and floods. The coverage shall be provided by a company authorized to write insurance in the State of Hawaii as an insurer. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." Refer to SPECIAL CONDITIONS for any additional requirements.

(c) The Contractor is not required to obtain property insurance for contracts limited to site development."

FF. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.7 PREVAILING WAGES, by deleting subsection 7.7.4.

GG. Under Article 7 – PROSECUTION AND PROGRESS, add the following section 7.9A – APPRENTICESHIP AGREEMENT CERTIFICATION

"7.9A APPRENTICESHIP AGREEMENT CERTIFICATION (HRS §103-55.6)

7.9A.1 For the duration of a contract awarded and executed utilizing the apprenticeship agreement preference the Contractor shall certify, for each month that work is being conducted on the project, that it continues to be a participant in the relevant registered apprenticeship program for each trade it employs.

7.9A.2 Monthly certification shall be made by completing the *Monthly Report of Contractor's Participation - Form 2* made available by the State Department of Labor and Industrial Relations, the original to be signed by the respective apprenticeship program sponsors authorized official, and submitted by the Contractor to the Engineer with its monthly payment requests. The *Monthly Report of Contractor's Participation - Form 2* available on the DLIR website at: http://labor.hawaii.gov/wdd/files/2012/12/Form-2-Monthly-Report-of-Contractors-Participation.pdf.

7.9A.3 Should the Contractor fail or refuse to submit its Monthly *Report of Contractor's Participation – Form 2*, or at any time during the duration of the contract, cease to be a party to a registered apprenticeship agreement for any of the apprenticeable trades the Contractor employs, or will employ, the Contractor will be subject to the following sanctions:

7.9A.3.1 Withholding of the requested payment until all of the required *Monthly report of Contractor's Participation – Form 2s* are properly completed and submitted.

7.9A.3.2 Temporary or permanent cessation of work on the project, without recourse to breach of contract claims by the Contractor; provided the Department shall be entitled to restitution for nonperformance or liquidated damages claims; or

7.9A.3.3 Proceedings to debar or suspend pursuant to HRS §103D-702.

7.9A.4 If events such as "acts of God," acts of a public enemy, acts of the State or any other governmental body in its sovereign or contractual capacity, fires, floods, epidemics, freight embargoes, unusually severe weather, or strikes or other labor disputes prevent the Contractor from submitting the *Monthly Report of Contractor's Participation – Form 2*, the Contractor shall not be penalized as provided herein, provided the Contractor completely and expeditiously complies with the certification process when the event is over."

HH. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.10 OVERTIME AND NIGHT WORK, by deleting subsection 7.10.2 and substitute the following:

"**7.10.2** Contractor shall notify the Contracting Officer two working days prior to doing overtime and night work, to insure proper inspection will be available. The notification shall address the specific work to be done. A notification is not

required when overtime work and night work are included as normal working hours in the contract and in the contractor's construction schedule."

II. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.11 - OVERTIME AND NIGHT PAYMENT FOR STATE INSPECTION SERVICES, by adding new subsection 7.11.1 and renumbering the existing subsections 7.11.1, 7.11.1.1, 7.11.1.2, 7.11.1.3 and 7.11.2 to read 7.11.2, 7.11.2.1, 7.11.2.2, 7.11.2.3 and 7.11.3 respectively. Change subsection reference number (7.11.1) in subsection 7.11.3 - Payment for Inspection Services to read 7.11.2:

"**7.11.1** The Department is responsible for overtime or night time payments for Department's inspection services, including Department's Inspector, State staff personnel and the Department's Consultant(s) engaged on the project, when overtime and night work are included as normal working hours in the contract and in the contractor's construction schedule."

JJ. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.25 - DISPUTES AND CLAIMS, by deleting subsection 7.25.10 and paragraph 7.25.10.1 and substitute the following:

"**7.25.10 Decision on Claim or Appeal** - The Contracting Officer shall decide all controversies between the State and the Contractor which arise under, or are by virtue of, this contract and which are not resolved by mutual agreement. The decision of the Contracting Officer on the claim shall be final and conclusive, unless fraudulent or unless the contractor delivers to the Comptroller a written appeal of the Contracting Officer's decision no later than 30 days after the date of the Contracting Officer's decision. The Comptroller's decision shall be final and conclusive, unless fraudulent or unless the Contractor brings an action seeking judicial review of the Comptroller's decision in an appropriate circuit court of this State within six months from the date of the Comptroller's decision.

7.25.10.1 If the contractor delivers a written request for a final decision concerning the controversy, the Comptroller shall issue a final decision within 90 days after receipt of such a request; provided that if the Comptroller does not issue a written decision within 90 days, or within such longer period as may be agreed upon by the parties, then the contractor may proceed as if an adverse decision had been received. Both parties to this contract agree that the period of up to 30 days to appeal the Contracting Officer's decision to the Comptroller shall not be included in the 90 day period to issue a final decision."

KK. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.25 - DISPUTES AND CLAIMS, by deleting subsection 7.25.13 Waiver of Attorney's Fees.

LL. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.31 - SUBSTANTIAL COMPLETION, AND FINAL INSPECTION, by deleting paragraph 7.31.2.1 and substitute the following:

"7.31.2.1 The Contracting Officer shall confirm the list of deficiencies noted by the contractor's punchlist(s) and will notify the contractor of any other deficiencies that must be corrected."

MM. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.32 - PROJECT ACCEPTANCE DATE, by adding new paragraph 7.32.4.1 as follows:

"7.32.4.1 Punchlist corrective work shall be completed prior to Contract Completion Date, or extension thereof."

NN. Under ARTICLE 7 - PROSECUTION AND PROGRESS, modify section 7.32 - PROJECT ACCEPTANCE DATE, by deleting subsection 7.32.7 and substitute the following:

"**7.32.7** If the contractor fails to correct the deficiencies within the time established in paragraph 7.32.4.1, the Contracting Officer shall assess liquidated damages as required by section 7.26 - FAILURE TO COMPLETE THE WORK ON TIME."

OO. Under ARTICLE 7 - PROSECUTION AND PROGRESS, add new section 7.39 as follows:

"**7.39 EMPLOYMENT OF STATE RESIDENTS REQUIREMENTS HRS 103B**

7.39.1 A Contractor awarded a contract shall ensure that Hawaii residents comprise not less than 80% of the workforce employed to perform the contract. The 80% requirement shall be determined by dividing the total number of hours worked on the contract by Hawaii 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 purposes of 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.

7.39.2 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 Hawaii residents comprise not less than 80% of the subcontractor's workforce used to perform the subcontract. See also, section 7.2 - Commencement Requirements.

7.39.3 The Contractor, and any subcontractor whose subcontract is $50,000 or more, shall comply with the requirements of this section.

7.39.3.1 Certification of compliance shall be made in writing under oath by an officer of the Contractor and applicable subcontractors and submitted with the final payment request.

7.39.3.2 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. See attached form at the end of Section 00700 – General Conditions.

7.39.3.3 In addition to the certification of compliance as indicated above, the Contractor and any subcontractors shall maintain records such as certified payrolls for laborers and mechanics who performed work at the site and timesheets 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 subcontractors who performed work on the project to validate compliance with this section. The Contractor and Subcontractors shall maintain, retain, and provide access to these records in accordance with Section 7.38 – RECORDS MAINTENANCE, RETENTION AND ACCESS, except that these provisions shall apply to all contracts, regardless of the value of the contract.

7.39.4 A Contractor or applicable subcontractor who fails to comply with this section shall be subject to any of the following sanctions:

7.39.4.1 With respect to the General Contractor, withholding of payment on the contract until the Contractor or its subcontractor complies with this section; or

7.39.4.2 Proceedings for debarment or suspension of the Contractor or subcontractor under Hawaii Revised Statues §103D-702.

7.39.5 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. See Section 00800 - Special Conditions to determine if this section does not apply."

PP. Under ARTICLE 8 – MEASUREMENT AND PAYMENT, Section 8.3 PAYMENT FOR ADDITIONAL WORK, modify clause 8.3.4.5(h) by changing the replacement value from 'five hundred dollars ($500)' to read "$1,000."

QQ. Under ARTICLE 8 - MEASUREMENT AND PAYMENT, Modify section 8.3 PAYMENT FOR ADDITIONAL WORK, by deleting subsection 8.3.1 and substitute the following new subsections and paragraph:

"**8.3.1 Payment for Changed Conditions** - A contract modification or change order complying with section 4.4 PRICE ADJUSTMENT and section 4.5 ALLOWANCES FOR OVERHEAD AND PROFIT shall be issued for all changes that are directed under Section 4.2 CHANGES. No payment for any change including work performed under the force account provisions will be made until a change order is issued or contract modification is executed.

8.3.1.1 At the completion of the force account work or at an intermediate interval approved by the Contracting Officer, the contractor shall submit its force account cost proposal, including; approved daily force account records with any attached invoices or receipt, to the Department for processing a contract modification or change order."

RR. Under Article 8 - MEASUREMENT AND PAYMENT, modify section 8.4 PROGRESS AND/OR PARTIAL PAYMENTS, by deleting section and related SUBSECTIONS 8.4.1 thru 8.4.4.4 and substitute the following new section 8.4 and related subsections 8.4.1 thru 8.4.4.4:

“8.4 PROGRESS PAYMENTS

8.4.1 Progress Payments - The Contractor will be allowed progress payments on a monthly basis upon preparing the Monthly Payment Application forms and submitting them to the Contracting Officer. The monthly payment shall be based on the items of work satisfactorily completed and the value thereof at unit prices and/or lump sum prices set forth in the contract as determined by the Contracting Officer and will be subject to compliance with Section 7.9 PAYROLLS AND PAYROLL RECORDS.

8.4.2 In the event the Contractor or any Subcontractor fails to submit certified copies of payrolls in accordance with the requirements of Section 7.9 PAYROLLS AND PAYROLL RECORDS, the Contracting Officer may retain the amount due for items of work for which payroll affidavits have not been submitted on a timely basis notwithstanding satisfactory completion of the work until such records have been duly submitted. The Contractor shall not be due any interest payment for any amount thus withheld.

8.4.3 Payment for Materials - The Contractor will also be allowed payments of the manufacturer’s, supplier’s, distributor’s or fabricator’s invoice cost of accepted materials to be incorporated in the work on the following conditions:

8.4.3.1 The materials are delivered and properly stored at the site of Work; or

8.4.3.2 For special items of materials accepted by the Contracting Officer, the materials are delivered to the Contractor or subcontractor(s) and properly stored in an acceptable location within a reasonable distance to the site of Work.

8.4.4 Payments shall be made only if the Contracting Officer finds that:

8.4.4.1 The Contractor has submitted bills of sale for the materials or otherwise demonstrates clear title to such materials.

8.4.4.2 The materials are insured for their full replacement value to the benefit of the Department against theft, fire, damages incurred in transportation to the site, and other hazards.

8.4.4.3 The materials are not subject to deterioration.

8.4.4.4 In case of materials stored off the project site, the materials are not commingled with other materials not to be incorporated into the project.”

SS. Under ARTICLE 8 - MEASUREMENT AND PAYMENT, Modify section 8.5 PROMPT PAYMENT, by deleting section 8.5 and related subsections 8.5.1 thru

8.5.6 and substitute the following new section 8.5 and related subsections 8.5.1 thru 8.5.9:

"8.5.1 Any money paid to a Contractor for work performed by a subcontractor shall be disbursed to such subcontractor within ten (10) days after receipt of the money in accordance with the terms of the subcontract; provided that the subcontractor has met all the terms and conditions of the subcontract and there are no bona fide disputes on which the Contracting Officer has withheld payment.

8.5.2 Upon final payment to the Contractor, full payment to all subcontractors shall be made within ten (10) days after receipt of the money, provided there are no bona fide disputes over the subcontractor's performance under the subcontract.

8.5.3 All sums retained or withheld from a subcontractor and otherwise due to the subcontractor for satisfactory performance under the subcontract shall be paid by the contracting officer to the contractor and subsequently, upon receipt from the contracting officer, by the contractor to the subcontractor within the applicable time periods specified in subsection 8.5.2 and section 103-10 HRS:

8.5.3.1 Where a subcontractor has provided evidence to the Contractor of satisfactorily completing all work under their subcontract and has provided a properly documented final payment request as described in subsection (8.5.5) of this section, and:

8.5.3.1.a Has provided to the Contractor an acceptable performance and payment bond for the project executed by a surety company authorized to do business in the State, as provided in section 8.6 RETAINAGE; or

8.5.3.1.b The following has occurred:

8.5.3.1.b.1 A period of ninety days after the day on which the last of the labor was done or performed and the last of the material was furnished or supplied has elapsed without written notice of a claim given to Contractor and the surety, as provided for in section 103D-324 HRS; and

8.5.3.1.b.2 The subcontractor has provided to the Contractor:

8.5.3.1.b.2.1 An acceptable release of retainage bond, executed by a surety company authorized to do business in the State, in an amount of not more than two times the amount being retained or withheld by the Contractor;

8.5.3.1.b.2.2 Any other bond acceptable to the Contractor; or

8.5.3.1.b.2.3 Any other form of mutually acceptable collateral.

8.5.4 If the Contracting Officer or the Contractor fails to pay in accordance with this section, a penalty of one and one-half per cent per month shall be imposed upon the outstanding amounts due that were not timely paid by the responsible party. The penalty may be withheld from future payment due to the contractor, if the Contractor was the responsible party. If a Contractor has violated subsection 8.5.2 three or more times within two years of the first violation, the Contractor

shall be referred by the Contracting Officer to the Contractor License Board for action under section 444-17(14) HRS.

8.5.5 Final Payment Request. A properly documented final payment request from a subcontractor, as required by subsection 8.5.3, shall include:

8.5.5.1 Substantiation of the amounts requested;

8.5.5.2 A certification by the subcontractor, to the best of the subcontractor's knowledge and belief, that:

8.5.5.2.a The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the subcontract;

8.5.5.2.b The subcontractor has made payments due to its subcontractors and suppliers from previous payments received under the subcontract and will make timely payments from the proceeds of the payment covered by the certification, in accordance with their subcontract agreements and the requirements of this section; and

8.5.5.2.c The payment request does not include any amounts that the subcontractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of their subcontract; and

8.5.5.2.d The submission of documentation confirming that all other terms and conditions required under the subcontract agreement have been fully satisfied.

8.5.6 The Contracting Officer shall return any final payment request that is defective to the contractor within seven days after receipt, with a statement identifying the defect.

8.5.7 A payment request made by a Contractor to the Contracting Officer that includes a request for sums that were withheld or retained from a subcontractor and are due to a subcontractor may not be approved under subsection 8.5.3 unless the payment request includes:

8.5.7.1 Substantiation of the amounts requested; and

8.5.7.2 A certification by the Contractor, to the best of the Contractor's knowledge and belief, that:

8.5.7.2.a The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

8.5.7.2.b The subcontractor has made payments due to its subcontractors and suppliers from previous payments received under the contract and will make timely payments from the proceeds of the payment covered by the certification, in accordance with their subcontract agreements and the requirements of this section; and

8.5.7.2.c The payment request does not include any amounts that the contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of their subcontract.

8.5.8 This section shall not be construed to impair the right of a Contractor or a subcontractor at any tier to negotiate and to include in their respective subcontracts provisions that provide for additional terms and conditions that are requested to be met before the subcontractor shall be entitled to receive final payment under subsection 8.5.3 of this section; provided that any such payments withheld shall be withheld by the contracting officer."

TT. Under ARTICLE 8 - MEASUREMENT AND PAYMENT, modify section 8.6 RETAINAGE, by deleting section 8.6 and related subsections 8.6.1 thru 8.6.3 and substituting the following new section 8.6 and related subsections:

"8.6 RETAINAGE - The Department will retain a portion of the amount due under the contract to the contractor, to ensure the proper performance of the contract.

8.6.1 The sum withheld by the Department from the Contractor shall not exceed five per cent of the total amount due the contractor and that after fifty per cent of the contract is completed and progress is satisfactory, no additional sum shall be withheld; provided further that if progress is not satisfactory, the contracting officer may continue to withhold as retainage, sums not exceeding five per cent of the amount due the contractor

8.6.2 The retainage shall not include sums deducted as liquidated damages from moneys due or that may become due the Contractor under the contract.

8.6.3 General Obligation Bonds - The Contractor may withdraw retainage monies in whole or in part by providing a general obligation bond of the State or its political subdivisions suitable to the Department. The Contractor shall endorse over to the Department and deposit with the Department any general obligation bond suitable to the Department, but in no case with a face value less than the value established by law, of the amount to be withdrawn. The Department may sell the bond and use the proceeds in the same way as it may use monies directly retained from progress payments or the final payment.

8.6.4 Any retainage provided for in this section or requested to be withheld by the contractor shall be held by the contracting officer.

8.6.5 A dispute between a Contractor and subcontractor of any tier shall not constitute a dispute to which the State or any county is a party, and there is no right of action against the State or any county. The State and a county may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

8.6.6 The retention amount withheld by the Contractor from its subcontractor shall be not more than the same percentage of retainage as that of the Contractor (also applies to subcontractors who subcontract work to other subcontractors) where a subcontractor has provided evidence to the Contractor of:

8.6.6.1 A valid performance and a payment bond for the project that is acceptable to the Contractor and executed by a surety company authorized to do business in this State;

8.6.6.2 Any other bond acceptable to the Contractor; or

8.6.6.3 Any other form of collateral acceptable to the Contractor.

8.6.7 A written notice of any withholding shall be issued to a subcontractor, with a copy to the Procurement Officer, specifying the following:

8.6.7.1 The amount to be withheld;

8.6.7.2 The specific causes for the withholding under the terms of the subcontract; and

8.6.7.3 The remedial actions to be taken by the subcontractor to receive payment of the amounts withheld.

8.6.8 The provisions of this section shall not be construed to require payment to subcontractors of retainage released to a contractor pursuant to an agreement entered into with the contracting officer meeting the requirements of subsection 8.6.3."

UU. Under Article 8 – MEASUREMENT AND PAYMENT, modify section 8.7 WARRANTY OF CLEAR TITLE, by deleting section and substitute the following new section 8.7:

"8.7 WARRANTY OF CLEAR TITLE - The Contractor warrants and guarantees that all work and materials covered by progress payments made thereon shall be free and clear of all liens, claims, security interests or encumbrances, and shall become the sole property of the Department. This provision shall not, however, be construed as an acceptance of the work nor shall it be construed as relieving the Contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work, or as waiving the right of the Department to require the fulfillment of all the items of the contract."

VV. Under Article 8 – MEASUREMENT AND PAYMENT, modify section 8.8 – FINAL PAYMENT, by deleting subsection 8.8.1 and substitute the following new subsection 8.8.1:

8.8.1 Upon final settlement, the final payment amount, less all previous payments and less any sums that may have been deducted in accordance with the provisions of the contract, will be paid to the Contractor, provided the Contractor has submitted the following documents with the request for final payment: a) a current "Certificate of Vendor Compliance" issued by the Hawaii Compliance Express (HCE); and b) an originally notarized Certificate of Compliance for Employment of State Residents signed under oath by an officer of the Contractor and applicable subcontractors pursuant to chapter 103B HRS. The Certificate of Vendor Compliance is used to certify the Contractor's compliance with: a) Section 103D-328, HRS (for all contracts $25,000 or more) which requires a current tax clearance certificate issued by the Hawaii State

Department of Taxation and the Internal Revenue Service; b) Chapters 383, 386, 392, and 393, HRS; and c) Subsection 103D-310(c), HRS. The State reserves the right to verify that compliance is current prior to the issuance of final payment. Contractors are advised that non-compliance status will result in final payment being withheld until compliance is attained.

WW. Under Article 8 – MEASUREMENT AND PAYMENT, modify section 8.9 – CLAIMS ARISING OUT OF PAYMENT FOR REQUIRED WORK, by deleting section and substitute the following new section 8.9:

"8.9 CLAIMS ARISING OUT OF PAYMENT FOR REQUIRED WORK - If the Contractor disputes any determination made by the Contracting Officer regarding the amount of work satisfactorily completed, or the value thereof, or the manner in which payment therefore is made or calculated, it shall notify the Contracting Officer in writing of the specific facts supporting the Contractor's position. Such notice shall be delivered to the Contracting Officer no later than thirty (30) days after the Contractor has been tendered payment for the subject work, or, if no payment has been tendered, not later than fifty (50) days after it has submitted the Monthly Payment Application required under Section 8.4 PROGRESS PAYMENTS herein to the Contracting Officer for the work that is the subject of the dispute. The delivery of the written notice cannot be waived and shall be a condition precedent to the filing of the claim. No claim for additional compensation for extra work or change work shall be allowed under this provision, unless the notice requirements of Article 4 SCOPE OF WORK have been followed. Acceptance of partial payment of a Monthly Payment Application amount shall not be deemed a waiver of the right to make a claim described herein provided the notice provisions are followed. The existence of or filing of a payment claim herein shall not relieve the Contractor of its duty to continue with the performance of the contract in full compliance with the directions of the Contracting Officer. Any notice of claim disputing the final payment made pursuant to Section 8.8 FINAL PAYMENT must be submitted in writing not later than thirty (30) days after final payment that is identified as such has been tendered to the Contractor."

XX. Add the attached Bond Rider form to the Appendix.

YY. Add the attached Certification of Compliance for Employment of State Residents form to the Appendix.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

BOND RIDER

This Rider is to be attached to and forms a part of Performance Bond No._____

and Labor and Material Payment Bond No. _____ (hereinafter collectively referred to as "Bonds) issued by _____, (hereinafter referred to as "Surety"),
(Name of Bonding Company)
as Surety, on the _____ day of _____, _____.

WHEREAS _____,
(Full Legal Name and Street Address of Contractor)
as Contractor (hereinafter referred to as Principal) has signed a Contract with the State of Hawaii (hereinafter referred to as Obligee) on _____, for the following project:

_____

_____

_____
hereinafter called Contract.

NOW THEREFORE, the undersigned hereby agree that the amounts for each of the attached Bonds shall be changed
FROM: _____ (000,000,000.00)

TO: _____ (000,000,000,00).
Except as herein modified, the Bonds shall remain in full force and effect.

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

ATTACHMENT 1

Attachment 2

CERTIFICATION OF COMPLIANCE
FOR
EMPLOYMENT OF STATE RESIDENTS
HRS 103B

Project Title: _____

Agency Project No: _____

Contract No.: _____

As required by Hawaii Revised Statutes 103B – Employment of State Residents on Construction Procurement Contracts, I hereby certify under oath, that I am an officer of _____ and for the Project Contract indicated above, _____ was in compliance with HRS 103B by employing a workforce of which not less than eighty percent are Hawaii residents, as calculated according to the formula in the solicitation, to perform this Contract.

(Name of Contractor or Subcontractor Company)

(Name of Contractor or Subcontractor Company)

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

☐ I am an officer of a **Subcontractor** to this contract.

CORPORATE SEAL

_____
(Name of Company)

_____
(Signature)

_____
(Print Name)

_____
(Print Title)

Subscribed and sworn to me before this _____ day of _____, 2010.

_____
Notary Public, 1st Circuit, State of Hawaii
My commission expires: _____

Doc. Date:_____ # of Pages___ 1st Circuit
Notary Name: _____
Doc. Description: _____
_____
_____

_____
Notary Signature Date
NOTARY CERTIFICATION

END OF SECTION

SECTION 00800 - SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

A. As specified in SECTION 00700 - GENERAL CONDITIONS: The *GENERAL CONDITIONS* and these *SPECIAL CONDITIONS* shall govern all work specified in all Divisions and Sections.

B. Revisions to the *GENERAL CONDITIONS*: The following conditions included in this paragraph 1.01 B. and subparagraphs shall govern respective items in the published *INTERIM GENERAL CONDITIONS 1999 Edition* and in SECTION 00700 - GENERAL CONDITIONS, paragraph entitled REVISIONS TO THE GENERAL CONDITIONS.

1. Under ARTICLE 3 - AWARD AND EXECUTION OF CONTRACTS, modify section 3.11 NOTICE TO PROCEED by deleting subsections 3.11.1 and 3.11.2 and substituting the following:

   "3.11.1 After the contract is fully executed and signed by the Comptroller, the Contractor will be sent a letter allowing the ordering of approved materials before the formal Notice to Proceed letter is sent. Subsequently, the formal Notice to Proceed letter will be sent informing the Contractor of the date on which it shall proceed with the designated work. The Contractor shall be allowed ten (10) consecutive working days from said date to begin its work. In the event that the Contractor refuses or neglects to start the work, the Comptroller may terminate the contract in accordance with Section 7.27 TERMINATION OF CONTRACT FOR CAUSE."

2. Under ARTICLE 3 – AWARD AND EXECUTION OF CONTRACT, modify section 3.11 NOTICE TO PROCEED, by deleting subsection 3.11.4 and substitute the following new paragraph 3.11.4:

   "3.11.4 In the event the Notice to Proceed is not issued within one hundred and eighty (180) days after the date of the bid opening**,** the Contractor may submit a claim for increased labor and material costs (but not overhead costs) which are directly attributable to the delay beyond the first 180 days. Such claims shall be accompanied with the necessary documentation to justify the claim. No payment will be made for escalation costs that are not fully justified as determined by the State."

1.02 SUBMITTAL DATES FOR CLARIFICATIONS AND SUBSTITUTIONS

A. Written requests must be received no later than 4:30 p.m., fourteen calendar days prior to bid opening.

B. The written substitution requests must be received by The Judiciary - State of Hawaii, Financial Services Department, Kauikeaouli Hale, 1111 Alakea Street, Sixth Floor no later than 2:00 P.M. on February 13, 2020.

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1.03 PROJECT CONTACT PERSON AND DAGS CONTACTS

A. Project Contact -

NAME:	Tony Koyamatsu
POSITION OR TITLE:	Project Coordinator
TELEPHONE NUMBER:	(808) 539-4704

B. The Judiciary Contact - For questions or clarifications on the plans and specifications during bidding, offerors must submit by fax “QUESTIONS AND CLARIFICATIONS” form found at the end of this section. For general questions on the procurement requirements or processes call by telephone.

Purchasing Specialist, Contracts and Purchasing

NAME	Kelly Kimura
FAX NUMBER	(808) 538-8502
TELEPHONE NUMBER	(808) 538-5805

C. Project Coordinator – Capital Improvements Program

NAME	Tony Koyamatsu

D. Websites:

Judiciary web site:	http://www.courts.state.hi.us

E. Contacts During Construction: Address and process correspondence through the Capital Improvements Program Project Coordinator.

1.04 LIQUIDATED DAMAGES

A. In accordance with the *GENERAL CONDITIONS*, Article 7 - PROSECUTION AND PROGRESS, Section 7.26, FAILURE TO COMPLETE THE WORK ON TIME, upon failure to complete the work or any portion of the work within the time or times fixed in the contract or extension thereof, the Contractor shall pay liquidated damages to the State, in the amount of **$1,000,** per calendar day of delay.

B. In accordance with the *GENERAL CONDITIONS*, Article 7 - PROSECUTION AND PROGRESS, Section 7.32, PROJECT ACCEPTANCE DATE; upon failure to correct punch list deficiencies, within the time or times fixed in the contract or extension thereof, the Contractor shall pay liquidated damages to the State, in the amount equal to 10 percent of the liquidated damages, per calendar day of delay.

C. In accordance with the *GENERAL CONDITIONS*, Article 7 - PROSECUTION AND PROGRESS, Section 7.33, FINAL SETTLEMENT OF CONTRACT; upon failure to submit closing documents within the time or times fixed in the contract or extension thereof, the Contractor shall pay liquidated damages to the State, in the amount equal to five percent of the liquidated damages, per calendar day of delay.

1.05 SPECIALTY CONTRACTOR’S AND SUBCONTRACTOR’S LICENSE

A. Contractor shall be solely responsible to assure that all the specialty licenses required to perform the work are covered by the Contractor or its

Subcontractor(s) or joint Contractors.

1.06 WORKING HOURS

A. The regular working hours for this project are from 7:45 AM to 4:30 PM, Monday through Friday, excluding State Holidays, unless otherwise noted or restricted under SECTION 01100 - PROJECT REQUIREMENTS. In the event of conflict, the working hours provisions of specification SECTION 01100 - PROJECT REQUIREMENTS shall govern over this item 1.06.

B. The Contractor may be given approval to work beyond the regular hours including Saturdays, Sundays, State Holidays, night work, or after hours under the provisions of the GENERAL CONDITIONS, Article 7 - PROSECUTION AND PROGRESS, Section 7.10, OVERTIME AND NIGHT WORK and under specifications SECTION 01100 - PROJECT REQUIREMENTS.

1.07 REPORTS, SITE AND SUBSURFACE INVESTIGATIONS, BORING LOGS

A. The following reports, documents, and subsurface investigations are available for inspection at The Judiciary Capital Improvements Program, 417 South King Street, Suite 218, Honolulu, HI 96813. These items are included for reference only and are not part of the contract documents.
   1. Geotechnical Engineering Exploration, Kapuaiwa Building Pump Station Improvements; 426 Queen Street, Honolulu, Oahu, Hawaii, dated August 15, 2019, prepared by Kokua Geotech LLC.
   2. Limited Hazardous Material Survey; Kapuaiwa Building Pump Station Improvements, Honolulu, Oahu, Hawaii, dated September 13, 2018, prepared by EnviroServices and Training Center, LLC.

1.08 SPECIFIC PROJECT REQUIREMENTS

A. Permits: Building and other permits are required for this project; therefore, the Contractor is responsible to pay for and obtain these permits. Contractor shall submit copies of all permits to Project Coordinator prior to Jobsite Start Date.

B. Use of premises and work restrictions: A security check is mandatory for workers requiring entry into the building. See SECTION 01100, Item 1.05, E, Security Checks.

C. Archaeological Sites: An archaeologist has been hired by the State to prepare an Archaeological Monitoring Plan (AMP) and conduct archaeological monitoring during construction. If any significant artifacts are encountered during excavation, the Contractor shall comply with the requirements stated in the AMP and the provisions of the GENERAL CONDITIONS, Article 7 – PROSECUTION AND PROGRESS, Section 7.18, ARCHAEOLOGICAL SITES.

1.09 COMPREHENSIVE ANNUAL FINANCIAL REPORTING

A. For any project that involves work on multiple structures, including non-building structures, whether it be new work or renovation work, or when the project involves both site improvements and a structure, the Contractor shall provide the following information to the Contracting Officer for fixed asset allocation purposes:
   1. Within 30 calendar days of award as applicable to the project, the following shall be submitted:
      a. The total cost of each individual structure;

b. The total cost of on-site improvement work; and

c. The total cost of off-site improvement work.

2. After all work, including all change order work has been completed, and prior to a request for final payment, the following shall be submitted:
   a. The total cost of each individual structure including any related change order cost;

   b. The total cost of on-site improvement work including any related change order cost; and

   c. The total cost of off-site improvement work including any related change order cost.

3. The sum total cost of each category noted above shall total to the contract amount awarded, plus all change order work issued.
   a. The cost of each individual structure includes the cost of the structure and any work within five (5) feet of the structure or building line which may include, but is not limited to its foundation, foundation earthwork, and utility improvements within and immediately below the building line.

   b. The on-site improvement cost includes all site improvement work from five (5) feet and beyond the building line and up to the project's property line, which may include but is not limited to clearing and grubbing, grading, drainage system, site utility, walkway, parking lot, and landscape improvements.

   c. The off-site improvement cost includes all off-site improvement work outside the of the project's property line, which may include but is not limited to walkway, landscape, drainage, utility, and roadway improvements.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

QUESTIONS AND CLARIFICATIONS (WRITTEN REQUESTS ONLY)

PROJECT NAME:	Kapuaiwa Building
PROJECT TITLE:	Separate Storm Drain and Basement Sanitary Sewer Systems for The Judiciary – State of Hawaii
Judiciary Project Identifier	JUD 1718-07-014
PROJECT COORDINATOR:	Tony Koyamatsu

BID OPENING DATE: _____ (This request must be received no less than 14 days prior to bid opening)

PERSON MAKING REQUEST:_____

COMPANY: _____

TELEPHONE NO.: _____ E-MAIL: _____

QUESTION OR CLARIFICATION (Be specific and list drawing/detail and specification section or paragraph that requires attention. Attach additional pages as necessary. FAX to (808) 538-8502 or deliver to The Judiciary - State of Hawaii, Financial Services Department, Kauikeaouli Hale, 1111 Alakea Street, Sixth Floor, Honolulu, Hawaii, 96813-2807.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01100 - PROJECT REQUIREMENTS

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification
   1. Project Title: Kapuaiwa Building – Separate Storm Drain and Basement Sanitary Sewer Systems
   2. Project Location: Kapuaiwa Building, 426 Queen St., Honolulu, Oahu, HI 96813, TMK: 2-1-025:003

B. The Work consists of replacement of existing stormwater pumps, installation of a new stormwater force main, and installation of a new sewer lift station and force main.
   1. The Work includes:
      a. Sitework and Demolition
      b. Work off-site or in the Public Right-of-Way
      c. Modification of existing stormwater pump station and force main
      d. Installation of new sewer lift station and force main
      e. Electrical Systems
      f. Restoration of existing improvements including sidewalks, pavements, curbs, and landscaping.

C. Perform operations and furnish equipment, fixtures, appliances, tools, materials, related items and labor necessary to execute, complete and deliver the Work as required by the Contract Documents.

D. The Division and Sections into which these specifications are divided shall not be considered an accurate or complete segregation of work by trades. This also applies to work specified within each section.

E. Contractor shall not alter the Drawings and Specifications. If an error or discrepancy is found, notify the Contracting Officer.

F. Specifying of interface and coordination in the various specification sections is provided for information and convenience only. These requirements in the various sections shall complement the requirements of this Section.

1.02 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated and include incomplete sentences. Omission of words or phrases such as “the Contractor shall”, “as shown on the drawings”, “a”, “an”, and “the” are intentional. Omitted words and phrases shall be provided by inference to form complete sentences. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted

as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates. Where devices, or items, or parts thereof are referred to in the singular, it is intended that such reference shall apply to as many such devices, items or parts as are required to properly complete the Work.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
   a. The words “shall”, “shall be”, or “shall comply with”, depending on the context, are implied where a colon (:) is used within a sentence or phrase.

3. Abbreviations and Acronyms for Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research’s “Encyclopedia of Associations” or in Columbia Books’ “National Trade & Professional Associations of the U.S.”.

B. Terms
   1. Directed: Terms such as “directed”, “requested”, “authorized”, “selected”, “approved”, “required”, and “permitted” mean directed by Contracting Officer, requested by Contracting Officer, and similar phrases.

   2. Indicated: The term “indicated” refers to graphic representations, notes, or schedules on drawings or to other paragraphs or schedules in specifications and similar requirements in the Contract Documents. Terms such as “shown”, “noted”, “scheduled”, and “specified” are used to help the user locate the reference.

   3. Furnish: The term “furnish” means to supply and deliver to project site, ready for unloading, unpacking, assembly, and similar operations.

   4. Install: The term “install” describes operations at project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

   5. Provide: The terms “provide” or “provides” means to furnish and install, complete and ready for the intended use.

   6. Installer: An installer is the Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-Subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

   7. Submit: Terms such as “submit”, “furnish”, “provide”, and “prepare” and similar phrases in the context of a submittal, means to submit to the Contracting Officer.

C. Industry Standards
   1. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

   2. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

   3. Conflicting Requirements: If compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Contracting Officer for a decision before proceeding.

1.03 CONTRACT

A. Refer to SECTION 00800 - SPECIAL CONDITIONS for other contract conditions.

B. Construction Window: NOT USED

C. Project Schedule: NOT USED

1.04 WORK SEQUENCE

A. The Work will be conducted in a single construction phase.

1.05 USE OF PREMISES AND WORK RESTRICTIONS

A. General: The Contractor is notified that the entire building will generally remain operational throughout the entire duration of the project.

B. The Contractor shall schedule and perform his work and operations to conform to the requirements of The Judiciary (including requirements for the schedule and hours of the court, noise restrictions and security requirements described elsewhere), and in such a manner as to minimize inconvenience, hazards and disturbance upon the building's occupants and to ensure their safety.
   1. Coordinate construction, shutdown and schedules with the Project Contact Person and Contracting Officer.

   2. All building areas (e.g. courtrooms, corridors, offices, etc.) shall be fully operational at the end of utility shutdown periods.

   3. As the building area will remain operational throughout the entire duration of the project, safe access and egress around the project site shall be maintained at all times.

   4. Disruptions of access, etc. shall be coordinated in writing with the Project Contact Person and Contracting Officer. Disruptions shall also be identified in the work schedule.

   5. The Contractor shall provide construction aids as necessary to maintain normal operations of the building and to protect the public and staff.

C. As the building will be operational during the duration of the project, on-site parking, storage and staging, etc. will be limited.
   1. Coordinate construction, shutdown and schedules with the Project Contact Person and Contracting Officer.

D. Contractor's use of premises is restricted as follows:
   1. Construction Times and Schedule:
      a. Construction work shall be scheduled and performed during the normal business hours of the Kapuaiwa Building, which is between the hours of 7:45 a.m. to 4:30 p.m., Monday through Friday.

      b. As stated in SECTION 00800, Item 1.06, the Contractor may be given approval to work outside of normal business hours, including Saturdays, Sundays, State Holidays, night work, or after hours.

      c. Construction material may be removed off the Project Site during normal business hours, and shall be completely removed from the Project Site no later than one calendar week prior to the Jobsite Completion Date.

      d. Work within the City right-of-way is allowed from 8:30 a.m. to 3:30 p.m., Monday through Friday.

      e. A security check is mandatory for workers required to work on Project Site, subject to the Contracting Officer granting clearance to workers. See SECTION 01100, Item 1.05, E., 1., Security Checks.

   2. Site Access and Parking:
      a. Parking: Parking for the Contractor's employees (or Subcontractors) will be limited to the available areas within the designated Project Contract Limits or in areas designated by the Contracting Officer. Do not use parking stalls in regularly designated parking zones within the Facility grounds. Unauthorized vehicles parked in marked stalls and in any area outside of the designated project construction site will be subject to towing at the Contractor's expense.

      b. There is a loading area immediately adjacent to the site that has a 2-vehicle capacity. This loading area can be rented by the Contractor but is not guaranteed to be available.

         The Contractor will need to make arrangements directly with the DAGS Automotive Division by submitting a request in writing to the Automotive Management Division Chief with the following information:
         - Length of contract with the department
         - Number of vehicles requiring permits
         - Job location

         For further information, the Contractor may contact the DAGS Automobile Management Division contacts:
         - Brian Sato: 536.0343
         - Debbie Shiroma: 536.0341
         - Parking Control: 536.0344, or 536-0352

3. Sanitation:
    a. Use of the building's toilet facilities will not be permitted. Provide self-contained single-occupant chemical combination toilet and urinal; vented; fully enclosed with a glass fiber reinforced polyester shell or similar non-absorbent material; containing a handwash sink with potable water storage.

4. Noise and Dust Control:
    a. In adjacent locations surrounding the project site, noise, dust and other disrupting activities, resulting from construction operations, are detrimental to the conduct of Judiciary activities. Therefore, Contractor shall monitor its construction activities. Exercise precaution when using equipment and machinery to keep the noise and dust levels to a minimum.

    b. To reduce loud disruptive noise levels, ensure mufflers and other devices are provided on equipment, internal combustion engines and compressors.

    c. Schedule construction activities that create excessive noise and dust problems, such as concrete coring, drilling, sawcutting, jackhammering, trenching, and demolition, for the weekends, holidays or non-operational hours as first approved by the Contracting Officer. Overtime costs for the Contractor's employees and work force are the Contractor's responsibility.

5. Other Conditions:
    a. Arrange for construction debris and trash to be removed from project site daily. Remove and clean-up any oil drippings, or any other material spilled by Contractor from Project site.

    b. Operate machinery and equipment with discretion and with minimum interference to driveways and walkways. Do not leave machinery and equipment unattended on roads and driveways.

    c. Store materials in the areas as designated by the Contracting Officer. Locate construction equipment, machinery, equipment and supplies within the Project Contract Limits.

    d. Keep access roads to the project site free of dirt and debris. Provide, erect and maintain lights, barriers, signs, etc. when working on roads, driveways and walkways to protect pedestrians and moped/bicycle riders. Obey traffic and safety regulations.

E. Security Provisions:
1. Security Checks:
    a. After award and before commencement of any work on The Project, Contractor shall submit to the Project Coordinator a list of the names and associated companies of all workers planned to work on the site.

    b. Furthermore, additional background security checks are required for those individuals requiring building entry. For these individuals, the

Contractor shall submit a list of the names, dates of birth, and Social Security Numbers. Any worker who has a previous record of any felonious or any conviction for such offenses other than minor traffic offenses will not be permitted to gain access into the building. The list of workers shall be kept current at all times. Workers shall not enter the building until receipt of clearance is obtained from the Contracting Officer. Workers found on the site without proper clearance will be removed immediately. Workers shall exchange picture identification for a Visitor Badge upon entry and shall maintain this Badge visibly on their person at all times. Worker lists may be transmitted Attn: Contracting Officer via email to Anthony.koyamatsu@courts.hawaii.gov. Note that it may take up to two weeks lead time before workers receive clearance.

2. Sheriff Oversight:
   a. All movements of the Contractor's employees into and within the building will be subject to control by the Sheriff's Division. The Contractors, his agents, or employees shall be subject to personal search whenever the Sheriff's Division deems such action necessary for the safety of the building. This shall also include the inspection of lunch boxes, toolboxes, clothing and equipment. Introduction or possession of weapons, narcotics, alcoholic beverages, or contraband to the project site is prohibited.

   b. Should work within the building be necessary outside the normal operating hours of the User's operations, the Contractor shall be responsible to pay for a Special Duty Officer (Deputy Sheriff) to be stationed at a single entry point to the building throughout the period it is open. All construction workers must remain in line-of-sight of a Deputy Sheriff. Workers moving from one work area to another must be accompanied by a Sheriff in order to comply with this requirement. The Contractor shall be restricted to the area of construction and shall at no time enter other areas unless granted permission by the Sheriff's Deputy on duty. Contact the Project Coordinator (808-539-4704) to coordinate hiring of the Sheriff Deputies needed for afterhours security oversight. The Project Coordinator make arrangements with the Department of Public Safety to schedule the Sheriff Deputies. Make arrangements at least 48 hours before security personnel are required. Special Duty Officer charges are $30.00 per hour or fraction thereof (minimum of quarter hour increments), for a minimum of 4 hours. If the situation requires more Sheriffs, each additional Sheriff will be paid at the same hourly rate. A Sergeant at an hourly rate of $35.00 will be required for every four Sheriffs and a Lieutenant at an hourly rate of $40.00 will be required for every three Sergeants. If the Sheriff's office receives less than 12 hours' notice for cancellation of scheduled security services, a minimum of four hours per Sheriff will be assessed to the requester. Pay for Sheriffs costs as part of the contract. Payment shall be made directly to the Special Duty Officer within 5 days of receipt after the Officer fills out a W-9 form on the jobsite.

   c. Note that the Sheriff's Offices do not possess keys for access to the building such that arrangements must be made with the Contracting

Officer (808) 539-4704 and/or the Project Contact (808) 539-4704 to provide keys or the means for access to the building.

3. Tool, Material and Equipment Controls:
   a. All tools, cables, ropes and other implements shall be transported and retained, except when in use, in approved, locked tool boxes. At all times, tools shall be subject to inventory by the Sheriff's Deputies. During the progress of the work, care shall be taken that no tool is left unguarded or unattended at any time. It is an urgent matter that missing tools, equipment, etc. be reported immediately to those in authority. Material and equipment shall be brought into the work area through entrance as approved by those in authority and shall be carried to and stored in limited areas as approved. Introduction or possession of weapons, narcotics, alcoholic beverages, or contraband to the project site is prohibited.

   b. Explosives, explosive devices or any equipment associated with a system that could be used as an explosive shall not be allowed.

4. Exterior Openings, Scaffolding, Ladders, Temporary Enclosures, Staging, Lifting and Safety Devices:
   a. Ensure that there are no openings in the walls/windows, roofs/doors of the building where unlawful entry in the building is possible. All exterior openings which have been opened for construction shall be securely closed at the end of the Contractor's workday, unless otherwise directed by the Judiciary. Scaffolding, ladders and other equipment used for vertical access may remain but must be properly secured to prevent unauthorized access at the end of each day's work provided that pedestrian access is not obstructed.

1.06 WORK UNDER OTHER CONTRACTS

A. Cooperation with Other Work:
   1. The Judiciary reserves the right to contract for otherwise perform other or additional work with the project contract limits. The Contractor of this project shall conduct its work so as not to interfere with or hinder the progress or completion of the work performed by the Judiciary or other Contractors.

1.07 MISCELLANEOUS PROVISIONS

B. Historic Building: Kapu'aiwa Building is a building with a high level of historical significance, and has been designated a National Historic Landmark. Extra care shall be taken to protect all existing building fabric and materials during construction project. If damage to building occurs during construction, the Contractor shall inform the Contracting Officer and the Judiciary Contact Person immediately before any repairs are undertaken, as repairs must conform to established Historic Preservation Standards.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01300 - PUBLIC RELATIONS AND NOTICE TO COMMUNITY GROUPS, GOVERNMENT AGENCIES, AND INDIVIDUALS

PART 1 – GENERAL

1.01 DESCRIPTION

The project is located within the downtown district and the Contractor's work will be in very close proximity to active businesses and offices. Good public relations with all affected public agencies, property owners, business owners, and any other persons affected by the Project shall be maintained by the Contractor at all times. Special care shall be taken to safeguard all persons and all existing properties, structures and improvements. Construction impacts shall be kept strictly within the requirements specified in these Contract Documents and any applicable laws and regulations.

1.02 SUBMITTALS

A. Informational Packet

The Contractor shall prepare and provide the Contracting Officer with an informational packet within twenty-one (21) calendar days after the Notice to Proceed date.

The informational packet shall include the following information:

1. Brief description of the project.
2. Construction schedule.
3. Dates that work will be performed.
4. Description of anticipated utility outages and the measures that will be taken to minimize the inconveniences.
5. Description of parking spaces that will be temporarily blocked or unavailable for public use.
6. Description of anticipated sidewalk, access, or lane closures and traffic control measures to be implemented.
7. Description of proposed temporary bus stop relocation.
8. Names and emergency telephone numbers of key Contractor personnel (the Contractor personnel shall be available and able to respond twenty-four (24) hours a day, seven (7) days a week.)

Updated information shall be distributed to the Contracting Officer if necessary.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 PROJECT COORDINATION

The Contractor shall be responsible for coordinating the Project work with the Contracting Officer and assisting with public relations as needed at the Project site to mitigate any issues that may arise as a result of the construction activities.

3.02 BUS STOP RELOCATION

The proposed work will occur immediately adjacent to an existing bus stop. The Contractor shall work with the City and County of Honolulu Department of Transportation Services (DTS) to temporarily relocate the bus stop to another location as determined by DTS.

3.03 NEIGHBORHOOD BOARD MEETINGS

The Contractor shall attend one (1) Neighborhood Board meeting at least thirty (30) days prior to starting construction and also attend Neighborhood Board meetings for the duration of the Project to provide information and periodic updates on the Project as requested by the Contracting Officer.

END OF SECTION

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General project coordination procedures.

   2. Project meetings.

1.02 PERFORMANCE AND COORDINATION

A. Contractor is in charge of the Work within the Project Contract Limits, and shall direct and schedule the Work. Include general supervision, management and control of the Work of this project, in addition to other areas more specifically noted throughout the Specifications. Final responsibility for performance, interface, and completion of the Work and the Project is the Contractor's.

B. The Contractor is responsible for jobsite Administration. Provide a competent superintendent on the job and provide an adequate staff to execute the Work. In addition, all workers shall dress appropriately and conduct themselves properly at all times. Loud abusive behavior, sexual harassment and misconduct will not be tolerated. Workers found in violation of the above shall be removed from the job site as directed by the Contracting Officer.

C. The State will hold the Contractor liable for all the acts of Subcontractors and shall deal only with the Prime Contractor in matters pertaining to other trades employed on the job.

D. Coordination: Provide project interface and coordination to properly and accurately bring together the several parts, components, systems, and assemblies as required to complete the Work pursuant to the GENERAL CONDITIONS and SPECIAL CONDITIONS.

   1. Provide interface and coordination of all trades, crafts and subcontracts. Ensure and make correct and accurate connections of abutting, adjoining, overlapping, and related work. Provide anchors, fasteners, accessories, appurtenances, and incidental items needed to complete the Work, fully, and correctly in accordance with the Contract Documents.

   2. Provide additional structural components, bracing, blocking, miscellaneous metal, backing, anchors, fasteners, and installation accessories required to properly anchor, fasten, or attach material, equipment, hardware, systems and assemblies to the structure.

   3. Provide excavation, backfilling, trenching and drilling for trades to install their work.

4. Provide concrete foundations, pads, supports, bases, and grouting for trades as needed to install their work.

5. Provide caulking, sealing, and flashing as required to waterproof the building complete. Include sealing, flashing, and related work as required to prevent moisture intrusion, air infiltration, and light leakage.

6. Equipment, appliances, fixtures, and systems requiring plumbing and mechanical services, rough-in, and connections, or other utilities and services shall be provided with such services, rough-in, and final connections.

7. Equipment, appliances, fixtures, hardware, and systems requiring electrical services shall be provided with such electrical services, including outlets, switches, overload protection, interlocks, panelboard space, disconnects, circuit breakers, and connections.

8. Materials, equipment, component parts, accessories, incidental items, connections, and services required to complete the Work which are not provided by Subcontractors shall be provided by the Contractor.

9. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1.03 COOPERATION WITH OTHER CONTRACTORS

A. The Judiciary reserves the right at any time to contract for or otherwise perform other or additional work within the Project Contract Limits. The Contractor of this project shall to the extent ordered by the Contracting Officer, conduct its work so as not to interfere with or hinder the progress or completion of the work performed by the Judiciary or other Contractors.

1.04 COORDINATION WITH OTHER PRIME CONTRACTORS

A. Multiple prime Contractors performing work under separate agreements with the State or City may be present near the project location, adjacent to and abutting the Project Contract Limits. This Contractor shall coordinate activities, sequence of work, protective barriers and any and all areas of work interfacing with other Prime Contractor's work. Contractor shall provide a continuity of finishes, walks, landscape, etc. at abutting Contract Limits so no additional work will be required. Any damage to other Prime Contractor's Work committed by this Contractor (or its Subcontractor) shall be repaired promptly at no additional cost to the State.

B. Coordinate Subcontractors and keep them informed of any work from the other Projects that may affect the site or the Subcontractor's work. If the Contractor has any questions regarding its coordination responsibilities or needs clarification as to the impact in scheduling of its work and the work of other projects, this Contractor shall notify the Contracting Officer in writing.

C. Subject to approval by the Contracting Officer, this Contractor shall amend and schedule its work and operations to minimize disruptions to the work and operations of other projects.

1. Relocate or remove and replace temporary barriers, fencing supports or bracing to allow work by others to proceed unimpeded. Do not remove required barriers supporting work until specified time or as approved by the Contracting Officer. This does not relieve the Contractor of the responsibility of proper coordination of the work. If directed by the Contracting Officer, leave in place any temporary barriers.

2. Coordinate work that abuts or overlaps work of the other projects with the Contracting Officer and other Prime Contractors to mutual agreement so that work is 100 percent complete with continuity of all materials, systems and finishes.

3. When directed by the Contracting Officer, provide access into the construction zone to allow the other project's Contractor(s) to perform their Work and work that must be interfaced.

4. Contractor shall adjust and coordinate its Work and operations as required by the other projects as part of the Work of this contract without additional cost or delay to the State.

5. When directed by the Contracting Officer provide a combined Contractor's construction schedule.

D. Other Contracts: If known, they are listed in SECTION 01100 - PROJECT REQUIREMENTS.

1.05 SUBMITTALS

A. Photo Documentation: Prior to the start of jobsite work, the Contractor shall photo document the existing conditions at the site and file with the Contracting Officer one complete set of documents.

1.06 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences as directed by the Contracting Officer at the Contractor's field office, unless otherwise indicated.
   1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Contracting Officer of scheduled meeting dates and times.

   2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

   3. Minutes: Contractor shall record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Contracting Officer, within 7 days of the meeting.

B. Preconstruction Conference: Contracting Officer shall schedule a preconstruction conference before the start of construction, at a time convenient to the Contracting Officer, but no later than 7 days before the Project start date or jobsite start date whichever is later. Conference will be held at the Project site or another convenient location. The Contracting Officer shall conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Contracting Officer, Construction Manager, and design consultants; Facility Users; Contractor and its superintendent; major Subcontractors; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Tentative construction schedule.

   b. Phasing.

   c. Critical work sequencing and coordination.

   d. Designation of responsible personnel.

   e. Use of the premises.

   f. Responsibility for temporary facilities and controls.

   g. Parking availability.

   h. Office, work, and storage areas.

   i. Equipment deliveries and priorities.

   j. First aid.

   k. Security.

   m. Progress cleaning.

   n. Working hours.

C. Progress Meetings: Conduct progress meetings twice a month with discussion of 3 week look-ahead schedule at each meeting. Coordinate dates of meetings with preparation of payment requests.
   1. Attendees: In addition to Contracting Officer, Construction Manager, and Design Consultants, each Contractor, Subcontractor, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

   2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
      a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule

revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

b. Review present and future needs of each entity present, including the following:
   1) Outstanding Requests for information (clarification).
   2) Interface requirements.
   3) Sequence of operations.
   4) Status of outstanding submittals.
   5) Deliveries.
   6) Off-site fabrication.
   7) Access.
   8) Site utilization.
   9) Temporary facilities and controls.
   10) Work hours.
   11) Hazards and risks.
   13) Quality and work standards.
   14) Force Account work.
   15) Change Orders and Change Proposals.
   16) Documentation of information for payment requests.

c. Corrective Action Plan: Contractor shall provide a plan of corrective action for any item which is delayed or expected to be delayed, then that item impacts the contractual dates.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
   a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes general requirements for documenting the progress of construction during performance of the Work. Provide 3 sets of the following:
   1. Contractor's Construction Schedule.
   2. Schedule of Prices.
   3. Payment Application – format for review and approval.

B. Related Sections include the following:
   1. SECTION 01330 - SUBMITTAL PROCEDURES for submitting schedules and reports.

1.02 COORDINATION

A. Coordinate preparation of the Schedule of Prices with preparation of Contractor's Construction Schedule.

B. Provide 3-Week Look-Ahead Schedule: Submit 3-week look-ahead schedule, updated weekly. Coordinate schedule for performing critical elements of the Work with Judiciary operations.

PART 2 - PRODUCTS

2.01 SUBMITTALS

A. Comply with the GENERAL CONDITIONS "SHOP DRAWINGS AND OTHER SUBMITTALS" Article. Furnish required submittals specified in the Technical Sections.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. The construction schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period.

B. Use the schedule for planning, organizing and directing the work, for reporting progress, and for requesting payment for the work completed. Unless providing an update, do not make changes to the reviewed schedule without the Contracting Officer's approval.

C. If, in the opinion of the Contracting Officer, the Contractor falls behind schedule, the Contractor shall take steps necessary to improve progress, including those that may be required by the Contracting Officer, without additional cost to the State.

D. Update the construction schedule when directed by the Contracting Officer to revise the schedule.

E. Updated Schedules: Submit at weekly intervals a 3-week look ahead schedule for coordination with Judiciary operations.

2.03 SCHEDULE OF PRICES

A. Furnish a schedule of prices per Contracting Officer.
   1. Provide sufficient detail to facilitate development and evaluation of Payment Applications.

B. Each item in the Schedule of Prices and Payment Application shall be complete.
   1. Include total cost and proportionate share of general overhead and profit for each item.

2.04 PAYMENT APPLICATION

A. Use the Schedule of Prices as basis for Payment Application.
   1. Each Payment Application shall be consistent with previous applications and payments.

   2. The Contracting Officer shall determine the appropriateness of each payment application item.

B. Payment Application Times: The date for each progress payment is the last day of each month. The period covered by each Payment Application starts on the first day of the month and ends on the last day of the month.

C. Updating: Update the schedule of prices listed in the Payment application when Change Orders or Contract Modifications result in a change in the Contract Price.

D. Payment Application Forms:
   1. Use only one form format for duration of the project.

   2. Use and submit copies of one of the following types of forms:
      a. AIA Form G702 Contractor‘s Application and Certificate for Payment and G703 Continuation Sheet
      b. Reasonable facsimile of AIA G702 and G703 forms noted above
      c. Other forms as approved by Contracting Officer.

E. Application Preparation: Execute by a person authorized to sign legal documents on behalf of the Contractor.
   1. Entries shall match data on the Schedule of Prices.

F. No payment will be made until the following are submitted each month:
   1. Daily Reports, and
   2. All Payroll Affidavits for work done.

G. Retainage: The Judiciary will withhold retainage in compliance with the GENERAL CONDITIONS.

H. Transmittal: Submit the signed original and 2 copies of each Payment Application for processing.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Comply with the GENERAL CONDITIONS “Shop Drawings and Other Submittals” section and “Material Samples” section.

B. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

C. Related Sections include the following:
   1. SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION for submitting schedules and reports, including Contractor’s Construction Schedule and the Submittals Schedule.

   2. SECTION 01770 - CLOSEOUT PROCEDURES for submitting warranties, project record documents and operation and maintenance manuals.

1.02 SUBMITTAL PROCEDURES

A. Coordinate Work and Submittals: Contractor shall certify the submittals were reviewed and coordinated.

B. Submittal Certification: Provide a reproduction of the “Submittal Certification” and furnish the required information with all submittals. Include the certification on:
   1. The title sheet of each shop drawing, or on

   2. The cover sheet of submittals in 8-1/2 inch x 11-inch format, or on

   3. One face of a cardstock tag (minimum size 3-inch x 6-inch) tied to each sample. On the sample tag, identify the sample to ensure sample can be matched to the tag if accidentally separated.

C. Variances: The Contractor shall request approval for a variance. Clearly note any proposed deviations or variances from the Specifications, Drawings, and other Contract Documents on the submittal and also in a separately written letter accompanying the submittal.

D. Submittal Certification Form (stamp or digital)

CONTRACTOR'S NAME: _____
PROJECT: _____
JUDICARY JOB NO: _____

As the General Contractor, we checked this submittal and we certify it is correct, complete, and in compliance with Contract Drawings and Specifications. All affected Contractors and suppliers are aware of, and will integrate this submittal into their own work.

SUBMITTAL NUMBER _____ DATE RECEIVED _____
REVISION NUMBER _____ DATE RECEIVED _____
SPECIFICATION SECTION NUMBER /PARAGRAPH NUMBER _____
DRAWING NUMBER _____
SUBCONTRACTOR'S NAME _____
SUPPLIER'S NAME _____
MANUFACTURER'S NAME _____

NOTE: DEVIATIONS FROM THE CONTRACT DOCUMENTS ARE PROPOSED AS FOLLOWS (Indicate "NONE" if there are no deviations)

_____
_____
_____

CERTIFIED BY	

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SUBMITTAL LISTING

A. The listing of required submittals within this Section is provided for the Contractor's convenience. Review the specification technical sections and prepare a comprehensive listing of required submittals. Furnish submittals to the Contracting Officer for review.

Section No. – Title *(List in numerical order of the Specification section No.)*	Shop Drawings & Diagrams	Safety Plan	Samples	Certificates (Material, Treatment, Applicator, etc.)	Product Data, Manufacturer's Technical Literature	MSDS Sheets	Calculations	Reports (Testing, Maintenance, Inspection, etc.)	Test Plan	O & M Manual	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty	Manufacturer's Guaranty or Warranty (Greater than
01100 – Project Requirements															■		
01300 -Public Relations												■			■		
01310 – Project Management and Coordination															■		
01320 – Construction Progress Documenta-tion	■		■	■		■		■		■		■		■	■		
01330 – Submittal Procedures				■											■		
01500 – Temporary Facilities and Controls								■							■		
01650 – Facility Startup				S				■	■			■			■		
01715 – Existing Conditions																	
01735 – Maintaining Existing Utilities															■		
01770 – Closeout Procedures	■			■				■	■	■				■	■	1	2
02050 – Demolition								■									

Section No. – Title	Shop Drawings & Diagrams	Safety Plan	Samples	Certificates (Material, Treatment, Applicator, etc.)	Product Data, Manufacturer's Technical Literature	MSDS Sheets	Calculations	Reports (Testing, Maintenance, Inspection, etc.)	Test Plan	O & M Manual	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty (one year)	Manufacturer's Guaranty or Warranty (Greater than one year)
02100 – Site Preparation																	
02200 – Earthwork				■	■			■									
02225 – Trenching, Backfilling, and Compacting				■	■			■									
02577 – Pavement Markings					■												
02722 – Sanitary Sewer System				■	■			■		■					■		2
02723 – Stormwater System				■	■			■								1	
02740 – Flexible Pavement				■				■							■		
02920 – Lawns and Grass																	
02940 – Traffic Control												■			■		
03300 – Cast-In-Place Concrete				■	■			■							■		
03310 - CLSM				■				■							■		
13281 – Removal and Disposal of Asbestos Containing Materials	■	■	■		■	■		■			■	■			■		
13282 – Lead-Containing Paint Control Measures	■	■		■	■	■					■	■			■		

Section No. – Title	Shop Drawings & Diagrams	Safety Plan	Samples	Certificates (Material, Treatment,	Product Data, Manufacturer's	MSDS Sheets	Calculations	Reports (Testing, Maintenance,	Test Plan	O & M Manual	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty (one year)	Manufacturer's Guaranty or
13288 – Testing/Air Monitoring																	
16000 – Electrical Work	■		■		■			■		■				■	■		

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

A. Requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. Temporary utilities include but are not limited to, the following:
   1. Sewers.
   2. Storm drainage.
   3. Water service and distribution.
   4. Sanitary facilities, including toilets, wash facilities, and drinking water facilities.
   5. Electric power service.
   6. Lighting.
   7. Telephone service.

C. Support facilities include, but are not limited to, the following:
   1. Project signs.
   2. Field offices.
   3. Contractor parking and staging areas.
   4. Storage and fabrication sheds.
   5. Trash, refuse disposal.
   6. Erosion controls and site drainage.

D. Security and protection facilities and measures include, but are not limited to, the following:
   1. Environmental protection.
   2. Stormwater control.
   3. Tree and plant protection.
   4. Site enclosure fence.
   5. Barricades, warning signs, and lights.
   6. Temporary security measures.
   7. Archaeological protection of findings having historical or cultural significance.

E. Related Sections: Refer to Divisions 1 through 16 for other temporary requirements including ventilation, humidity requirements and products in those Sections.

1.02 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to the State and shall be included in the Contract Price. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
   1. Other Contractors with agreements with the State working within the contract limits.
   2. Occupants of Project.
   3. Testing agencies.
   4. Contracting Officer and personnel of authorities having jurisdiction.
   5. Security personnel.

1.03 SUBMITTALS

A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

B. Landfill Disposal Receipts: Submit copies of receipts issued by a landfill facility. Include receipts with Contractor Daily Progress Report

1.04 QUALITY ASSURANCE

A. Standards: Comply with IBC Chapter 33, “Safeguards During Construction”, ANSI A10.6, NECA’s “Standard for Installing and Maintaining Temporary Electric Power at Construction Sites”, and NFPA 241, "Standard for Safeguarding Construction, Alteration, and Demolition Operations".
   1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
   2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70, “National Electrical Code”.
      a. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.05 PROJECT CONDITIONS

A. Temporary Utilities: At earliest feasible time, when acceptable to the Contracting Officer, change over from use of temporary service to use of permanent service.
   1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Contracting Officer’s acceptance, regardless of previously assigned responsibilities.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
   1. Keep temporary services and facilities clean and neat.
   2. Relocate temporary services and facilities as required by progress of the Work.

1.06 PREPARATION AND PROTECTION

A. Protection of Property: Continually maintain adequate protection of the Work from damage and protect all property, including but not limited to buildings, equipment, furniture, grounds, vegetation, material, utility systems located at and adjoining the job site. Repair, replace or pay the expense to repair damages resulting from Contractor’s fault or negligence.

B. Before starting work to be applied to previously erected constructions, make a thorough and complete investigation of the recipient surfaces and determine their suitability to receive required additional construction and finishes. Make any repair that is required to properly prepare surfaces, and coordinate the Work to provide a suitable surface to receive following Work.

C. Commencing work by any trade implies acceptance of existing conditions and surfaces as satisfactory for the application of subsequent work, and full responsibility for finished results and assumption of warranty obligations under the Contract.

D. Protect existing (including interiors) work to prevent damage by vandals or the elements. Provide temporary protection. Use curtains, barricades, or other appropriate methods. Take positive measures to prevent breakage of glass and damage to plastic, aluminum and other finishes.

E. Repairs and Replacements: Promptly replace and repair damages to the approval of the Contracting Officer. Additional time required to secure replacements and to make repairs does not justify a time extension.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Contracting Officer. Provide materials suitable for use intended.

B. Plastic Enclosure Fence: Industry standard 4-feet high plastic fencing with metal (or wood) post supports at 10-feet on center connected with a top and bottom 12-gauge soft annealed galvanized tie wires securely connected to posts. Posts shall be capable of resisting a lateral load of 100 pounds measured at the top of the post.

C. Metal plates: Provide metal plates to bridge over any excavated areas that have not been fully backfilled at the end of each day. Metal plates shall be of a size and thickness sufficient to withstand pedestrian and/or vehicular loadings and cover the excavated areas. For paved surfaces, the edges of metal plates shall be made flush with the adjacent surfaces and securely installed without any significant movement or vibration. When installed in sidewalk areas, the metal plates shall be installed in accordance with ADA accessibility guidelines.

D. Water: Potable.

2.02 EQUIPMENT

A. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA recommended classes for exposures. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

B. Self-Contained Combination Toilet and Urinal Units: Single occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material. One quarter of, or at least one unit(s) shall contain a handwash sink with potable water storage.

C. Electrical Outlets: Properly configured, NEMA polarized outlets to prevent insertion of 110 to 120 V plugs into higher voltage outlets; equipped with ground fault circuit interrupters, reset button, and pilot light.

D. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125 V ac, 20 A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
   1. Secure approval from Contracting Officer before modifications are made to the State Inspector's Field Office.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service where directed by the Contracting Officer. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
   1. Arrange with utility company, the Department, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
   2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.

B. Storm Drainage: Discharge of drainage flows accumulated due to construction-related activities into any storm drain is generally prohibited. Drainage ditches, ponds or similar facilities capable of holding drainage water on-site is recommended, if possible.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
   1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.

   2. Toilets: Install self-contained toilet units behind locked fencing. Personnel shall accommodate security requirements in restricted areas of building. Shield toilets to ensure privacy. Provide separate facilities for male and female personnel.

   3. Locate toilets and drinking water fixtures so personnel need not walk more than 200-feet horizontally to facilities.

D. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnecting means, automatic ground fault interrupters, and main distribution switchgear. Use of State facilities electrical power services will be permitted as long as equipment is maintained in a condition acceptable to the Contracting Officer.

E. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment. Protect wiring, in conduits or other, measures when exposed to possible damage or traffic areas.

F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

G. Telephone Service: Provide a portable wireless telephone with voice-mail or messaging service for superintendent's use in making and receiving telephone calls when at the construction site.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:
   1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access or where shown on Contract Drawings or as directed by the Contracting Officer.

   2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion.

B. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

C. Site Drainage:
   1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.

D. Temporary Sign(s):
   1. Provide and install temporary signs as listed. Sign designs are attached to Part 3 of this Section:
      a. Warning Sign

   2. Install signs where directed by the Contracting Officer or where indicated to inform public and persons seeking entrance to the Project. Do not permit installation of unauthorized signs.

   3. Provide temporary signs to provide directional information to constructional personnel and visitors.

   4. Construct signs with durable materials, properly supported or mounted, and visible.

E. Trash, Refuse Disposal:

1. Department of Health – Illegal Dumping Notice. See attachment to Part 3 of this section.
   a. This Notice to be printed out on 8.5x11" paper.

   b. This Notice to be posted at the job site field office and/or in locations visible to all contractors, subcontractors, suppliers, vendors, etc. throughout the duration of the project.

2. Illegal Dumping of solid waste could subject the Contractor to fines and could lead to felony prosecution in accordance with Chapter 342H, HRS. For more information, see the following web site: http://www.hawaii.gov/health/environmental/waste/sw/pdf/Illdump.pdf

3. Provide waste collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

4. Do not burn debris or waste materials on the project site.

5. Do not bury debris or waste material on the project site unless specifically allowed elsewhere in these specifications as backfill material.

6. Haul unusable debris and waste material to an appropriate off site dump area.
   a. Water down debris and waste materials during loading operations or provide other measures to prevent dust or other airborne contaminants.

   b. Vacuum, wet mop, or damp sweep when cleaning rubbish and fines which can become airborne from floors or other paved areas. Do not dry sweep.

7. Clean up shall include the collection of all construction and personal waste materials, cans, bottles, and other objectionable materials, and removal as required. Frequency of clean up shall be daily.

3.04 ENVIRONMENTAL CONTROLS

A. General: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Dust Control:

1. Prevent dust from becoming airborne at all times including non-working hours, weekends and holidays in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 60.1 Air Pollution Control.

2. Contractor is responsible for and shall determine the method of dust control. Subject to the Contractor's choice, the use of water or environmentally friendly chemicals may be used over surfaces that create airborne dust.

3. Contractor is responsible for all damage claims due to their negligence to control dust.

C. Noise Control
1. Keep noise within acceptable levels at all times in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 46 Community Noise Control. Obtain and pay for the Community Noise Permit when construction equipment or other devices emit noise at levels exceeding the allowable limits.

2. Ensure mufflers and other devises are provided on equipment, internal combustion engines and compressors to reduce loud disruptive noise levels and maintain equipment to reduce noise to acceptable levels.

3. Unless specified elsewhere, do not start construction equipment that meet allowable noise limits prior to 6:45 A.M. or equipment exceeding allowable noise levels prior to 7:00 A.M.

D. Erosion Control
1. During grading operations, maintain the grade to prevent damage to adjoining property from water and eroding soil.

2. Install temporary BMPs and other provisions needed for construction methods and operations. Should there be a question if the temporary measures are insufficient to prevent erosion, the Contracting Officer shall make the final determination.

E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect existing landscaping and tree root systems from damage, flooding, and erosion due to construction activity.

3.05 VIOLATION OF ENVIRONMENTAL PROVISIONS

A. Violations of any of the above environmental control requirements or any other pollution control requirements; which may also be specified in the other Specifications sections, shall be resolved under the SUSPENSION and CORRECTIVE WORK Section of the GENERAL CONDITIONS.

3.06 BARRICADES AND ENCLOSURES

A. Barricades: Before construction operations begin, erect temporary construction barricade(s) to prevent unauthorized persons from entering the project area and to the extent required by the Contracting Officer.
1. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.

2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Contracting Officer with 2 sets of keys.

3. Maintain temporary construction barricade(s) throughout the duration of the Work. During the course of the project, the Contracting Officer may require additional barricades be provided for the safety of the public. Contractor shall erect the additional barricade(s) at its own expense.

B. Security Enclosure and Lockup:
   1. Install substantial temporary enclosure around partially completed areas of construction.

   2. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

3.07 OPERATION, TERMINATION, AND REMOVAL

A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by heat temperatures and similar elements.

B. Termination and Removal: Remove each temporary facility when need for its service has ended, or when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are the property of Contractor. The Department reserves the right to take possession of Project identification signs.

3.08 ATTACHMENTS

A. Warning Sign: Requirements for Warning Sign.

B. Department of Health – Illegal Dumping Notice

END OF SECTION

REQUIREMENTS FOR WARNING SIGN

1. General Requirements: Furnish all labor, materials and equipments necessary to construct and install warning signs as specified hereinafter.
2. Materials
    a. Backing: Backing shall be 6061-T6 aluminum 0.032-inch minimum thickness.
    b. Paint: Paint shall be satin finish, exterior grade or factory baked enamel or a combination thereof.
3. Colors: Signs shall have white background. Remaining items shall be similar to Rust-Oleum Federal Safety Red.
4. Requirements for Warning Sign: Message configuration and dimensions shall be in accordance with the attached illustration.
5. Installation
    a. Signs shall be located at 50-foot intervals around roped off work area or at all entrances in the case of interior work.
    b. Signs shall be attached to the rope barrier, rope barrier supports, individual sign supports or buildings. Do not use nails to attach signs to building(s).
6. Clean-up: Remove all signs upon completion of project. Repair any damages caused by sign mounting and removal.

DEPARTMENT OF HEALTH
ILLEGAL DUMPING NOTICE

The law requires you to dispose solid waste only at recycling or disposal facilities permitted by the Department of Health.

"Solid waste" includes municipal refuse, construction and demolition waste, household waste, tires, car batteries, derelict vehicles, green wastes, furniture, and appliances.

Illegal dumping of solid waste or allowing illegal disposal of solid waste on your property even if contractual or other arrangements are made could subject you to fines from $10,000 to $25,000 per occurrence and could lead to felony prosecution in accordance with Chapter 342H, HRS.

Contact the Department of Health, Solid Waste Section at 586-4226 to report illegal dumping activities or if you have further questions.

SECTION 01650 – FACILITY STARTUP

PART 1 – GENERAL

1.01 RELATED SECTIONS

A. SECTION 02722 – SANITARY SEWER SYSTEM

B. SECTION 02723 – STORMWATER SYSTEM

C. SECTION 16000 – ELECTRICAL WORK

1.02 DESCRIPTION OF WORK

A. Test, startup and commission all systems and equipment to verify performance, function, and correct operation by performing procedures to activate, startup, adjust, test, and demonstrate that the work is in operating order in accordance with these general requirements of this Section and the detailed requirements of the technical sections under the system or equipment specified. To ensure that the work is ready for full-time operation the procedures include verification, balancing, calibration, witness testing, documentation, inspection by equipment manufacturers and operator training where specified.

B. Furnish personnel, test equipment, measuring devices and supplies required to conduct tests. Furnish all expendable supplies, gas, water, fuel, chemicals, etc., required for startup, demonstration and testing and dispose of all waste or used supplies, water, etc. All necessary permits and associated costs shall be provided by the Contractor.

C. Operate and maintain the equipment until acceptance by the Contracting Officer. Provide all lubricants, chemicals, and electricity necessary until acceptance by the Contracting Officer.

1.03 SUBMITTALS

A. Submit in accordance with Section 01330 – SUBMITTAL PROCEDURES.

B. Startup Plan, Testing Plan, Forms, and Schedule: Submit a facility startup plan and schedule at least 45 days prior to startup. The plan shall include qualifications of all personnel, including manufacturer's representatives, methods, operational parameters, service conditions, measuring devices, equipment, test durations, procedures and sample forms for recording test data. Include all necessary items to satisfy startup and testing requirements from the individual equipment specification sections.

C. Training plan and schedule: Submit a plan for training of the State's personnel at least 45 days prior to the first training session. The plan shall include qualifications of the trainers, training schedule, agendas, handouts, etc. that will be used during the training sessions.

D. Manufacturer's Affidavits.

E. Submit documentation of tests, balancing reports, and the like.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 INITIAL STARTUP AND OPERATION OF FACILITIES

A. The following listing is a general sequence of startup activity steps to be used in placing facility systems into operation:

1. Successfully complete all hydrostatic and leakage testing requirements. Perform initial lubrication of equipment and have manufacturers check and adjust equipment. Provide all subsequent lubrication and maintenance, and such staff as required for test operation until the successful completion and acceptance of the operation testing.

2. Perform satisfactory testing of electrical work required prior to energizing of the electrical system.

3. After completion of Step 2, perform satisfactory electrical testing required after energizing of the electrical system.

4. Complete calibration of instruments.

5. Satisfactorily complete system verification of instrumentation work.

6. After completion of Steps 1 and 3, perform a rotational test of equipment and correct backward rotating drives.

7. After completion of Steps 4 through 6, test operate the equipment by manually initiating the operation. Where manual operation bypasses alarm or safety monitoring, provide continuous supervision of such parameters. Perform this step using water in lieu of chemicals or other process liquids.

8. Concurrent with Step 7, perform instrumentation and control testing and adjustments as related to the equipment being tested.

9. Concurrent with Step 7 and where possible at this stage of startup, complete the testing specified for the equipment.

10. Concurrent with Step 7, perform adjustments of the electrical work as related to the equipment being tested.

11. Repeat Steps 1 through 10 as required for other equipment items and appurtenances until all components and utility systems are ready for total operation. It may be necessary for the Contractor to put portions of the newly constructed facility in service before constructing and/or running other portions of the facility or completing the Work as a whole. Prior to placing portions of the facility in service, all components of the sub-system shall be run for a minimum of three (3) consecutive weekdays, to ensure hydraulic capacity of the system and proper operation. Partial acceptance will not be granted for this.

12. Notify the Contracting Officer 30 days before total system operation is to occur so that the State may make arrangements for full-time operation. Notify the Contracting Officer again, exactly 7 days before total operation is to begin. The Contractor shall obtain written permission from the Contracting Officer that the systems have been tested and is deemed ready for full-time operation.

13. Remove all temporary power, supports, instruments, utilities to the satisfaction of the Contracting Officer. Satisfactorily complete equipment performance testing, electrical testing and adjustments, and instrumentation/control testing and adjustments that were not completed prior to full operation.

14. Upon completion of all the above steps, the entire facility (not just components or parts) shall be started up and operated on a complete full-time basis beginning on the indicated date.
    a. For sewer systems, the State will provide the untreated wastewater.

    b. The Contractor shall provide the staff, fuel, chemicals, etc. as required for the operation and maintenance.
        i) For the initial five (5) consecutive days beginning with the full-time system operation day, the Contractor shall have at the site, during the day shift, a mechanic, an electrician and an instrument engineer. The initial (5) days shall be performed from Monday to Friday, with no Federal, State or City holidays included. Representatives of manufacturers of critical equipment shall also be present for these initial five (5) days as needed or as required elsewhere in the specifications.
        ii) The Contractor shall also provide these personnel on a 24 hour per day, "on call" basis, if necessary to adjust, repair, and correct deficiencies as required to keep the facilities in continuous operation for a period of 14 consecutive days (for sewer systems) The Contractor shall train the operators in the proper operation and the control of the new facilities prior to the complete startup. The Contractor shall also furnish all such mechanical and electrical workers as required to make adjustments to and perform all required maintenance for the operating equipment until the acceptance of the 14-day operation period (for sewer systems). Maintenance of operating equipment shall include lubrication, adjustments, replacements, and modifications as required.

15. After successful completion and acceptance of the operation period, the State will begin to provide and pay for lubricants, fuel, chemicals, etc. If continuous process operation is interrupted for a period of four consecutive hours or more due to a failure of the equipment or work provided by the Contractor, then the counting of the initial 5 day and/or complete operation period, described in Step 14 above, shall be restarted at day one if these periods have not reached satisfactory completion. The Contracting Officer shall have the final say for the requirements if the 5-day and/or complete operation periods need to be restarted.

16. Complete the documentation of testing, balancing reports, and commissioning for submittal during the startup process and before acceptance. Prior to acceptance, the Contractor shall fill all systems with lubricants, fuel, chemicals, media, and other consumables to their maximum recommended operating levels. Prior to acceptance, the Contractor shall replace all air filters.

17. The work shall remain in the testing phase until all operational performance, testing, reports, adjustments, training, etc. are completed to the satisfaction of the Contracting Officer. All costs to continue operation of the new systems including manpower, chemicals, fuel, supplies, etc. shall be the responsibility of the Contractor until the Contracting Officer confirms in writing that all system testing and documentation requirements have been satisfied.

3.02 MANUFACTURER'S FIELD SERVICE AND AFFIDAVITS

A. Field Service: Where specified, manufacturers of equipment shall provide field service. Field service shall be provided by an authorized factory-trained and qualified manufacturer's representative for the specific equipment. Equipment shall not be considered ready for full time operation until after the manufacturer's representative has checked and adjusted the equipment, and certified by written affidavit that the equipment has been properly installed, tested, adjusted, lubricated, and calibrated, and is ready for full time operation.

B. Affidavits: Acceptable affidavits shall be submitted prior to completion of the work.

1. Affidavits shall contain the following specific wording:
"The [Name of Equipment] has been properly installed, tested, adjusted, lubricated, and calibrated, and is ready for full time operation. The installation has been inspected and has been found to be in conformance with our (the manufacturer's) standards and requirements."

2. No amplification, dilution, or modification of this specific wording will be permitted.

3.03 TRAINING

A. Submit Operation and Maintenance Manuals in accordance with SECTION 01330 – SUBMITTAL PROCEDURES.

B. Coordinate training schedule with the Contracting Officer. Contractor shall provide at least one-week notification to allow the State to provide the necessary personnel to attend any training sessions.

C. Prior to training sessions, the Contractor shall ensure that all major system and equipment components have been tested, adjusted, and balanced in conformance with the Specifications, manufacturers recommendation, and to the degree such that it is operating to its intended use. If training sessions are scheduled prior to major system and equipment components are deemed sufficiently operational by the Contracting Officer, the Contractor shall provide additional training sessions at no additional cost to the State.

D. Demonstrate the operation, maintenance and safety procedures for all systems and equipment to personnel designated by the Contracting Officer. Provide training to instruct the State personnel to adjust, operate, and maintain the systems, subsystems, and specific pieces of equipment as specified in the Technical Specification Sections of each equipment and SECTION 01770 – CLOSEOUT PROCEDURES.

E. Provide training and onsite demonstration of systems and equipment.
   1. Illustrate classroom training with diagrams, checklists, photographs and other visual aids as appropriate. Use video, slides, or overhead projector to present visual materials.

   2. Prepare a course summary illustrated with copies of visual materials. Distribute one copy to each course attendee, four copies to the State and two copies to the facility operator.

F. In addition to overall training specified above, provide special demonstration and training for specific pieces of equipment specified in the Technical Specification Sections.

G. Contractor shall video record the training sessions and provide two (2) copies of the recorded training session in DVD-format. Video recording of the training sessions shall be recorded on DVD-format, shall be taken by a proficient video camera-person, and shall be camera date-imprinted. Video recordings shall also be in color and shall include the audio narrative of the instructors. The video recording shall be subject to approval of the Contracting Officer. If requested by the Contracting Officer, video shall be re-recorded at no additional cost to the State.

END OF SECTION

SECTION 01715 - EXISTING CONDITIONS – LIMITED HAZARDOUS MATERIALS SURVEY

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes the results of the State of Hawaii's survey for asbestos and lead-containing paints and is provided for the Contractor's information.

B. Related Sections include the following
   1. SECTION 13281 – REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIALS; for requirements of all work that disturbs asbestos-containing material.

   2. SECTION 13282 – LEAD-CONTAINING PAINT CONTROL MEASURES; for requirements of all work that disturbs Lead-Containing Paint.

   3. SECTION 13288 – TESTING/AIR MONITORING; for requirements of all work that disturbs Lead-Containing Paint.

C. Costs incurred due to Contractor's inability to control hazards shall be borne by the Contractor, including but are not limited to, legal, medical, regulatory and public relations, investigations, monitoring, testing, and reporting.

1.02 ASBESTOS

A. The structure to be modified under this contract was surveyed for the presence of asbestos containing materials (ACM). A copy of the initial survey report, as well as any subsequent supplemental survey reports, if performed, is included in the Section.
   1. The reports are included, even though no ACM was found, for the Contractor's information. Review the attached reports for the basis on which the negative ACM finding was made. There may be areas that require further survey once construction begins. Further survey will be coordinated by the Officer-in-Charge. If asbestos is found, follow requirements of SECTION 13281 – REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING MATERIALS.

   2. The Contractor may perform further surveys with prior approval from the Officer-in-Charge and at its own expense if ACM not shown in the reports is suspected in areas in which work will be performed. If ACM is found, notify the Officer-in-Charge immediately.

   3. If there is ACM outside of the areas in which work will be performed, this ACM shall not be disturbed in any way.

B. If applicable, the Contractor shall notify his employees, subcontractors and all other persons engaged in the demolition and abatement work of the presence of asbestos in accordance with the requirements of Chapter 110, Article 12-110-2 (f)(1)(B) of the Occupational Safety and Health Standards, State of Hawaii.

C. In the event that work is required in any area on the site other than those designated in the project scope, the Contractor shall request copies of the asbestos survey

reports for each such area from the Officer-in-Charge. Based on the information contained in the additional survey(s), notify all persons on the project as indicated in paragraph 1.02 B. Project areas shall be restored and free of asbestos hazards.

1.03 LEAD CONTAINING PAINT

A. Lead-containing paint (LCP) is defined as paint containing any measurable concentration of lead.
   1. Contractor shall assume lead in paints until proven otherwise and notify the Officer-in-Charge if previously unforeseen LCP is suspected in project area.

   2. If there is suspected LCP outside of the project area, this suspected LCP shall not be disturbed in any way.

B. Contractor shall protect site workers, staff, other trades, the public, and the environment from the exposure to lead dust and debris and follow applicable rules and regulations pertaining to the handling, removal, and disposal of lead-containing debris, materials, and waste. Project areas shall be restored and free of lead paint hazards.

C. Review the attached lead testing data which identifies the locations LCP was found. Lead testing was for design purposes only and the results do not satisfy any of the requirements of HIOSH Chapter 12-148.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SURVEY

Limited Hazardous Materials Survey, Kapuaiwa Building Pump Station Improvements, Honolulu, Oahu, Hawaii, 14 pages, dated September 13, 2018, prepared by EnviroServices & Training Center, LLC.

END OF SECTION

September 13, 2018 *via email: jason@tlcghawaii.com*

The Limtiaco Consulting Group
680 Iwilei Road, Suite 430
Honolulu, Hawaii 96817

Attention: Mr. Jason Lau

SUBJECT: LIMITED HAZARDOUS MATERIALS SURVEY
KAPUAIWA BUILDING PUMP STATION IMPROVEMENTS
HONOLULU, OAHU, HAWAII

The purpose of this Letter Report is to document the Limited Hazardous Materials Survey (Survey) completed by EnviroServices & Training Center, LLC (ETC) for the improvements project at the Judiciary Building Pump Station located at 426 Queen Street, Honolulu, Oahu, Hawaii (Subject Site). The Survey was limited to the areas specified to ETC by Mr. Jason Lau of The Limtiaco Consulting Group. The Survey was conducted on September 7, 2018.

1.0 SCOPE OF WORK

ETC performed the following scope of work:

- Mobilized a State of Hawaii Department of Health (DOH)/Environmental Protection Agency (EPA) certified asbestos building inspector and lead risk assessor to the Subject Site;
- Collected a total of six (6) bulk asbestos samples from the Subject Site in accordance with EPA guidelines;
- Submitted the 6 bulk samples to EMC Labs, Inc. (EMC) for analysis by Polarized Light Microscopy (PLM) to determine asbestos type and content in accordance with EPA Method-600/R-93/116;
- Collected five (5) paint chip samples from the Subject Site;
- Submitted the 5 paint chip samples to EMC for analysis by flame atomic absorption spectroscopy (FAAS) via EPA Method 7000 for total lead content;
- Submitted the 5 paint chip samples to EMC for total lead analysis via EPA Method 7420; and
- Provided this Letter Report documenting ETC's methodologies, findings, and recommendations.

2.0 WORK ACTIVITIES

Asbestos

ETC collected six (6) samples of suspected asbestos-containing materials (ACM) for asbestos analysis. Samples were collected in accordance with EPA guidelines and recommendations.

Each suspected ACM was first wetted with water. A small piece was then carefully cut out and placed in a labeled re-sealable plastic bag. The sampling equipment was cleaned between each sample collection to avoid cross-contamination between samples.

All samples were properly logged and recorded following strict chain of custody procedure and submitted to EMC Labs, Inc. (EMC) in Phoenix, Arizona for analysis by PLM in accordance with EPA Method 600/R-93/116. EMC is accredited for bulk asbestos analysis through successful participation in the National Voluntary Lab Accreditation Program (NVLAP).

Lead Paint

ETC personnel collected five (5) paint chip samples from painted surfaces for total lead analysis. These samples were collected in accordance with EPA guidelines and recommendations.

The samples were properly logged and recorded following strict chain of custody procedure and submitted to EMC for analysis in accordance with EPA Method 7000. EMC is an Environmental Lead Laboratory Accreditation Program (ELLAP)-accredited laboratory.

3.0 RESULTS

Asbestos

A total of 6 suspect asbestos samples were collected and submitted for analysis via PLM. None of the materials sampled were found to contain levels of asbestos above the regulatory limit of 1%. Results of these analyses are summarized in Table 1, below. The laboratory report is included in Attachment I.

Table 1

Asbestos Survey Results

Sample ID	Homogeneous Area	Material	Condition	Category	Friability	Analysis Layer	Asbestos Content
1825-A01	Pump Station Room	Gray Window Caulking	Good	Not Applicable	Not Applicable	All	None Detected
1825-A02							None Detected
1825-A03							None Detected
1825-A04	Pump Station Room	Silver Metallic Paint	Good	Not Applicable	Not Applicable	All	None Detected
1825-A05							None Detected
1825-A06							None Detected

Lead Paint

The sampled paints did not contain lead in excess of the EPA/United States Department of Housing and Urban Development (HUD) guideline of 0.5 percent lead by weight defining Lead-Based Paint (LBP). Three (3) paints contain detectable levels of lead, less than the EPA/HUD guideline, and are considered to be Lead-Containing Paint (LCP). Results of these analyses are summarized in Table 2, below. The laboratory report is included in Attachment I.

Table 2

Lead Paint Survey Results

Sample ID	Building	Interior/ Exterior	Color	Substrate	Description	Condition	Reporting Limit (% Pb by weight)	Results (% Pb by weight)
1825-L01	Pump Station Room	Interior	Silver Metallic	Metal	Pipes	Intact	0.010	BRL
1825-L02	Pump Station Room	Interior	Gray	Metal	Pipes	Intact	0.010	0.016
1825-L03	Pump Station Room	Interior	Blue	Metal	Pipes	Intact	0.010	0.025
1825-L04	Pump Station Room	Interior	Light Gray	Metal	Electric Boxes	Intact	0.023	0.023
1825-L05	Pump Station Room	Interior	Black	Metal	Pipes	Intact	0.010	BRL

BRL =Below Reportable Limits

4.0 DISCUSSIONS AND RECOMMENDATIONS

The findings and recommendations of ETC's survey extend only to those areas that were accessible at the time of the site reconnaissance. Any areas that were inaccessible either due to physical restraints (i.e. areas within walls, behind locked doors, beneath flooring materials, hidden materials, etc.) or occupancy are not covered under the scope of this survey and should be evaluated for hazardous materials separately prior to any disturbance.

Based on ETC's visual inspection of the facility and laboratory data, ETC recommends the following:

- Manage and/or remove and dispose of hazardous and regulated materials in accordance with applicable federal, state, and local regulations, prior to renovation and/or demolition activities that may disturb these materials.
- Any material suspected of containing a hazardous contaminant should be tested prior to disturbance.
- Remove and dispose of all loose and flaking (poor condition) LCP prior to renovation/demolition activities in accordance with applicable federal, state, and local regulations. Note that conditions of paint may have changed since the time of this survey.
- Any abatement and demolition contractor(s) must take appropriate measures to comply with applicable EPA, Occupational Safety and Health Administration (OSHA), and Hawaii Occupational Safety and Health (HIOSH) regulations pertaining to the handling of LCP and worker protection. Note that OSHA and HIOSH regulate activities that disturb paint containing any detectable concentration of lead.
- Conduct air monitoring for airborne lead dust by qualified personnel during any lead abatement and general renovation/demolition activities of areas that were determined to contain lead paint.
- Any suspected hazardous materials existing outside of the renovation area shall not be disturbed.

5.0 LIMITATIONS

ETC's findings, conclusions, and recommendations are based on research, site observations, and/or analytical data, which were gathered and accessible at the time and location of this project. We make no guarantee or warranty; either expressed or implied, except that our services are consistent with good commercial or customary practices designed to conform with acceptable industry standards. ETC has completed this project in accordance with the Guidelines, Standards, and Code of Ethics adopted by members of the American Industrial Hygiene Association, and American Conference of Governmental Industrial Hygienists.

This report is exclusively for the use and benefit of The Limtiaco Consulting Group. Reuse of the information contained herein by any other party will be at such party's own risk.

Thank you for allowing ETC to serve you. Please contact us at 839-7222 with any questions.

Sincerely,

ENVIROSERVICES & TRAINING CENTER, LLC

James C. Ponds II
State of Hawaii Asbestos Inspector
Certification # HIASB-4283

State of Hawaii/EPA Lead Risk Assessor
Certification # PB-0992

Attachment I: Laboratory Report
Attachment II: Asbestos Sample Location Map

Attachment I

LABORATORY REPORT

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0207941

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	ENVIROSERVICES & TRAINING CENTER	Job# / P.O. #:	18-4025
Address:	505 WARD AVE, STE 202	Date Received:	09/10/2018
	HONOLULU HI 96814	Date Analyzed:	09/13/2018
Collected:	09/07/2018	Date Reported:	09/13/2018
Project Name:	JUDICIARY BLDG PUMP STATION	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	JAMES PONDS II
		Collected By:	

Lab ID / Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type	(%)	Non-Asbestos Constituents	(%)
0207941-001 1825-A01		Window Caulking, White	No	None Detected		Cellulose Fiber Carbonates Quartz Binder/Filler	<1% 99%
0207941-002 1825-A02		Window Caulking, White	No	None Detected		Cellulose Fiber Carbonates Quartz Binder/Filler	<1% 99%
0207941-003 1825-A03		Window Caulking, White	No	None Detected		Carbonates Quartz Binder/Filler	 100%
0207941-004 1825-A04		Metallic Paint, Silver	No	None Detected		Cellulose Fiber Carbonates Quartz Binder/Filler	<1% 99%
0207941-005 1825-A05		Metallic Paint, Silver	No	None Detected		Cellulose Fiber Carbonates Quartz Binder/Filler	1% 99%
0207941-006 1825-A06		Metallic Paint, Silver	No	None Detected		Cellulose Fiber Carbonates Quartz Binder/Filler	1% 99%

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0207941

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	ENVIROSERVICES & TRAINING CENTER	Job# / P.O. #:	18-4025
Address:	505 WARD AVE, STE 202	Date Received:	09/10/2018
	HONOLULU HI 96814	Date Analyzed:	09/13/2018
Collected:	09/07/2018	Date Reported:	09/13/2018
Project Name:	JUDICIARY BLDG PUMP STATION	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	JAMES PONDS II
		Collected By:	

Lab ID / Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents

Analyst - James A. Storm

Signatory - Lab Director - Kurt Kettler

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11 pdf

CHAIN OF CUSTODY

EMC Labs, Inc.
9830 S. 51st St., Ste B-109
Phoenix, AZ 85044
(480) 940-5294 Fax (480) 893-1726

LAB#: 207941
TAT: 3-Day
Rec'd: SEP 10 AM

COMPANY NAME: EnviroServices & Training Center, LLC
Address: 505 Ward Avenue Suite 202
Honolulu, Hawaii 96814
CONTACT:
Phone/Fax: (808)839-7222/(808)839-4455
Email: jponds@gotoetc.com, rel@gotoetc.com

BILL TO: (If Different Location)
Trina Oshiro

Now Accepting: VISA – MASTERCARD
Price Quoted: $_____ / Sample $____ / Layers

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. **TURNAROUND TIME:** [Same Day Rush] [1-2 Days] ~~[3-4 5 Days]~~ [6-10 Days]

****Prior confirmation of turnaround time is required**
****Additional charges for rush analysis (please call marketing department for pricing details)**
****Laboratory analysis may be subject to delay if credit terms are not met**

2. **TYPE OF ANALYSIS:** ~~[Bulk-PLM]~~ [Air-PCM] [Lead] [Point Count] [Fungi: AOC, W-C, Bulk, Swab, Tape]
3. **DISPOSAL INSTRUCTIONS:** ~~[Dispose of samples at EMC]~~ / [Return samples to me at my expense]
(If you do not indicate preference, EMC will dispose of samples 30 days from analysis.)

4. **Project Name:** Judiciary Building Pump Station
P.O. Number: _____ **Project Number:** 18-4025

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
1	1825-A01	9/7/18	Gray Window Caulking	Y N			
2	1825-A02	"	"	Y N			
3	1825-A03	"	"	Y N			
				Y N			
4	1825-A04	"	Silver Metallic Paint	Y N			
5	1825-A05	"	"	Y N			
6	1825-A06	"	"	Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS: Stop at first positive

Sample Collector: (Print) James Ponds II (Signature) James Ponds II

Relinquished by: James Ponds II Date/Time: 9/7/18 Received by: Diana Federico Date/Time: 9/10/18

Relinquished by: Diana Federico Date/Time: 9/10/18 Received by: _____ Date/Time: 9/10/18

Relinquished by: _____ Date/Time _____ Received by: _____ Date/Time: _____

** In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Phoenix, Arizona and prevailing party will be entitled to attorney's fees and court costs.

EMC LABS, INC.

9830 South 51st Street, Suite B-109 / PHOENIX, ARIZONA 85044 / 480-940-5294 or 800-362-3373 / FAX 480-893-1726
emclab@emclabs.com

LEAD (Pb) IN PAINT CHIP SAMPLES

EMC SOP METHOD #L01/1 EPA SW-846 METHOD 7420

EMC LAB #:	L71310	**DATE RECEIVED:**	09/10/18
CLIENT:	Enviroservices & Training Center, LLC	**REPORT DATE:**	09/13/18
		DATE OF ANALYSIS:	09/13/18
CLIENT ADDRESS:	505 Ward Ave. Suite #202 Honolulu, HI 96814	**P.O. NO.:**	
PROJECT NAME:	Judiciary Building Pump Station	**PROJECT NO.:**	18-4025

EMC # L71310-	SAMPLE DATE /18	CLIENT SAMPLE #	DESCRIPTION	REPORTING LIMIT (%Pb by weight)	%Pb BY WEIGHT
1	09/07	1825-L01	Silver Metallic Paint on Metal Piping	0.010	BRL
2	09/07	1825-L02	Gray Paint on Metal Piping	0.010	0.016
3	09/07	1825-L03	Blue Paint on Metal Piping	0.010	0.025
4	09/07	1825-L04	Light Gray on Metal Electric Boxes	0.023	0.023
5	09/07	1825-L05	Black Paint on Metal Piping	0.010	BRL

^ = Dilution Factor Changed ***** = Excessive Substrate May Bias Sample Results **BRL** = Below Reportable Limits **#** = Very Small Amount Of Sample Submitted, May Affect Result

This report applies to the standards or procedures identified and to the samples tested only. The test results are not necessarily indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. Unless otherwise noted, all quality control analyses for the samples noted above were within acceptable limits.

Where it is noted that a sample with excessive substrate was submitted for laboratory analysis, such analysis may be biased. The lead content of such sample may, in actuality, be greater than reported. EMC makes no warranty, express or implied, as to the accuracy of the analysis of samples noted to have been submitted with excessive substrate. Resampling is recommended in such situations to verify original laboratory results.

ANALYST: Jason Thompson

QA COORDINATOR: Kurt Kettler

Rev. 11/30/08

Page 1 of 1

CHAIN OF CUSTODY

EMC Labs, Inc.
9830 S. 51st St., Ste B-109
Phoenix, AZ 85044
(480) 940-5294 Fax (480) 893-1726

LAB#: 47130
TAT: 3-day
Rec'd: 9/10/18

COMPANY NAME: EnviroServices & Training Center, LLC
Address: 505 Ward Avenue Suite 202
Honolulu, Hawaii 96814
CONTACT:
Phone/Fax: (808)839-7222/(808)839-4455
Email: jponds@gotoetc.com, vel@gotoetc.com

BILL TO: (If Different Location)
Trina Oshiro

Now Accepting: VISA – MASTERCARD
Price Quoted: $_____ / Sample $____ / Layers

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. **TURNAROUND TIME:** [Same Day Rush] [1-2 Days] [3-5 Days] [6-10 Days]

****Prior confirmation of turnaround time is required**
****Additional charges for rush analysis (please call marketing department for pricing details)**
****Laboratory analysis may be subject to delay if credit terms are not met**

2. **TYPE OF ANALYSIS:** [Bulk-PLM] [Air-PCM] [Lead] [Point Count] [Fungi: AOC, W-C, Bulk, Swab, Tape]
3. **DISPOSAL INSTRUCTIONS:** [Dispose of samples at EMC] / [Return samples to me at my expense]

(If you do not indicate preference, EMC will dispose of samples 30 days from analysis.)

4. **Project Name:** Judiciary Building Pump Station
P.O. Number: _____ **Project Number:** 18-4025

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
1	1825-L01	9/7/18	Silver Metallic Paint on Metal Piping	Y N			
2	1825-L02		Gray Paint on Metal piping	Y N			
3	1825-L03		Blue Paint on Metal piping	Y N			
4	1825-L04		Light Gray on Metal Electric Boxes	Y N			
5	1825-L05		Black Paint on Metal Piping	Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS: _____

Sample Collector: (Print) James Ponds II (Signature) James Ponds II

Relinquished by: James Ponds II Date/Time: 9/7/18 Received by: _____ Date/Time: 9/10/18

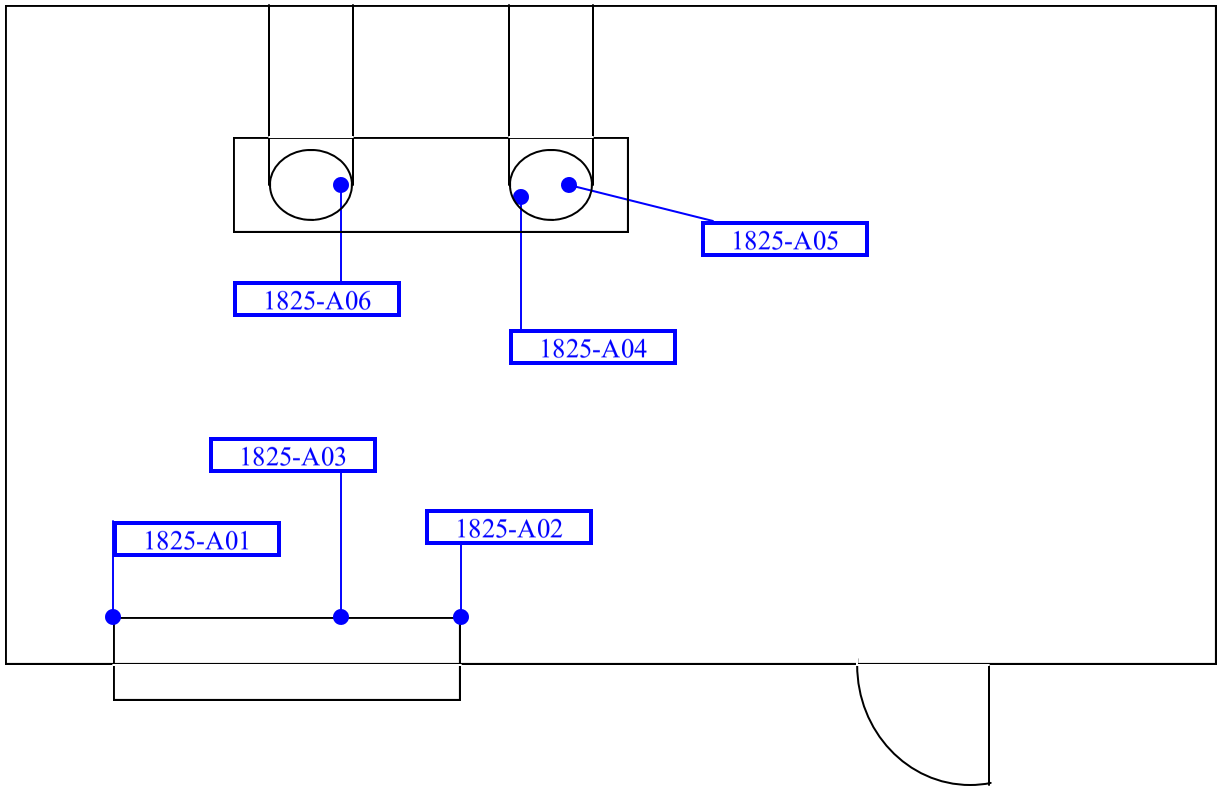
Relinquished by: _____ Date/Time: 9/10/18 Received by: _____ Date/Time: 9/10/18

Relinquished by: _____ Date/Time _____ Received by: _____ Date/Time: _____

** In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Phoenix, Arizona and prevailing party will be entitled to attorney's fees and court costs.

Attachment II

ASBESTOS SAMPLE LOCATION MAP



enviro SERVICES & TRAINING CENTER, LLC

LIMITED HAZARDOUS MATERIALS SURVEY
ASBESTOS SAMPLE LOCATIONS

Legend

1825-AXX	Positive (Asbestos Containing Material)
1825-AXX	Negative (None Detected)
1825-AXX	Not Analyzed
←	Wall Sample
●—	Non-Wall Sample

Kapuaiwa Building
Judiciary Pump Station

Honolulu, Oahu, Hawaii

Pump Station Room

ETC Project No. 18-4025

September 2018

SECTION 01735 - MAINTAINING EXISTING UTILITIES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor shall be responsible for maintaining all existing utilities and services, whether or not shown on the construction plans, in full operations at all times. The Contractor shall be responsible for the support and protection of all existing surface and subsurface utilities and poles within and abutting the Project site, trench excavations, borrow sites, and other work areas. Any utilities that the Contractor encounters during the progress of the work, such as telephone lines and ducts, electric lines and ducts, water lines, sewer lines, drain lines, and other utility lines and poles; whether or not shown on the plans, shall not be disturbed or damaged unless otherwise instructed in the plans and specifications. The Contractor shall notify the Contracting Officer and the affected utility company immediately of any damaged or disturbed utility.

1.02 COORDINATION REQUIREMENTS

A. Coordination with Utility Agencies and Others

Whenever the trench work crosses or is in close proximity to underground utilities, or if for other reasons during the course of the work it becomes necessary to relocate existing utilities, the Contractor shall notify the Utility Notification Center, which serves as the One-Call Center for Hawaii. In addition, the Contractor shall notify and coordinate his operations with the respective agencies affected.

The One-Call Center provides advanced warning to excavators of the location of subsurface installations in the area of an excavation for the purpose of protecting those installations from damage. The phone number to request location of underground utilities is (866) 423-7287. To submit a request via the internet visit http://www.callbeforeyoudig.org/hawaii/index.asp. The website includes what information needs to be submitted by contractor prior to excavation and a downloadable Locate Request Form. It also contains a link to Hawaii law Hawaii Revised Statute (HRS) Chapter 269E “One Call Center Advance Warning to Excavators.”

UTILITY	AGENCY	TELEPHONE
Water	Board of Water Supply	748-5000
Electric	Hawaiian Electric Company (HECO)	543-7345
Gas	Hawaii Gas	594-5574
Fuel	Tesoro Island Energy Services (Chevron)	479-0527 682-2259
Communication (Overhead/Underground)	Hawaiian Telcom	840-5809

Communication (Fiber Optics)	AT&T	455-1010
Communication (Fiber Optics)	Sandwich Isles Communications (SIC)	540-5748
Communication (JTS Cables)	Navy Air Force Army	474-6011 449-7273 656-3514
Street Lighting	Dept. of Design and Construction (DDC)	768-8430
Traffic Signals (incl fiber optic)	Dept. of Transportation Services (DTS)	768-8387
Highway Lighting and Traffic Signals	State Dept. of Transportation (DOT)	
	Signal Supervisor Permit Office	827-8056 831-6712
Cable Television (CATV)	Spectrum	625-8570

B. DELAYS

The Contractor shall notify the Contracting Officer of its construction schedule insofar as it affects the protection, removal or relocation of utilities. Said notification shall be in writing and shall be included as a part of the construction schedule required in Section 01320, "CONSTRUCTION PROGRESS DOCUMENTATION", of these Specifications. The Contractor shall notify the Contracting Officer in writing of any subsequent changes in the construction schedule, which will affect the time available for protection, removal, or relocation of utilities.

The Contractor shall be responsible to give proper written notification to the utility companies and government agencies that have utilities in-place and to cooperate with them in any protection, relocation, or readjustment work. Failure of any utility Owner in performing its work due to improper notification or poor coordination by the Contractor, which results in a delay of the Contractor's work, shall not be grounds for requesting an extension of time or damages.

The Contractor will not be entitled to damages or additional payment for delays attributable to utility relocations or alterations if correctly located, noted and completed in accordance with this Section.

1.03 SUBMITTALS

A. Spill Mitigation Plan

Within thirty (30) calendar days after the Notice to Proceed date, the Contractor shall submit a Wastewater Spill Mitigation Plan for approval to the Contracting Officer. The Wastewater Spill Mitigation Plan shall detail the procedures and provisions that the

Contractor will implement to ensure uninterrupted sewage flow throughout the Project and, should a spill occur, regulatory agencies' requirements are satisfied. Any revisions to the plan requested by the Contracting Officer prior to approval shall be the responsibility of the Contractor. No construction activities involving the existing wastewater system and facilities will be allowed until the Contractor's Wastewater Spill Mitigation Plan has been approved.

The Contractor's Wastewater Spill Mitigation Plan, at minimum, shall include:

1. The Contractor's sewage diversion and bypass pumping plan which shall be approved by the Contracting Officer before any diversion of sewage flows has started.

2. Specific details of all work which will affect the existing wastewater facilities.

3. A project schedule indicating when work affecting the existing wastewater facilities will occur.

4. Spill prevention, mitigation, containment, treatment, cleanup and disposal provisions including disposal site(s), and procedures to be implemented whenever wastewater facilities are affected.

5. Reporting requirements that conform to the protocol in HAR Chapter 11-62, Appendix C, entitled Responses for Wastewater Spills, Overflows, and Discharges (“Spills”). Reporting requirements shall also include immediately informing the Officer in Charge prior to initiating the protocol and immediate coordination with Hawaii Department of Health and the Division of Environmental Quality (EQ) of the City Department of Environmental Services (telephone no. 237-9197) through the Officer-in-Charge. In the reporting requirements, revise the fax number for DOH Wastewater Branch to 586-4300. The Contractor shall obtain a current official copy of the protocol from the Department of Health.

6. Identification of potential liabilities involved with working with the wastewater system, sewage spills, reporting requirements should spills occur, and monitoring requirements of pollutant discharges into receiving waters

PART 2 – PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 LOCATING EXISTING UTILITIES

A. All underground pipes, cables or duct lines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area.

B. Whether or not existing underground and surface improvements are shown on the plans, the Contractor shall make an independent check of the ground prior to the start of construction and with the various utility companies and government agencies to ascertain the existence and the exact location of all utility facilities.

3.02 PROTECTION OF EXISTING UTILITIES

A. All existing utilities to remain in use, whether or not shown on the plans, shall be protected at all times by the Contractor during construction unless specified on the plans to be abandoned. If damaged, repair shall be borne by the Contractor at his own expense.

B. The Contractor shall not interrupt the service function or disturb the support of any utility without authority from the City or order from the Agency. All valves, switches, vaults and meters shall be maintained readily accessible for emergency shut off.

C. When the trench excavation is adjacent to or beneath existing surface and subsurface utilities, poles, improvements, structures or facilities, the Contractor shall be responsible for properly sheeting and bracing the excavation to prevent slides, cave-ins and settlements and for protecting and providing support to the existing surface and subsurface utilities, poles, improvements, structures or facilities with beams, struts or underpinning as required to ensure that no movement or damages occur to the existing utilities, poles, structures or facilities.

3.03 REMOVAL OF EXISTING UTILITIES

A. Unless otherwise specified, the Contractor shall only remove the portions of the existing utilities indicated on the Plans. The portions of the existing utilities shall be removed in accordance with SECTION 02050 - DEMOLITION of these Specifications.

3.04 WATER SYSTEM SPECIFICATIONS (BWS)

A. The Honolulu BWS's "WATER SYSTEM STANDARDS" dated 2002 and the "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS," Volume 3, dated 1991, and all subsequent amendments and additions, shall apply to any water main construction that may be necessary for this project. Should a discrepancy exist between the Standards and these specifications, the latter shall govern.

B. The Contractor shall notify the Board of Water Supply and the Contracting Officer in writing one week prior to commencing work on the water system if work on the water system becomes necessary.

Windward Area - 748-5671
Metropolitan Area – 748-5601
All Other Areas – 748-5611

C. The Contractor shall notify the Board of Water Supply of any damage to the existing mains, and the Board of Water Supply shall perform the necessary repairs. All costs incurred in this work shall be paid for by the Contractor.

3.05 ELECTRICAL SYSTEM REQUIREMENTS

A. All work shall conform to applicable rules and requirements of the latest *Electrical Code of the City and County of Honolulu* and the *National Electrical Code*. All work on street lighting and traffic signal systems shall conform to the requirements of the

Mechanical/Electrical Design and Engineering Division, Department of Design and Construction, City and County of Honolulu.

B. Ducts containing fiber optic cables shall be protected.

C. Work required on various electrical and communications utility company systems such as Hawaiian Electric Company (HECO) and Hawaiian Telcom shall be performed by the respective utility company responsible for the affected system.

D. Work required on other electrical or communication systems shall be performed by the Contractor in accordance with the requirements of the affected system's owner. All electrical work shall be performed by a licensed electrical contractor.

E. Since the Project site is near existing HECO utilities, which will remain energized during construction, the Contractor shall comply with the HECO notes indicated on the Plans.

3.06 HAWAIIAN TELCOM

A. The Contractor shall call Hawaiian Telcom's Inspection Branch at 840-5808 a minimum of 48 hours prior to adjusting Hawaiian Telcom structures.

B. Prior to construction, the Contractor shall verify and locate underground communication lines, including fiberoptic lines. The Contractor shall exercise due diligence in toning, locating, and protecting these communication lines. The Contractor shall be responsible for and shall pay for all damages to existing communication lines.

3.07 DEPARTMENT OF TRANSPORTATION SERVICES (DTS)/DEPARTMENT OF INFORMATION TECHNOLOGY (DIT)

A. The Contractor shall notify the Traffic Control Branch, Department of Transportation Services at 768-8388, 72 hours prior to any construction within any signalized intersection.

B. Prior to commencing construction work, the Contractor shall verify and locate underground traffic signal and communication lines/conduits, including fiberoptic lines/conduits. The Contractor shall exercise due diligence in toning, locating, and protecting these traffic signal and communication lines/conduits. The Contractor shall be responsible for any and all damages to existing traffic signal and communication lines/conduits, including vehicle detector loops, as a result of the work. All damages shall be repaired by the Contractor at no additional cost to the City.

C. The Contractor shall notify, immediately, any damages to existing traffic signal lines/conduits and loop detectors to the Traffic Control Branch at 564-6101.

3.08 SPECTRUM CABLE

A. The locations of CATV facilities shown on the plans are from existing records with varying degrees of accuracy as to its actual fixed location. The Contractor shall use extreme caution when working in close proximity of CATV facilities.

B. For any field assistance or verification of CATV facilities, the Contractor shall call the Technical Operations Center at 839-0442 or 545-0942 (pager).

C. Any damage to Spectrum's facilities shall be reported immediately to their Repair Dispatch Department at 625-8437 or 625-8866.

3.09 HAWAII GAS

A. Hawaii Gas gas pipelines in the project area are plastic coated and cathodically protected. The Contractor shall be extremely careful when working near these gas pipelines.

B. Written clearances must be obtained from Hawaii Gas, Maps and Records Department, 515 Kamakee Street, at least five (5) working days prior to starting excavation near these gas pipelines.

C. Since gas line locations on field maps are approximate, the Contractor, after obtaining written clearance, shall call USA North a minimum of two (2) working days before starting excavation to arrange for field location of existing gas pipelines. The telephone number is 1-800-227-2600.

D. The Contractor shall excavate and backfill around gas pipelines in the presence of a representative of Hawaii Gas. All backfill within six (6) inches of any gas pipeline shall be select cushion material approved by Hawaii Gas.

E. The Contractor shall notify Hawaii Gas immediately after any damage has been caused to existing gas pipelines, coatings, or its cathodic protection devices. The telephone number is 535-5933, 24 hours a day. The Contractor shall be liable for any damage to Hawaii Gas facilities. Repair work on such damage shall be done by Hawaii Gas with payment for this work to be borne by the Contractor.

F. Adequate support and protection for gas pipelines exposed in the trench shall be provided by the Contractor and approved by Hawaii Gas.

G. The Contractor shall work in an expeditious manner in order the keep uncovered gas pipelines exposed for as short a period of time as possible.

3.10 COORDINATION WITH UTILITY AGENCIES AND OTHERS

A. Whenever the trench work crosses underground utilities, the Contractor shall notify and coordinate his operations with the respective agencies affected.

3.11 RELOCATION REQUIREMENTS

The Contracting Officer may determine temporary or permanent relocations of existing BWS, HECO, Spectrum, Hawaiian Telcom or other utilities are required because they pose conflicts with the installation of the proposed Project improvements.

The Contractor shall be responsible for arranging all temporary and permanent relocations of existing BWS, HECO, Spectrum, Hawaiian Telcom and other utilities for the Contractor's convenience.

A. Notification and Coordination Requirements

The Contractor shall be responsible for notifying and arranging for the respective utility company to perform the actual relocation of the utility, for properly coordinating the work, and for directly reimbursing the utility company for its costs.

B. Design and Construction Requirements

The Contractor shall be responsible for performing all other necessary work, including but not limited to, excavation, backfilling, and surface restoration required to complete the relocation of the utility as agreed with the respective utility and to the design standards of the utility.

For the BWS, the Contractor shall be responsible for directly performing all of the work required to complete the relocation, including any design work that may be necessary. All work shall be coordinated with BWS and shall be performed in accordance with BWS standards and regulations.

For HECO, Spectrum, and Hawaiian Telcom, the Contractor shall be responsible for designing and constructing all utility structures, including but not limited to underground duct lines and manholes/handholes to the design standards of the utility.

If the underground utility is privately owned, the Contractor shall perform all necessary work to the design standards approved by the Contracting Officer.

3.12 MEASUREMENT AND PAYMENT

A. The Contractor shall bear all costs for relocations of utilities done for his convenience, including all labor, materials, equipment, incidental, and utility company reimbursement costs.

B. Payment for protection of existing utilities located adjacent to proposed Project improvements shall not be paid for directly but shall be considered incidental to the respective work.

C. No compensation will be made to the Contractor for relocation of any overhead lines unless the work is identified in the invitation for bids, regardless if the overhead lines are inaccurately indicated or missing from the plans.

D. Utility Relocation Work Identified in the Invitation for Bids

1. Payment for the work shall be paid at the lump sum bid or unit price bid as scheduled in the Proposal. Payment shall be compensation for all Contractor's costs, including all labor, materials, equipment, and other incidental costs.

2. Payment for utility company reimbursement costs shall be made from the appropriate Allowance item in the Proposal Schedule, shall be in accordance with the requirements of Section 00700, "GENERAL CONDITIONS," and shall be subject to the approval of the Contracting Officer.

E. Utility Relocation Work Not Identified in the Invitation for Bids

The Contractor's costs and payment for utility company reimbursement costs shall be paid for in the following ways, by the direction of the Contracting Officer:

1. Payment for the work by the Contractor's forces or his subcontractors' forces, shall be made from the appropriate Force Account item in the Proposal Schedule, shall be in accordance with the requirements of the Section 00700, "GENERAL CONDITIONS," and shall be subject to the approval of the Contracting Officer. Payment for utility company reimbursement costs shall be made from the appropriate Allowance item in the Proposal Schedule, shall be in accordance with the requirements of the Section 00700, "GENERAL CONDITIONS," and shall be subject to the approval of the Contracting Officer.

2. If appropriate Force Account or Allowance items are not in the Proposal Schedule, payment shall be made in accordance to the requirements of Section 4.4.1.4, "Force Account," in Section 00700, "GENERAL CONDITIONS" of these Specifications. The unused portion of the Force Account item shall remain with the City upon completion of the contract.

END OF SECTION

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including the following:
   1. Project Record Documents.
   2. Operation and Maintenance Manuals.
   3. Warranties.
   4. Instruction for the State's personnel.

1.02 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting a Final Inspection to determine Substantial Completion, complete the following items in addition to requirements of Article 7 of the GENERAL CONDITIONS.
   1. Advise the Contracting Officer of pending insurance changeover requirements.
   2. Submit specific warranties, final certifications, and similar documents.
   3. Obtain and submit occupancy permits, operating certificates, and similar releases and access to services and utilities, unless waived by the Contracting Officer.
   4. Arrange to deliver tools, spare parts, extra materials, and similar items to a location designated by the Contracting Officer. Label with manufacturer's name and model number where applicable.
   5. Make final changeover of permanent locks and deliver keys to the Contracting Officer. Advise the State's personnel of changeover in security provisions.
   6. Complete startup testing of systems.
   7. Submit test, adjust, and balance records.
   8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   9. Advise the Contracting Officer of changeover in other utilities.
   10. Submit changeover information related to the State's occupancy, use, operation, and maintenance.
   11. Complete final cleaning requirements, including touch up painting.
   12. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

13. Submit the O&M Manual(s) for review.

14. Submit Field-Posted As-Builts electronically to Judiciary's designated Project Coordinator.

1.03 FINAL COMPLETION

A. Preliminary Procedures: Within 10 days from the Project Acceptance Date, complete the following items in addition to requirements of GENERAL CONDITIONS Article 7 PROSECUTION AND PROGRESS:

1. Instruct the State's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training media materials.

1.04 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit 2 copies of any updated and action taken list. In addition to requirements of GENERAL CONDITIONS Article 7 PROSECUTION AND PROGRESS, include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.

   2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

   3. Include the following information at the top of each page:
      a. Project Name and Title.
      b. Judiciary Project Identifier.
      c. Date and page number.
      d. Name of Contractor.

1.05 PROJECT RECORD DOCUMENTS AND REQUIREMENTS

A. General:
   1. Definition: "Project Record Documents", including Record Drawings, shall fulfill the requirements of "Field-Posted As-Built Drawings" listed in the GENERAL CONDITIONS.

   2. Do not use Project Record Documents for daily construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Contracting Officer's reference during normal working hours. Maintain these documents as specified in paragraph entitled "Record Drawings" hereinafter.

   3. The Designer, under contract with the State, will update the drawings to show all addendum, PCD, and sketch changes. The Contracting Officer will transmit these drawings to the Contractor who will make all "red-line" corrections to these drawings to record the changes depicted on the Contractor's Field Posted Record ("As-Builts") by accepted drafting practices as approved by the Contracting Officer.

4. Where the recorded changes depicted on the Contractor's Field Posted Record ("As-Builts") are in the form of shop drawings, the Contractor shall provide those shop drawings electronically on the same sheet size as the drawings transmitted to the Contractor. The new drawing sheets shall be titled and numbered to conform to the construction drawings and clearly indicate what information they supercede in the actual construction drawings. For example a new drawing that replaces drawing M-3, could be numbered M3a.

5. The Contractor shall bring to the attention of the Contracting Officer any discrepancy between the changes made by the Designer and those depicted on addendum, PCD, and sketch changes. The Contracting Officer will resolve any conflicts.

6. Submit final Record Documents (Field Posted Record Drawings) before the Final Inspection Date and no later than the Contract Completion Date, unless the GENERAL CONDITIONS require otherwise.

7. The Contractor shall guarantee the accuracy of its final Record Documents. The State will hold the Contractor liable for costs the State incurs as a result of inaccuracies in the Contractor's Record Documents.

8. Prepare and submit [construction photographs and electronic files], damage or settlement surveys, property surveys, and similar final record information as required by the Contracting Officer.

9. Deliver tools, spare parts, extra materials, and similar items to a location designated by the Contracting Officer. Label with manufacturer's name and model number where applicable.

10. Submit pest-control final inspection report and warranty.

11. Submit Final, corrected O&M Manual(s).

B. Record Drawings:
   1. Maintain a duplicate full-size set as the Field Posted Record ("As-Builts") Drawings at the job site. Clearly and accurately record all deviations from alignments, elevations and dimensions, which are stipulated on the drawings and for changes directed by the Contracting Officer that deviate from the drawings.

   2. Record changes immediately after they are constructed in place and where applicable, refer to the authorizing document (Field Order, Change Order, or Contract Modification). Use red pencil to record changes. Make Field Posted Record Drawings available to the Contracting Officer at any time so that its clarity and accuracy can be monitored and can be countersigned for validity.
      a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
      b. Accurately record information in an understandable drawing technique.
      c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

d. Mark the contract drawings or the shop drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on contract drawings.
e. Mark important additional information that was either shown schematically or omitted from original Drawings.
f. Locate concealed building utilities by dimension from bench marks or permanent structures. Locate site utilities by dimensions, azimuth and lengths from bench marks or permanent structures.
g. Note field order numbers, Change Order numbers, Contract Modification numbers, Alternate numbers, post-construction drawing numbers (PCD) and similar identification (RFI numbers) where applicable.
h. The Contractor shall initial each deviation and each revision marking.

3. Use the final updated Contract Drawing set (including all addenda, PCD, and sketches) plus applicable shop drawings for making the final Field Posted Record Drawings submittal.

4. Certify drawing accuracy and completeness. Label and sign the record drawings or use digital electronic signature as approved by the Contracting Officer.

5. Label the title sheet and on all sheets in the margin space to the right of the sheet number, written from the bottom upward, with the title "FIELD POSTED RECORD DRAWINGS" and certification information as shown below. Provide a signature line and company name line for each subcontractor that will also certify the respective drawing. Adjust size to fit margin space.

   FIELD POSTED RECORD DRAWINGS Certified By: _____ Date: _____
   [Contractor's Company Name]

6. Revise the Drawing Index and label the set "FIELD POSTED RECORD DRAWINGS". Include the label "A COMPLETE SET CONTAINS [_____] SHEETS" in the margin at the bottom right corner of each sheet. Quantify the total number of sheets comprising the set.

7. If the Contracting Officer determines a drawing does not accurately record a deviation or omits relevant information, the State will correct any FIELD POSTED RECORD DRAWINGS sheet. Contractor will be charged for the State's cost to correct the error or omission.

8. Use the final Field Posted Record Drawings sheets and create one electronic version of the set. The set shall be recorded in Adobe Acrobat PDF (Portable Document Format). Create a single indexed, bookmarked PDF file of the entire set of drawings and record to disk for transmittal to Contracting Officer.

1.06 WARRANTIES

A. Submittal Time: Submit written manufacturer's warranties at request of the Contracting Officer for designated portions of the Work where commencement of warranties other than Project Acceptance date is indicated.

B. Partial Occupancy: Submit properly executed manufacturer's warranties within 45 days of completion of designated portions of the Work that are completed and

occupied or used by the State during construction period by separate agreement with Contractor.

C. Organize manufacturer's warranty documents into an orderly sequence based on the table of contents of the Specifications.
   1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 inch x 11-inch paper.

   2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer and prime contractor.

   3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES", Project Name and Title, Judiciary Project Identifier, and name of Contractor.

   4. Use the final submittal of the warranties to create an electronic PDF (Portable Document Format) version of the bound warranty documents files. Each sheet shall be separately scanned, at 600 DPI or better into a PDF file, indexed, and provided to Contracting Officer.

1.07 OPERATION AND MAINTENANCE MANUALS

A. Assemble complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
   1. Operation Data:
      a. Emergency instructions and procedures.
      b. System, subsystem, and equipment descriptions, including operating standards.
      c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
      d. Description of controls and sequence of operations.
      e. Piping diagrams.

   2. Maintenance Data:
      a. Manufacturer's information, Material Safety Data Sheets, and a list of spare parts.
      b. Name, address, and telephone number of installer or supplier.
      c. Maintenance procedures.
      d. Maintenance and service schedules for preventive and routine maintenance.
      e. Maintenance record forms.
      f. Sources of spare parts and maintenance materials.
      g. Copies of maintenance service agreements.
      h. Copies of warranties and bonds.

B. Use the following 3 paragraph headings, "Notes, Cautions and Warnings", to emphasize important and critical instructions and procedures. Place the words

"Notes", "Cautions", or "Warnings" immediately before the applicable instructions or procedures. Notes, Cautions and Warnings are defined as follows:

1. Note: highlights an essential operating or maintenance procedure, condition or statement.

2. Caution: highlights an operating or maintenance procedure, practice, condition or statement which if not strictly observed, could result in damage to or destruction of equipment, loss of designed effectiveness, or health hazards to personnel.

3. Warning: highlights an operating or maintenance procedure, practice, condition, or statement that if not strictly observed, could result in injury to or death of personnel.

C. Organize the Operation and Maintenance Manuals into suitable sets of manageable size. Bind and index data in heavy-duty, "D" type 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Binder color shall be maroon, or if not available red. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL", Project Name and Title include building number when appropriate, Judiciary Project Identifier, Prepared For*:* The Judiciary – State of Hawai'i*,* Prepared By*:* [Contractor] and Volume Number. Each binder is a single volume.

D. Electronic Format
   1. Provide all information (narratives, drawings and manual) in electronic PDF format and record to disc. Provide Compact Disc (CD) or DVD. Provide drawings and plans prepared for the O&M Manuals drawn electronically and saved as a PDF file. Name and index the files for ease of identification and updates.

   2. Provide the complete O&M Manual using PDF (Portable Document Format) files. Each sheet shall be separately scanned into a PDF file, indexed, bookmarked, hyperlinked to the table of contents and recorded to disc. Scanned documents shall be scanned at 600 DPI or better. Indexes and bookmarks may be highlighted or colored text.

E. Pre-Final Submittal: Submit 1 printed set of Final Operation and Maintenance Manual, for review by the Contracting Officer, at least 5 days prior to scheduled final inspection. Manuals shall be marked as Pre-Final.

   1. Make any correction noted before submitting the final Operation and Maintenance Manuals.

   2. The set will be returned with comments. Additional review comments may include problems discovered during the O&M Manual's review, site validation, and facility start up and will be provided to the Contractor after facility Project Acceptance Date.

F. Final Submittal: Use the final submittal of the manuals to create the electronic PDF file version of the bound Operation and Maintenance Manuals documents. Include the Submittal (100 percent) review comments along with a response to

each item. Final printed manual and any disks shall be marked as Final and sent to the Contracting Officer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 DEMONSTRATION AND TRAINING

A. Instruction: Instruct the State's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
   1. Provide instructors experienced in operation and maintenance procedures.
   2. Provide instruction at mutually accepted times.
   3. Schedule training with the State's users, through the Contracting Officer with at least 7 days advanced notice.
   4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
   1. System design and operational philosophy.
   2. Review of documentation.
   3. Operations.
   4. Adjustments.
   5. Troubleshooting.
   6. Maintenance.
   7. Repair.

3.02 FINAL CLEANING

A. General: Provide final cleaning. In addition to requirements of Article 7 of the GENERAL CONDITIONS conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturers written instructions unless noted otherwise. Complete the following cleaning operations before requesting final inspection:
   1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

   2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits resulting from construction activities.

   3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

   4. Remove tools, construction equipment, machinery, and surplus material from Project site.

   5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

   6. Remove debris and surface dust from limited access spaces, including: shafts, trenches, equipment vaults, manholes, catch basins, and similar spaces.

   7. Sweep concrete floors broom clean in unoccupied spaces.

   8. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

   9. Clean transparent materials, including glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass surfaces, taking care not to scratch surfaces.

   10. Remove labels that are not permanent.

   11. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
      a. Do not paint over “UL” and similar labels, including mechanical and electrical nameplates.

   12. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

   13. Replace parts subject to unusual operating conditions.

   14. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

15. Clean ducts, blowers, and coils if units were operated without filters during construction.

16. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

17. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the State's property. Do not discharge volatile, harmful, or dangerous materials into drainage and sewer systems or onto State property. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

DIVISION 2 – SITE CONSTRUCTION

SECTION 02050 - DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, tools, and equipment necessary to complete the demolition and removal of the items shown on the plans.

B. Work included:
   1. Sawcut and remove asphalt concrete pavement and underlying base course.
   2. Sawcut and remove concrete walkway and underlying base course.
   3. Demolish and removal of existing pumps, valves, pipes, and appurtenances indicated on the plans.
   4. Remove abandoned valve box as indicated on the plans.
   5. Cutting and removal of existing pipes.

C. All materials resulting from demolition work, except as indicated or specified otherwise, shall become the property of the Contractor and shall be removed from the project limits. Remove rubbish and debris from the job site daily, unless otherwise directed by the Contracting Officer.

D. The Contractor shall pay for all necessary permits and certificates that may be required in connection with this work.

1.02 SUBMITTALS

A. Reports: Submit reports of any tree damage to the Contracting Officer.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PREPARATION

A. Examine all areas prior to the start of demolition operations to assure that selected procedures are the most appropriate for accomplishing the work.

B. Utility Toning: Above and below ground utilities shown on drawings are based on available as-built drawings. Contractor shall tone for existing underground utilities along the alignment of underground utilities shown on drawings. This requirement extends to all sewer, water, drainage, communications, and electrical systems. Notify Contracting Officer immediately for directions if uncharted or incorrectly charted utilities are found.

C. Public Safety: Where pedestrian and driver safety is endangered in the work or storage areas, use traffic barricades with flashing lights. Notify the Contracting

Officer prior to beginning any such work. The Contractor shall provide additional barricades or barriers, if requested by the Contracting Officer, at no additional cost. The Contractor shall conduct operations with minimum interference to streets, driveways, sidewalks, passageways, and building operations, etc

3.02 TREE PROTECTION

A. The Contractor shall retain the services of a Qualified Arborist who has been certified for at least 5 years, with experience in Tree Protection planning during construction, tree and root pruning and transplanting of trees.

1. The Contractor shall retain one of the following arborists certified by the International Society of Arboriculture for conducting, supervision and consultation of work to be performed on the existing tree. Deviating from the following list is not allowed.
   a. Steve Nimz – Consulting Arborist Services

   b. Abner Undan - Trees of Hawaii, Inc.

   c. Quenna Johnson - Makani Consulting Arborist Services

2. The Qualified Arborist shall provide consulting services and perform quality assurance duties during the contract period of work.

3. The Qualified Arborist shall serve as the liaison with the Contracting Officer and Contractor on matters pertaining to the protection of the trees on the project site.

4. The Qualified Arborist will coordinate with the Contracting Officer and/or representative on all tree protection matters.

5. The Tree Trimming Contractor under the direct supervision of the Qualified Arborist shall perform all branch or root pruning in accordance with ANSI 300.1 Standards.

6. Proper measures are to be taken to protect the crown and root systems of the tree from unnecessary damage from construction activity.

7. When potential damage by construction activities is anticipated (e.g. major support root removal, excessive root removal on one or more sides of the tree, major crown branch removal, or tree transplanting), the Contractor shall closely coordinate with the Qualified Arborist to ensure that such activity is performed in a manner that will minimize damage to the tree.

8. The Contractor shall ensure that the trees are provided proper care and retain good health during the demolition and construction periods.

9. Alternative procedures may be required on a tree-by-tree basis and field decisions by the Qualified Arborist may be required to ensure the safety and health of the trees.

B. The Contractor shall arrange a Pre-Construction Meeting attended by the Contractor, Sub-Contractors, The Judiciary Representative Joanne Krippaehne (Ph: 808-539-4784), selected Consultants and the Qualified Arborist to review procedures for performing tree related work in accordance with SECTION 01310 – PROJECT MANAGEMENT AND COORDINATION.

C. Work areas around trees shall be identified to include: access routes and storage areas and what measures may need to be taken to protect trees during construction.

D. The limits of the Tree Protection Zone will be the area under the tree crown or determined by the Qualified Arborist.
   1. Considering the close proximity of the tree to the construction area of the curb, sidewalk and/or hardscape areas. Protection fencing may not be feasible in all areas of the project. This will be determined by the Qualified Arborist and approved by the Contracting Officer.

   2. Where determined by the Qualified Arborist, the zone shall be enclosed by temporary fencing (orange plastic), prior to demolition work and shall remain in place until work is completed, unless authorized by the Qualified Arborist.

E. Construction Activity Under the Tree Crown:
   1. The Contractor shall limit activities under the crown of the tree to only those activities explicitly required to complete the construction under and/or adjacent to the tree's crown as specified.

   2. All excavation work required under the crown of trees shall be performed under the direction of the Qualified Arborist.

   3. Construction materials, vehicle parking, temporary roadways, mixing, portable latrines and field offices will not be located either temporarily or permanently under tree crowns.

F. Root Pruning
   1. Before grading, preparation of roadbed, curbing and sidewalk; roots that are exposed and greater than 2 inches in diameter must be pruned with approved root pruning equipment.

   2. Root pruning of roots below the surface will be done carefully exposing them by hand or approved equipment by the Qualified Arborist.

   3. Any roots damaged during grading or construction shall be exposed to the nearest sound tissue and cut cleanly with a sharp saw under the Qualified Arborist supervision.

G. Tree Pruning
   1. A Certified Arborist or Certified Tree Worker under the direct supervision of the Qualified Arborist shall perform the tree and root pruning work.

   2. If damage to the tree or root injury should occur during demolition or construction activities:
      a. The Contractor shall immediately report the injury to the Qualified Arborist.

      b. The Qualified Arborist shall evaluate the injury and notify the Contracting Officer and/or representative before applying appropriate treatment.

      c. The Contractor shall submit a written report of the tree injury and recommended treatment to the Contracting Officer.

d. The Contractor shall provide a (1) one-year tree warranty period and be held responsible in the event of the tree's decline or death. In the event of the tree's severe decline and/or death, the Contractor shall provide tree replacement of similar size and provide a tree maintenance period for a minimum of 90 calendar days and/or until tree establishment.

e. The Contractor shall be held liable in the event of tree failure that compromises the tree's structural instability as a result of construction activities.

H. Tree Maintenance: The Contractor shall be responsible for tree maintenance within the limits of the construction area; maintenance to include but not limited to, tree watering, branch and/or root pruning until approval of final inspection.

3.03 DEMOLITION

A. Demolish and remove existing asphaltic concrete pavement, curbs, concrete walkway, pipes and fittings, pumps, and valves as indicated on the plans.

B. All work shall be executed in an orderly and careful manner, with due consideration for all items to remain, and the Contractor shall be strictly responsible for any damages thereto.

C. Existing Utilities to Remain: Contractor shall protect existing utilities to remain from damage.

D. Sawcut asphaltic concrete pavements at the locations indicated on the plans.

E. Sawcut concrete pavement perpendicular to the sidewalk, and if possible, at concrete joints.

F. All waste material shall be hauled away to an appropriate off-site dump area. The Contractor shall provide to the Contracting Officer disposal receipts for all materials disposed of off-site. Comply with Federal, State, and local hauling and disposal regulations.

3.04 REPAIR OF DAMAGES

A. Any existing work which is to remain and which is damaged as a result of demolition work shall be restored to its original condition or as otherwise directed by the Contracting Officer at no cost to the State.

3.05 CLEANUP OF PREMISES

A. Debris and Rubbish: Remove and transport debris and rubbish in a manner that will prevent spillage into adjacent areas. The Contractor shall leave the premises clean, neat, and orderly.

END OF SECTION

SECTION 02100 – SITE PREPARATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. General Requirements: Furnish all labor, materials, and equipment necessary to clear and grub the entire construction area; to accumulate and dispose of all debris and waste materials; to lay out the entire work; all shown on the drawings and as herein specified.

1.02 REFERENCES

A. The "Standard Specification for Public Works Construction," September 1986, of the Departments of Public Works, as applicable to the City and County of Honolulu, hereafter referred to as the DPW "Standard Specifications," or as herein specified. (Paragraphs concerning Measurement and Payment are not applicable to this project.)

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 GENERAL CONSIDERATIONS

A. Conditions of Premises: The Contractor shall examine the site and become familiar with the existing conditions and the amount and kind of work to be performed.

B. The Contractor shall obtain and pay for necessary permits prior to the commencement of work.

C. The Contractor shall keep the work area thoroughly wetted down to prevent dirt and dust from rising. All water lines required for this purpose shall be provided by the Contractor.

3.02 CLEARING AND GRUBBING

A. The Contractor shall clear the premises of all vegetation, debris, and other deleterious material.

3.03 CLEAN UP OF PREMISES

A. Clean up debris accumulated from building operations from time to time as directed. Upon completion of the construction work and before final acceptance of contract work, remove all surplus materials, equipment, scaffoldings, etc., and leave entire job site raked clean and neat to the satisfaction of the Contracting Officer.

3.04 LAYOUT

A. The laying-out of base lines, establishment of grades and staking out the entire work shall be done by the Surveyor or Civil Engineer (licensed in the State of Hawaii) at the expense of the Contractor and he shall be solely responsible for their accuracy. The Contractor shall erect and maintain substantial batterboards showing construction lines and levels.

B. Should any discrepancies be discovered in the dimensions given in the plans, the Contractor shall immediately notify the Contracting Officer before proceeding any further with the work, otherwise, he will be held responsible for any costs involved in correction of construction placed due to such discrepancy.

END OF SECTION

SECTION 02200 - EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, tools, and equipment for any and all earthwork required for the improvements indicated in the Plans and these Specifications.

1.02 REFERENCES

A. The “Standard Specifications for Public Works Construction”, September 1986, of the Department of Public Works, as applicable to the City and County of Honolulu, hereafter referred to as the DPW “Standard Specifications”, or as herein specified. (Paragraphs concerning Measurement and Payment are not applicable to this project.)

B. “Geotechnical Engineering Exploration report, Kapuaiwa Building Pump Station Improvements”, dated August 15, 2019, prepared by Kokua Geotech, LLC.

1.03 PROTECTION

A. Erosion Control: The Contractor shall incorporate into his work schedule the Best Management Practice measures indicated on the drawings.

B. Erosion control measures shall be provided by the Contractor until the completion of construction. The Contractor shall be responsible for providing protection to graded areas against action of the elements.

C. Existing Utilities and Work Areas: The Contractor shall be responsible for the protection of existing surface and subsurface utilities and poles within and abutting the project site, excavations and other work areas. Above and below ground utilities shown on drawings are based on available as-built drawings. Contractor shall tone for existing underground utilities wherever excavation work is to be done and notify Contracting Officer immediately if uncharted or incorrectly charted utilities are found.

D. Barricade: The Contractor shall erect temporary barricades to prevent people from entering the project area to the extent as approved by the Contracting Officer at no extra cost to the State in accordance with SECTION 01500 – TEMPORARY FACILITIES AND CONTROLS.

E. Archaeological Sites: An archaeologist has been hired by the State to prepare an Archaeological Monitoring Plan (AMP) and conduct archaeological monitoring during construction. If any significant artifacts are encountered during excavation, the Contractor shall comply with the requirements stated in the AMP and the provisions of the GENERAL CONDITIONS, Article 7 – PROSECUTION AND PROGRESS, Section 7.18, ARCHAEOLOGICAL SITES.

1.04 QUALITY ASSURANCE

A. Codes and Standards: Comply with the codes, specifications, and standards, referred to in this specification, except where provisions in this specification or drawings exceed such requirements.

B. Source Quality Control: Test import materials proposed for use to demonstrate that the materials conform to the specified requirements. Tests shall be performed by an independent testing laboratory and paid for by the Contractor.

C. Field Dry Density and Moisture Content Tests: Submit field test data sufficiently in advance of construction so as not to delay work. Furnish a drawing showing test locations, test numbers, and elevations. Submit test results within 3 days of test date. Field density tests shall be performed for subgrade of excavation for pavements and backfill and fill lifts.

D. Test for Moisture-Density Relations: Submit test results for each material at least 7 days prior to compacting of each material

1.05 SUBMITTALS

A. Test Reports: Submit test reports as directed by the Contracting Officer. Contractor shall verify all requirements prior to the start of earthwork operations.

B. Certification of Compaction: An independent geotechnical testing laboratory shall test and certify all compaction work. Certifications and test results shall be submitted to the Contracting Officer within three (3) days of the test.

C. Field Dry Density and Moisture Content Tests: Submit field test data not listed above sufficiently in advance of construction so as not to delay work. Furnish a drawing showing test locations, test numbers, and elevations. Submit test results within 3 days of test date.

D. Fill material: Submit description of material and physical properties and laboratory test data for imported fill to the Contracting Officer for approval at least 15 calendar days prior to construction.

1.06 CONTRACTOR'S AND GEOTECHNICAL ENGINEER'S RESPONSIBILITIES

A. The Contractor shall retain and pay for the services of a Geotechnical Engineer to monitor and perform testing during the earthwork and excavation operations as specified herein. The Geotechnical Engineer shall be a licensed Civil Engineer licensed in the state of Hawaii specializing in geotechnical engineering with at least 5 years of licensed experience.

B. The Contractor shall notify the Contracting Officer at least 7 days prior to conducting any excavation, backfill or compaction activity to allow for the State and its Geotechnical Engineer to observe the construction activity.

C. The Contractor shall retain a qualified Geotechnical Engineer to design and evaluate the dewatering system.

D. The Geotechnical Engineer shall be present to monitor earthwork operations to observe whether undesirable materials are encountered during the excavation and subgrade preparation process.

E. If the actual soil conditions encountered during construction are different from those assumed or considered in the Soils Report, the Contractor shall notify the Contracting Officer immediately.

F. All clearing, site preparation or earthwork performed on the project up to the approximate finish grade or roadway subgrades shall be conducted by the Contractor under the inspection of the Geotechnical Engineer.

G. It is also the Contractor's responsibility to have suitable and sufficient compaction equipment on the job site to handle the amount of fill being placed. If necessary, excavation equipment shall be shut down to allow completion of compaction. Sufficient watering apparatus will also be provided by the Contractor with due consideration for the fill material, rate of placement, and the time of year.

H. The Geotechnical Engineer shall promptly notify both the Contractor and the Contracting Officer verbally of any failing compaction tests and the results of such tests to the extent the tests show a lack of compliance with these Specifications. These items shall also be documented by the Geotechnical Engineer.

I. If field density tests indicate inadequate compaction or moisture content, the Contractor shall moisture condition, recompact and retest until adequate compaction and adequate moisture content is achieved.

J. 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.

K. It shall be the Contractor’s responsibility to conform to all OSHA and State safety standards for excavations. The Contractor shall determine the method and equipment to be used for the excavations, subject to practical limits and safety considerations and be responsible for trench shoring design and installation.

L. It shall be the Contractor’s responsibility to conduct and pay for all testing and prepare testing reports and data as required within this specification.

1.07 PERMITS

A. Obtain all necessary permits required from applicable agencies. All permit fees will be considered incidental to the work and a separate payment shall not be made.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General: Refer to the aforementioned DPW “Standard Specifications” for materials not listed below.

B. Bedding and Subbedding Material: Crushed rock bedding and subbedding material shall consist of a clean granular basaltic gravel conforming to ASTM C33 No. 67 (#3 Fine) size aggregate.

C. General Backfill Material: General backfill shall consist of soil classified as GW, GM, GP-GM, GW-GM, SW, SM, SP-SM, or SW-SM according to Unified Soil Classification System, and free of debris, organic soils, clayey soils, organic matter, vegetation, or objectionable materials. The maximum particle size shall be 3 inches. The on-site soil is acceptable as general fill material given that it meets these criteria.

D. Structural fill shall consist of imported fill materials, consisting of non-expansive material such as crushed coral or basalt. The structural fill shall be well-graded with particles ranging from coarse to fine. It shall be free of vegetation, organics, debris, trash, concrete, old pavements, and particles larger than three (3) inches in maximum dimension. The material shall have a CBR value of at least 20 and a swell potential of 1 percent or less when tested in accordance with ASTM D1883. The material shall also contain between 10 and 30 percent particles passing the No. 200 sieve.

E. Topsoil shall be a fertile, friable soil of loamy character, and shall contain organic matter. It shall be obtained from well-drained arable land; be free from weeds, stone and debris; and shall pass a maximum ½" screen. Screened soil shall be capable of sustaining healthy plant life.

F. The Contractor shall obtain the approval of the Geotechnical Engineer of all backfill material.

2.02 FILTER FABRIC

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Contracting Officer.

B. The woven fabric for pipeline trenches and subgrades shall be MIRAFI 180N or an acceptable equivalent. The fabric shall meet the following minimum physical requirements:

Fabric Property	Unit	Test Method	Woven Fabric
<u>Resistance to Installation Damage</u>			
Grab Tensile Strength	lb	ASTM D-4632	205
Grab Tensile Elongation, MD / CD	%	ASTM D-4632	50
Trapezoid Tear Strength	lb	ASTM D-4533	80
CBR Puncture Strength	lb	ASTM D-6241	500

Performance Criteria During Service Life			
Equivalent Opening Size	U.S. Standard Sieve	ASTM D-4751	80
Permittivity	sec-1	ASTM D-4491	1.4
Flow Rate	gal/min/ft2	ASTM D-4491	95
UV Resistance (@ 500 hours)	% Strength retained	ASTM D-4355	70

C. Any request to substitute an equivalent filter fabric shall be subject to review and approval by the Contracting Officer.

D. The fabric shall be kept in a dry location and shall be protected from the direct rays of the sun.

PART 3 - EXECUTION

3.01 PREPARATION

A. The project site shall be cleared of all surface vegetation, debris, deleterious material, existing structures and pavements to be demolished, and other unsuitable materials unless otherwise noted on the plans and disposed of properly off-site.

B. Traffic
   1. Do not close, block, or otherwise obstruct streets or other occupied facilities without prior acceptance by authorities having jurisdiction.

   2. Provide acceptable alternate routes around work which obstructs the existing pedestrian and vehicular traffic ways.

   3. Coordinate with the Department of Transportation Services for temporary relocation of the existing bus stop.

C. Topsoil: Subsequent to excavation, remove any surface material approved by the Contractor's Geotechnical Engineer and stockpile at convenient locations subject to approval of the Contracting Officer, for replacement of any topsoil. Soils rejected by the Contractor's Geotechnical Engineer as topsoil quality shall be removed.

3.02 EXCAVATION

A. Excavate to the sizes and depths required to construct the improvements as indicated on the Plans. Provide sheeting and shoring as necessary in accordance with SECTION 02225 – TRENCHING, BACKFILLING, AND COMPACTION.

B. Dispose of excess excavated soil material and materials not acceptable for use as backfill and fill offsite at approved locations.

C. If voids or groundwater is encountered, proceed as indicated in SECTION 02225 – TRENCHING, BACKFILLING, AND COMPACTION.

3.03 DEWATERING

A. Due to the relatively shallow groundwater level encountered during the geotechnical investigation, excavation extending below the groundwater level is anticipated and dewatering may be necessary.

B. The selection of equipment and methods of dewatering shall be left up to the Contractor and modifications to the dewatering system may be required during construction depending on the conditions encountered. The Contractor shall retain a qualified Geotechnical Engineer to design and evaluate the dewatering system.

C. The Contractor shall carefully evaluate their dewatering method and system to avoid potential ground settlements and causing impact to the groundwater level surrounding the proposed excavation which could affect the adjacent existing structures.

D. The dewatering operations shall be coordinated with the shoring support such that the stability of the excavations is not jeopardized.

E. Dewatering operations shall be performed without pumping out soil fines (pumping clear water only) to avoid softening the bottom of the excavations or heaving of the excavation bottom or sides.

F. The use of a deep well system outside the excavations to draw down the groundwater level is not allowed.

G. Prevent surface water and subsurface water or ground water from flowing into excavations and from flooding project site and surrounding area.

H. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

I. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.

J. The Contractor shall be responsible for obtaining, renewing and complying with all permits required to cover his dewatering operations. The Contractor shall be liable for all penalties, fines, and remedies resulting from his failure to comply with applicable rules, regulations, and permits.

K. Prior to discharge, all pumped water from the construction dewatering operations shall be treated to conform to applicable Federal, State, and local regulations, including but not limited to Chapter 54, Water Quality Standards, and Chapter 55, Water Pollution Control, of Title 11, Administrative Rules of the State Department of Health. If unbackfilled trenches are used to dispose of a portion of the pumped water, the discharge shall be properly filtered to reduce contamination of the bedding for the new pipelines. Bedding contaminated by

dewatering effluent shall be replaced with clean bedding to the satisfaction of the Contracting Officer.

L. The Contractor shall be solely responsible for construction dewatering, disposal of the dewatered effluent, and for the impact and safety of the dewatering operations.

3.04 SUBGRADE TREATMENT

A. Compact the subgrade to a firm and unyielding surface prior to placement of gravel cushion material.

B. Soft and/or loose materials encountered at the subgrade level shall be over-excavated to expose the underlying firm materials. Excavated soft soils shall be properly disposed of off-site or used as general fill material where appropriate.

C. Backfill over-excavated area with a stabilization layer consisting of 24 inches of subbedding material compacted to a minimum of 90 percent relative compaction and wrapped in a non-woven filter fabric (Mirafi 180N or approved equal) with a minimum overlap of 24 inches. Subbedding material shall be placed and spread in uniform layers not to exceed 12 inches. Each layer shall be compacted with a hand-operated vibratory compactor to a dense consistency with not less than 6 passes per lift.

Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same soil determined in accordance with ASTM D1557. Optimum moisture is the water content (percentage by dry weight) corresponding to the maximum dry density.

3.05 PLACEMENT OF BACKFILL

A. Fill shall be placed in horizontal lifts restricted to 8 inches in loose thickness and compacted to between 90 and 95 percent relative compaction as determined by ASTM D 1557.

B. Fills and backfills within 2 feet of the pavement grade elevation shall be compacted to a minimum of 95 percent relative compaction.

C. Granular structural fill shall be placed in horizontal lifts restricted to 8 inches in loose thickness but compacted to a minimum 90 percent compaction as determined by ASTM D 1557.

3.06 COMPACTION

A. Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same soil established in accordance with ASTM D 1557 test procedures. Optimum moisture is the water content (percentage by dry weight) corresponding to the maximum dry density.

B. Each layer of backfill shall be thoroughly compacted from edge to edge using conventional compaction equipment.

3.07 FINISHING

A. The complete excavation and fill surface shall be true to grade and elevation and shall provide a firm base. Tolerances shall be 0.10 feet.

B. Areas to receive grassing shall be graded such that finish ground elevations account for topsoil and soil conditioner layers.

C. Restore grassing in accordance with SECTION 02920 – LAWNS AND GRASS.

3.08 STORAGE AND DISPOSAL OF EXCAVATED MATERIALS

A. Stockpile satisfactory excavated materials as directed by the Contracting Officer, until required for backfill.

B. Dispose of excess excavated soil material and materials not acceptable for use as backfill to an approved off-site location.

3.09 UNFORESEEN CONDITIONS

A. Unforeseen soil conditions such as massive rock, abandoned utilities, abandoned structure foundations, large voids or large cavities, massive boulders, etc. shall receive corrective measures made in the field as they are detected by the Contracting Officer. Compensation for unforeseen conditions shall be made when differing site conditions are confirmed per SECTION 00700 – GENERAL CONDITIONS.

B. Excavation at the site may expose historical or culturally significant artifacts. If any such artifacts are encountered, additional excavation may be required as part of the archaeological monitoring program. Additional excavation as a result of unforeseen archaeological conditions shall receive corrective measures made in the field as they are detected by the Contracting Officer. Compensation for unforeseen conditions shall be made when differing site conditions are confirmed per SECTION 00700 – GENERAL CONDITIONS.

END OF SECTION

SECTION 02225 – TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 SUMMARY

A. The work of this section consists of furnishing all materials, equipment, and labor for the trenching and backfilling of utility trenches.

1.02 REFERENCES

A. The “Standard Specifications for Public Works Construction”, September 1986, of the Department of Public Works, as applicable to the City and County of Honolulu, hereafter referred to as the DPW “Standard Specifications”, or as herein specified. (Paragraphs concerning Measurement and Payment are not applicable to this project.)

B. “Geotechnical Engineering Exploration report, Kapuaiwa Building Pump Station Improvements”, dated August 15, 2019, prepared by Kokua Geotech, LLC.

1.03 PROTECTION

A. Erosion Control: The Contractor shall incorporate into his work schedule the Best Management Practice measures indicated on the drawings.

B. Erosion control measures shall be provided by the Contractor until the completion of construction. The Contractor shall be responsible for providing protection to graded areas against action of the elements.

C. Existing Utilities and Work Areas: The Contractor shall be responsible for the protection of existing surface and subsurface utilities and poles within and abutting the project site, excavations and other work areas. Above and below ground utilities shown on drawings are based on available as-built drawings. Contractor shall tone for existing underground utilities wherever excavation work is to be done and notify Contracting Officer immediately if uncharted or incorrectly charted utilities are found.

D. Barricade: The Contractor shall erect temporary barricades to prevent people from entering the project area to the extent as approved by the Contracting Officer at no extra cost to the State in accordance with SECTION 01500 – TEMPORARY FACILITIES AND CONTROLS.

E. Archaeological Sites: An archaeologist has been hired by the State to prepare an Archaeological Monitoring Plan (AMP) and conduct archaeological monitoring during construction. If any significant artifacts are encountered during excavation, the Contractor shall comply with the requirements stated in the AMP and the provisions of the GENERAL CONDITIONS, Article 7 – PROSECUTION AND PROGRESS, Section 7.18, ARCHAEOLOGICAL SITES.

1.04 QUALITY ASSURANCE

A. Excavation and trench stability are the responsibility of the Contractor. The Contractor’s excavation support shall protect against excavation instability,

settlement and/or movement in existing buildings, structures, utilities and pavements.

B. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

C. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

D. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Contracting Officer.

E. Compaction requirements are defined by American Society for Testing and Materials (ASTM) publication D 1557 "Moisture-Density Relations of Soils and Soil-Aggregate Mixtures using 10-lb Rammer and 18-inch Drop."

1.05 SUBMITTALS

A. Test Reports: Submit test reports as directed by the Contracting Officer. Contractor shall verify all requirements prior to the start of earthwork operations.

B. Certification of Compaction: Geotechnical testing laboratory shall test and certify all compaction work. Certifications and test results shall be submitted to the Contracting Officer within three (3) days of the test.

C. Fill material: Submit description of material and physical properties and laboratory test data for bedding material, subbedding material, and backfill to the Contracting Officer for approval at least 15 calendar days prior to construction.

1.06 PERMITS

A. Obtain all necessary permits required from applicable agencies. All permit fees will be considered incidental to the work and a separate payment shall not be made.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials shall be as specified in Section 02200 – Earthwork of these Specifications.

B. The Contractor shall obtain the approval of the Geotechnical Engineer of all backfill material.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 PROCEDURES

A. Utilities:
   1. All excavated areas shall be toned prior to excavation.

   2. Unless shown to be removed, protect lines shown on the drawings or otherwise made known to the Contractor prior to trenching. If damaged, repair or replace at no additional cost to the State.

   3. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.

   4. If service is interrupted as a result of work under this Section, immediately restore service by repairing the damaged utility at no additional cost to the State.

   5. Expose existing utilities to confirm clearances as initial trenching work. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Contracting Officer and secure his instructions.

   6. Do not proceed with permanent relocation of utilities until written instructions are received from the Contracting Officer.

B. Protection of persons and property:
   1. Barricade open holes and depressions occurring as part of the Work, and post warning lights on property adjacent to or with public access.

   2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

   3. Protect buildings, structures, embankments, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.

C. During the period of construction, the Contractor shall protect the public against mud, dust and similar nuisances and shall take steps to abate such nuisances.

D. Convenient access to buildings along the line of work shall be maintained and temporary approaches shall be provided and kept in order. Temporary bridges for pedestrian traffic shall have handrails securely fastened to them. Handrails shall be free from any projecting nails, splinters, and rough edges.

E. All material excavated from trenches shall be considered unclassified, whether consisting of earth, lava, soft rock, decomposed rock, solid rock, cobbles, boulders, or coral.

F. Storage of excavated material alongside the trench shall be done in such a manner as not to obstruct traffic. Whenever, in the opinion of the Contracting Officer, proper storage of excavated material cannot be made, the material shall be hauled away from the work site. If the excavated material meets the requirements for backfill material and proper storage cannot be made at the site, the material shall be stockpiled at approved locations for later use in backfill.

G. Surplus excavated material shall become the Contractor's property and shall be removed from the work site and disposed of at no cost to the State.

3.03 TRENCHING

A. Provide sheeting and shoring as necessary for protection of the Work, undermining of existing facilities and for the safety of personnel.
   1. Sheeting, if used, shall be interlocking and water tight and installed to sufficient depths below the excavations to provide stable sidewalls. The Contractor shall pre-excavate or pre-drill as needed to install temporary sheeting.

   2. Prior to backfilling, remove all sheeting.

   3. Do not permit sheeting to remain in the trenches except when, in the opinion of the Contracting Officer, field conditions or the type of sheeting or methods of construction such as use of concrete bedding are such as to make removal of sheeting impracticable. In such cases, the Contracting Officer may permit portions of sheeting to be cut off and remain in the trench.

   4. Sheeting and shoring systems shall be the responsibility of the Contractor.

B. Excavation

   1. Trenches shall be dug so that the pipe can be properly installed to the alignment and grade specified. Excavation shall generally commence in one direction and shall be carried on in an orderly manner. No jumps or spaces will be permitted during the trench excavation.

   2. Short sections of a trench may be tunneled beneath existing curbs or walls if, in the opinion of the Contracting Officer, the conduit can be installed safely and controlled low-strength material (CLSM) or compacted backfill may be placed properly into such tunnel. CLSM material shall be placed in accordance with SECTION 03310.

   3. Where it becomes necessary to excavate beyond the limits of normal excavation lines in order to remove boulders or other interfering objects, or if natural voids are encountered, backfill the voids at no additional cost to the State, as directed by the Contracting Officer.

   4. When the void is below the subgrade for the utility bedding, use structural fill material and compact to a minimum relative density of 90 percent.

   5. Excavating for Appurtenances
      a. Excavate for cleanouts and similar structures to a distance sufficient to leave at least 12 inches clear between outer surfaces and the embankment or shoring that may be used to hold and protect the banks.

b. Overexcavation beyond such appurtenances that has not been approved and directed by the Contracting Officer will be considered unauthorized. Fill with backfill material or lean concrete as directed by the Contracting Officer, and at no additional cost to the State.

C. Where trenching occurs in existing grassed areas, remove turf in sections and keep damp. Replace turf upon completion of the backfilling.

D. Cover: Provide a minimum cover over the top of the pipe as indicated on the drawings.

3.04 DEWATERING

A. The Contractor shall dewater the site as necessary to complete the work in accordance with Section 02200 of these Specifications.

3.05 PIPE SUBGRADE TREATMENT

A. All backfill material shall be placed by hand or by approved mechanical methods. The compaction of backfill material shall be done by tamping with hand tools or other suitable equipment such as pneumatic tampers or vibratory compactors. The method of compaction shall be approved by the Geotechnical Engineer and all compaction shall be done to the satisfaction of the Geotechnical Engineer.

B. Prior to the placement of any bedding material, the bottom of the trenches shall be compacted to a firm and unyielding surface.

C. Soft and/or loose materials encountered at the bottom of the trench excavation shall be over-excavated to expose the underlying firm materials. Backfill over-excavated area with a trench stabilization layer consisting of 24 inches of subbedding material compacted to a minimum of 90 percent relative compaction and wrapped in a non-woven filter fabric (Mirafi 180N or approved equal) with a minimum overlap of 24 inches. Subbedding material shall be placed and spread in uniform layers not to exceed 12 inches. Each layer shall be compacted with a hand-operated vibratory compactor to a dense consistency with not less than 6 passes per lift.

Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same soil determined in accordance with ASTM D1557. Optimum moisture is the water content (percentage by dry weight) corresponding to the maximum dry density.

D. Place pipe bedding material directly on top of the prepared subgrade or trench stabilization layer. The bedding material shall extend from at least 6 inches below the exterior surface of the pipe to at least 12 inches above the crown of the pipe.

E. Place bedding material in maximum 8-inch thick loose lifts and compact to a dense consistency as indicated by little to no settlement of the gravel under repeated passes with the compaction equipment but not less than 6 passes per lift. Supplement by hand shoveling to provide full contact with the entire periphery of the pipe. Exercise care to protect the pipe from damage during the backfilling operation. Jetting of the trench bedding shall not be allowed.

F. Where groundwater is encountered, the bedding shall be wrapped on all sides by non-woven filter fabric (Mirafi 180N or approved equal) with a minimum overlap of 24 inches.

3.06 BACKFILLING

A. The trench backfill above the pipe bedding may consist of general fill materials or structural fill material. The backfill shall be placed in maximum 8-inch level loose lifts and mechanically compacted to no less than 90 percent relative compaction.

B. In areas subjected to vehicular traffic, the upper 2 feet below the finished pavement elevation shall be compacted to a minimum of 95 percent relative compaction.

C. Areas to receive grassing shall be graded such that finish ground elevations account for topsoil and soil conditioner layers.

D. Restore grassing in accordance with SECTION 02920 – LAWNS AND GRASS.

3.07 FIELD QUALITY CONTROL

A. The Geotechnical Engineer will inspect and approve open cuts and trenches before installation of pipeline or structures, and will monitor the following:
   1. Assure that trenches are not backfilled until all tests have been completed;
   2. Site and trench excavations;
   3. Subgrade preparations;
   4. Placement of fill and backfill material;
   5. Assure that defective work is removed and properly replaced.

END OF SECTION

SECTION 02577 - PAVEMENT MARKINGS

PART 1 – GENERAL

1.01 SUMMARY

A. The work to be performed under this section shall include the furnishing of all labor and equipment necessary to restore pavement markings disturbed during the project.

1.02 REFERENCES

A. The “2005 Standard Specifications for Road and Bridge Construction”, State of Hawaii, Department of Transportation, hereafter referred to as the DOT “Standard Specifications.” (Paragraphs concerning Measurement and Payment are not applicable to this project.)

1.03 SUBMITTALS

A. Product Data
   1. Manufacturer's product data and application instructions.

1.04 DELIVERY AND STORAGE

A. Deliver paints and paint materials in original sealed containers that plainly show the designated name, specification number, batch number, color, date of manufacture, manufacturer's directions, and name of manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials shall be in accordance with the below listed sections of the DOT "Standard Specifications" as revised, except as amended in the plans and/or specifications herewith. (Paragraphs concerning Measurement and Payment are not applicable to this project).

Pavement Markers	755.02
Adhesives for Pavement Markers	755.03
Reflective Thermoplastic Compound Pavement Markings	755.05

2.02 EQUIPMENT

A. All equipment, tools and machinery shall be suitable for pavement markings installation and shall be maintained in satisfactory operating condition at all times.

B. Paint Applicator: The equipment for applying paint to pavements shall be a self-propelled or mobile-drawn pneumatic spraying machine with suitable arrangements of atomizing nozzles and controls to obtain the specified results. The machine shall be capable of applying the stripe widths indicated on the plans, shall have a speed during application of not less than five miles per hour, and shall be capable of applying the paint at the coverage rate specified hereinafter and at an even uniform thickness with clear-cut edges. The paint applicators shall have a paint reservoir of sufficient capacity and suitable gages to apply paint as specified herein. The reservoirs shall be equipped with suitable

air-driven mechanical agitators. The spray mechanism shall be equipped with quick-action valves conveniently located, and shall include necessary pressure regulators and gages in full view and reach of the operator. Paint strainers shall be installed in the paint supply lines to insure freedom from residue and foreign matter that may cause malfunction of the spray guns. The paint applicator shall be readily adaptable for attachment of an air-actuated dispenser for the reflective media. Pneumatic spray guns shall be provided for hand application of paint in areas where the mobile paint applicator cannot be used.

PART 3 - EXECUTION

3.01 GENERAL

A. Prior to ground disturbance, the Contractor shall document the types, locations, and dimensions of the existing pavement markings on the streets within the project limits to be affected by their work.

B. Pavement markings shall be restored to match the existing condition as indicated on the Plans and in accordance with the applicable sections of the DOT “Standard Specifications”.

C. Submit manufacturer's product data and application instructions to the Contracting Officer for acceptance a minimum of 10 days before usage.

3.02 SURFACE PREPARATION

A. New asphalt concrete pavement shall be allowed to cure for a period of not less than 14 days before the application of marking materials unless directed otherwise by the Contracting Officer.

B. Dust, clay, silt and sand shall be removed from the pavement to be marked before application of paint by sweeping, blowing with compressed air, rinsing with water or a combination of these methods as required. Rubber deposits, surface laitance and other substances adhering to the pavement shall be removed with stiff brooms, scrapers, wire brushes, sandblasting or mechanical abrasion.

C. Paints shall not be applied when moisture or foreign matter is present on the pavement surface or when wind conditions are such as to cause dust to be deposited on the prepared areas or to prevent satisfactory application of the paint.

3.03 CONTROL POINTS

A. Establish control points and layout pavement markings. The layout shall be accepted by the Contracting Officer before installing the work.

3.04 PAVEMENT MARKERS

A. Use bituminous adhesive or standard set type epoxy adhesive to bond pavement markers to pavement.

B. Heat and dispense bituminous adhesive from equipment that can maintain required temperature.

C. When using epoxy adhesive, mix components by employing two-component type automatic mixing and extruding apparatus. Automatic mixing equipment shall use positive displacement pumps and shall properly meter components in ratio of 1:1, ± 5 percent by volume. Check ratio in presence of the Contracting Officer at beginning of each day or as ordered by the Contracting Officer.

D. Mix only standard set type adhesive manually, and do not mix more than 1 quart.

E. Place pavement markers within 60 seconds after mixing and extruding adhesive. No further movement of placed marker will be allowed. Use completely each mixed batch of adhesive within 5 minutes after start of mixing. Place adhesive on pavement surface or on bottom of marker, covering entire area of contact, without voids and with uniform thickness, to produce slight excess after pressing marker in place. Place marker in position and apply pressure with slight twisting motion until firm contact is made with pavement. If adhesive cannot be readily extruded from under marker when pressure is applied, discard remaining batch of adhesive. Immediately remove excess adhesive around edge of marker, on surrounding pavement, and on exposed surfaces of markers.

F. Remove adhesive from exposed faces of markers, using soft rags moistened with mineral spirits PRF-680A(1) or kerosene.

G. Where bituminous adhesive is used, protect marker against impact until adhesive has hardened to the degree designated by the Contracting Officer. Where epoxy adhesive is used, protect pavement markers against impact until adhesive has hardened in accordance with Table 3.02-1 – Adhesive Set Time for Epoxy Pavement Markers:

TABLE 3.02-1 - ADHESIVE SET TIME FOR EPOXY PAVEMENT MARKERS

Temperature* (Degrees F)	Standard Set Type (Hours)	Rapid Set Type (Minutes)
100	1.5	15
90	2	20
80	3	25
70	4	30
60	5	35

*Either pavement surface temperature or ambient air temperature, whichever is lower.

H. Do not use hardness of epoxy rim around marker as an indication of degree of cure.

I. Remove and replace pavement markers that do not meet set time requirements indicated in Table 3.02-1 - Adhesive Set Time for Epoxy Pavement Markers.

J. Do not install pavement markers when relative humidity is greater than 80 percent, or when pavement surface is not dry.

K. Do not install pavement markers over longitudinal or transverse joints of pavement surface, pavement marking tape, and thermoplastic extrusion markings.

3.05 THERMOPLASTIC EXTRUSION PAVEMENT MARKING

A. Equipment

1. Apply material to pavement by extrusion method. One side of shaping die shall be pavement surface and other three sides shall be contained by, or shall be part of equipment for heating and controlling flow of material.

2. Equipment shall provide continuous mixing and agitation of material. Conveying parts of equipment shall be constructed to prevent accumulation and clogging.

3. Mixing and conveying parts, including shaping die, shall maintain material at plastic temperature.

4. Equipment shall produce continuously uniform stripe dimensions.

5. Applicator shall cleanly and squarely cut off stripe ends. Pans, aprons, or similar appliances that the die overruns will not be allowed.

6. Apply beads to entire surface of completed stripe by automatic bead dispenser attached to liner.

7. Equip bead dispenser with automatic cutoff control synchronized with cutoff of thermoplastic material.

8. Use equipment that provides for varying die widths to produce varying widths of traffic markings.

9. Provide kettle for melting and heating composition. Equip kettle with automatic thermoplastic control device so that heating can be done by controlled heat transfer liquid rather than direct flame.

10. Equip and arrange applicator and kettle in accordance with National Fire Underwriters requirements.

11. Use mobile and maneuverable applicator that is capable of following straight lines and making curves in true arcs.

12. Use applicator capable of containing minimum of 125 pounds of molten material.

B. Application

1. Clean off dirt, blaze, paint, tape, and grease. Apply thermoplastic extrusion pavement marking only when pavement surface is dry.

2. Use equipment that can apply material in variable widths from 2 inches to 12 inches. Apply material for full width of stripe in one application or pass.

3. On hot mix asphalt pavements more than seven days old and on hot mix asphalt pavements paved within seven days containing less than 6 percent bituminous asphalt, pre-stripe application area with binder material, primer, or prime seal coat recommended by pavement marker manufacturer.

4. Line thickness, as viewed from lateral cross section, shall measure not less than 3/32 inch at edges, and not less than 1/8 inch in center.

5. Provide finished lines with well-defined edges, free of waviness.

3.06 TRAFFIC CONTROL

A. The Contractor shall furnish, install and maintain suitable warning signs, barricades and other traffic control devices near work site. Traffic control devices shall be placed along the newly painted lines to control traffic and to prevent damage to the newly painted surfaces.

3.07 INSPECTION AND ACCEPTANCE

A. Pavement markings shall be subject to rigid inspection at all times and provisions of this specification will be strictly enforced.

B. Painting shall not commence in any area until pavement surfaces have been inspected and the Contracting Officer's approval is given to the Contractor to proceed.

C. Areas found to be deficient in accordance with this specification shall be rejected and complete replacement or repainting will be required at no cost to the State.

D. Workmanship shall conform to the best commercial practices consistent with these Specifications.

E. Any spilled paints shall be cleaned from the paved areas to the satisfaction of the Contracting Officer.

F. The Contractor shall keep the premises clean at all times. Paint, empty containers and other material or equipment will not be stored or allowed to accumulate on or near the paved areas.

G. Final acceptance shall be contingent upon conformance with specification requirements outlined in this specification.

3.08 PROTECTION OF WORK

A. Newly painted surfaces shall be protected from damage by vehicles during the time required for markings to sufficiently set to withstand traffic.

B. Any damage to new pavement markings due to Contractor's failure to provide adequate protection will be repaired by the Contractor at no cost to the State.

END OF SECTION

SECTION 02722 - SANITARY SEWER SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish all labor, materials, equipment, and tools to install exterior sanitary sewer piping, sewer force main piping, package duplex grinder pump station and other appurtenances as shown on the Contract Drawings and specified herein.

1.02 RELATED SECTIONS

A. SECTION 01650 – FACILITY STARTUP

B. SECTION 16000 – ELECTRICAL WORK

1.03 SUBMITTALS

A. Product Data: The Contractor shall submit complete product data and installation instructions for sanitary sewer products, equipment and appurtenances.

B. Material Certificates: The Contractor shall furnish affidavits from the manufacturers of pipe and fittings and equipment, furnished and installed under this section certifying that such materials delivered to the project conform to the requirements of this specification.

C. Operations & Maintenance Manual: The Contractor shall provide an Operations and Maintenance manual which includes, but is not limited to, equipment descriptions, operating instructions, drawings, troubleshooting techniques, recommended servicing, and recommended lubricants.

D. Warranty: The Contractor shall furnish to the Contracting Officer warranties from the manufacturers of pipe, fittings, grinder pumps, and accessories furnished and installed under this section.

The grinder pump manufacturer shall provide a warranty on the complete station and accessories, including the control panel and check valves, for a period of twenty-four (24) months after the substantial completion. Any defects found during the warranty period shall be corrected by the manufacturer to the satisfaction of the Contracting Officer at no cost to the State.

E. Wastewater Spill Mitigation Plan: The Contractor shall submit a Wastewater Spill Mitigation Plan as specified in SECTION 01735 – MAINTAINING EXISTING UTILITIES. This plan shall be approved by the Contracting Officer prior to commencing construction.

1.04 GRINDER PUMP MANUFACTURER

A. The grinder pump equipment specified shall be a product of a company experienced in the design and manufacture of grinder pumps for specific use in low-pressure sewage systems. The company shall submit detailed installation and user instructions for its product; submit evidence of an established service

program including complete parts and service manuals, and be responsible for maintaining a continuing inventory of grinder pump replacement parts. The manufacturer shall provide a reference and contact list from at least five installations in the State of Hawaii and three of its largest contiguous grinder pump installations.

1.05 INSPECTION

A. All work for the sewer system shall be inspected and approved by the Contracting Officer.

B. The connection of the new sewer force main to the existing gravity sewer in Queen Street may be subject to inspection by the City and County Department of Facilities Maintenance or other approving City agency.

C. The Contractor shall make arrangements with the Contracting Officer or any other applicable agencies for inspection of the work.

1.06 REFERENCES

A. The "Standard Specifications for Public Works Construction," September 1986, of the Departments of Public Works, as applicable to the City and County of Honolulu, hereafter referred to as the DPW "Standard Specifications," or as herein specified. (Paragraphs concerning Measurement and Payment are not applicable to this project.)

B. The "Standard Details for Public Works Construction," September 1984, of the Departments of Public Works, as applicable to the City and County of Honolulu, hereafter referred to as the DPW "Standard Details," or as herein specified.

PART 2 – PRODUCTS

2.01 PIPING AND APPURTENANCES

A. PVC Pipes and Fittings

1. Gravity sewer pipes and fittings shall be in compliance with AWWA C900-16, AWWA Standard for “Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. Through 60 in.”

2. All PVC pipe and fittings shall have an SDR of 18 and be pressure class 150 PVC fittings with elastomeric gasket-type joints compatible with AWWA C-900 PVC pipe. Fittings shall be one-piece injection-molded. Gasket bells shall conform to ASTM D3212 and ASTM F477.

3. All pipes and fittings must be free from injurious cracks, checks, blisters, broken extremities, or other imperfections as determined by the Contracting Officer. The following imperfections in a pipe or fitting will be considered injurious and cause for rejection.

   a. Any crack in the barrel or ball of the pipe, extending through the entire thickness, regardless of the length of such crack. Any crack which extends through 1/5 or more of the barrel or bell thickness and is over

three (3) inches long. Any crack which is more than 1/32 inch wide at its widest point.

b. Lumps, blisters, pits, or flakes on the interior surface.

c. When the spigot or bell of the pipe varies from a true circle more than three percent of its nominal diameter.

d. When a pipe or fitting, designated to be straight, exhibits a deviation from a straight line of more than 1/16 inch per linear foot. The deviation shall be measured from a straightedge on the concave side of the pipe.

e. Any piece broken from the socket or bell end of the pipe or fitting.

f. Foreign matter that has fused permanently to the exterior or interior surface of the pipe or fitting.

B. Cleanouts to Grade: Vertical sewer cleanouts shall be constructed as indicated on the plans.

2.02 DUPLEX GRINDER PUMP STATION

A. Pump: The pumps shall be a custom designed, integral, vertical rotor, motor driven, solids handling pump of the progressing cavity type with a single mechanical seal. The rotor shall be through-hardened, highly polished, precipitation hardened stainless steel. The stator shall be of a specifically compounded ethylene propylene synthetic elastomer. The material shall be suited for domestic wastewater service. Its physical properties shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature stability, good aging properties, and outstanding wear resistance. In addition to the performance requirements shown in the Plans, each pump shall also be capable of delivering at least 15 GPM against a rated total dynamic head of 0 feet, at least 11 GPM against a rated total dynamic head of 92 feet, and 7 GPM against a rated total dynamic head of 185 feet. Each pump shall also be capable of operating at negative total dynamic head without overloading the motor). Under no conditions shall in-line piping or valving be allowed to create a false apparent head.

B. Grinder: The grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece stainless steel motor shaft. The grinder impeller assembly shall be securely fastened to the pump motor shaft. The grinder will be of the rotating type with a stationary hardened and ground stainless steel shredding ring spaced in accurate close annular alignment with the driven impeller assembly, which shall carry two hardened type 400 series stainless steel cutter bars. This assembly shall be dynamically balanced and operate without objectionable noise or vibration over the entire range of recommended operating pressures. The grinder shall be constructed so as to eliminate clogging and jamming under all normal operating conditions including starting. Sufficient vortex action shall be created to scour tank free of deposits or sludge banks which would impair the operation of the pump. These requirements shall be accomplished by the following, in conjunction with the pump:

1. The grinder shall be positioned in such a way that solids are fed in an upward flow direction.

2. The inlet shroud shall have a diameter no less than 5 inches.

3. At maximum flowrate through the cutting mechanism must not exceed 4 feet per second.

4. The impeller mechanism must rotate at a nominal speed of no greater than the rpm noted in the Plans.

The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of "foreign objects", such as paper, wood, plastic, glass, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the discharge piping.

C. Electric Motor: Motor ratings shall be as noted in the Plans. The motor shall be capacitor start, ball bearing, with a low starting current not to exceed 30 amperes and high starting torque of 8.4 foot pounds. Inherent protection against running overloads or locked rotor conditions for the pump motor shall be provided by the use of an automatic-reset, integral thermal overload protector incorporated into the motor. This motor protector combination shall have been specifically investigated and listed by Underwriters Laboratories, Inc., for the application.

D. Mechanical Seal: The core shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump. The seal shall have a stationary ceramic seat and carbon rotating surface with faces precision lapped and held in position by a stainless steel spring.

E. Tank and Integral Accessway: The tank shall made of high density polyethylene, with a grade selected to provide the necessary environmental stress cracking resistance. Corrugated sections are to be made of a double wall construction with the internal wall being generally smooth to promote scouring. Any incidental sections of a single wall construction are to be 0.250” thick (minimum). All seams created during tank construction are to be thermally welded and factory tested for leak tightness. The tank wall and bottom must withstand the pressure exerted by saturated soil loading at maximum burial depth. All station components must function normally when exposed to 150 percent of the maximum external soil and hydrostatic pressure.

1. The accessway shall be an integral extension of the wet well assembly and include a lockable cover assembly providing low profile mounting and watertight capability. Accessway design and construction shall enable field adjustment of station height in increments of 3" or less without the use of any adhesives or sealants requiring cure time before installation can be completed.

2. The station shall have all necessary penetrations molded in and factory sealed. No field penetrations will be allowed.

3. All discharge piping shall be constructed of 304 Series Stainless Steel and terminate outside the accessway bulkhead with a stainless steel, 1 1/4 inch female NPT fitting. The discharge piping shall include a stainless steel ball valve rated for 235 psi. The bulkhead penetration shall be factory installed and warranted by the manufacturer to be watertight.

4. The accessway shall include a NEMA 6P electrical quick disconnect for each pump for all power and control functions, factory installed with accessway penetrations warranted by the manufacturer to be watertight. The accessway shall also include a 2" PVC vent to prevent sewage gases from accumulating in the tank.

F. Check Valve: The pump discharge shall be equipped with a factory installed, gravity operated, flapper-type integral check valve built into the discharge piping. The check valve shall provide a full-ported passageway when open, and shall introduce a friction loss of less than 6 inches of water at maximum rated flow. Working parts shall be made of a 300 series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A non-metallic hinge shall be an integral part of the flapper assembly providing a maximum degree of freedom to assure seating even at a very low back pressure. The valve body shall be an injection molded part made of a thermoplastic resin.

G. Core Unit: The duplex grinder pump station shall have cartridge type easily removable core assemblies containing pump, motor, grinder, all motor controls, check valve, anti-siphon valve, electrical quick disconnect and wiring. The watertight integrity of each core unit shall be established by 100% factory test at a minimum of 5 psi.

H. Controls: All necessary controls shall be located in the top housing of the core unit. The top housing will be attached with 316 stainless steel fasteners.

1. Non-fouling wastewater level detection for controlling pump operation shall be accomplished by monitoring the pressure changes in an integral air column connected to a pressure switch. The level detection device shall have no moving parts in direct contact with the wastewater.

2. To assure reliable operation of the pressure sensitive switches, each core shall be equipped with a factory installed equalizer diaphragm that compensates for any atmospheric pressure or temperature changes. The grinder pump cables shall be furnished pre-wired and watertight to meet UL requirements.

I. Control Panel: A NEMA 4X, UL listed Control Panel suitable for wall mounting shall be included. The entire Control Panel as manufactured, shall be listed by Underwriters Laboratories, Inc. The NEMA 4X enclosure shall be manufactured of thermoplastic to assure corrosion resistance. The enclosure shall include a hinged, lockable cover with padlock, preventing access to electrical components, and creating a secured safety front to allow access only to authorized personnel.

The panel shall contain one (1) - 15 amp, double pole circuit breaker for the pump core's power circuit and one (1) 15 amp, single pole circuit breaker for the alarm circuit. The panel shall contain a push-to-run feature, and internal run indicator, and a complete alarm circuit.

The Control Panel shall include the following features: audio & visual alarm, push to run switch, push-to-silence switch, and high level (redundant) pump starting control.

The alarm sequence is to be as follows unless otherwise directed by the Contracting Officer:

1. When liquid level in the sewage wet well rises above the alarm level, visual and audio alarms will be activated. The contacts on the alarm pressure switch will close. The redundant pump starting system will be energized.

2. The audio alarm may be silenced by means of the externally mounted, push-to-silence button.

3. Visual alarm remains illuminated until the sewage level in the wet well drops below the "off" setting of the alarm pressure switch.

    a. The visual alarm lamp shall be inside a red, oblong lens at least 3.75" L x 2.38" W x 1.5" H. Visual alarm shall be mounted to the top of the enclosure in such a manner as to maintain NEMA 4X rating. The audible alarm shall be externally mounted on the bottom of the enclosure, capable of 93 dB @ 2 feet. The audible alarm shall be capable of being deactivated by depressing a push-type switch that is encapsulated in a weatherproof silicone boot and mounted on the bottom of the enclosure (push-to-silence button).

    b. During a high level alarm condition, the appropriate light shall illuminate to indicate which pump core requires servicing. The audio alarm shall be a printed circuit board in conjunction with an 86 dB buzzer with quick mounting terminal strip mounted in the interior of the enclosure. The audio alarm shall be capable of being deactivated by depressing a push-type switch which is encapsulated in a weatherproof silicone boot and mounted on the bottom of the enclosure.

J. Wireless Cellular Based Control/Monitoring: The control panel shall include hardware that is connected to dry contacts for high level alarm and pump running events. The communication package shall be factory pre-wired unit within the control panel enclosure including a cellular transmitter, power supply and antenna. The cellular transmitter shall transmit operational parameters to a host system that utilizes an interactive website interface to access the information. Contractor shall connect communication package to a mobile phone service provided by the State.

The following wireless features shall be provided:

1. A secure user ID and password to access the website.

2. Notification of trouble conditions and high level alarms.

3. Generate reports of running times, pump cycles, alarms, flow rates, potential infiltration, predictive maintenance indicators that can be sent to users via email, SMS text, phone or an existing telemetry system.

K. Serviceability: Each grinder pump core unit shall have two lifting hooks complete with lift-out harness connected to its top housing to facilitate easy core removal when necessary. All mechanical and electrical connections shall provide easy disconnect capability for core unit removal and installation. A pump push-to-run feature shall be provided for field trouble shooting. All motor control components shall be mounted on a readily replaceable bracket for ease of field service.

L. OHSA Confined Space: All maintenance tasks for the grinder pump station shall be possible without entry into the pump station (as per OHSA 1910.146 Permit-required confined spaces). *"Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space."*

M. Safety: The grinder pumps shall be free from electrical and fire hazards as required in a residential environment. As evidence of compliance with this requirement, the completely assembled and wired pump station shall be listed by Underwriters Laboratories, Inc., to be safe and appropriate for the intended use.

The grinder pumps shall meet accepted standards for plumbing equipment, shall be free from noise, odor, or health hazards, and shall have been tested by an independent laboratory to certify its capability to perform as specified. As evidence of compliance with this requirement, the grinder pumps shall bear the seal of NSF International.

2.03 DAVIT CRANE

A. Davit crane shall be as indicated on the plans.

2.04 TESTING EQUIPMENT

A. The Contractor shall, at his own expense, furnish suitable temporary testing plugs or caps, all necessary pressure pumps, pipe connections, water, meters, gauges, all other necessary material and equipment, and all labor required to make the required tests. Pressure gages shall be capable of measuring pressures to an accuracy of 0.1 psi.

PART 3 - EXECUTION

3.01 PREPARATION

A. Layout of Sanitary Sewage Work: Contractor shall be responsible for precisely laying out the sanitary sewage work to ensure positive flow and installation of work at the slopes and invert elevations shown on the drawings.

B. Verify Existing Utility Work: Contractor shall excavate and expose all utility work which will be crossed by new sanitary sewer work to verify location and elevations. Invert elevations of new sanitary sewage work connection points to existing work shall be verified.

C. Should Contractor find any discrepancies which may affect the alignment or grade of sanitary sewage work, Contractor shall stop sanitary sewage work and notify Contracting Officer of his findings. Contractor shall not continue with sanitary sewage work without direction from the Contracting Officer.

D. The Contractor shall notify the Contracting Officer prior to any work being done on the existing sewer system in accordance with SECTION 01735 – MAINTAINING EXISTING UTILITIES.

3.02 DEMOLITION

A. Demolish and remove portions of existing sewer system as indicated on the plans as necessary to install the new sewer system.

B. Cut and plug portions of the pipe to be abandoned at the locations indicated on the Plans.

3.03 EXCAVATION

A. Excavate to the dimensions and elevations indicated on the plans in accordance with SECTION 02200 – EARTHWORK.

3.04 SUBGRADE PREPARATION

A. Prepare subgrade and install bedding and subbedding material, if necessary, as indicated on the plans and in accordance with SECTION 02200 – EARTHWORK and SECTION 02225 – TRENCHING, BACKFILLING, AND COMPACTING.

3.05 INSTALLATION

A. General

1. The work shall be phased in such a manner to avoid interruptions in sewer service to the Judiciary Building. Work sequencing shall be done in accordance with SECTION 01650 – FACILITY STARTUP.

2. Each pipe shall be laid accurately to the line and grade shown on the drawings.

3. Pipe shall be protected during handling against impact shocks and free fall. The pipe interior shall be free of extraneous material.

4. Contractor shall ensure adequate trench ventilation and protection for workers installing pipe.

B. PVC Pipe and Fittings: The pipe shall be installed per manufacturer's recommendations and as indicated on the Plans.

C. Joints between different pipe materials shall be made as hereinbefore specified using approved joining methods. Contractor can submit alternate jointing methods to Contracting Officer for approval. All couplings and adapters necessary to make the connection are considered incidental to construction.

D. Cleanouts to Grade

1. Cleanout shall be installed as indicated on drawings and shall be set true to line and to correct elevation.

2. Cleanout shall be marked and protected during the course of construction and shall be adjusted and set to finished grade upon establishment of fine grading in the area.

E. Duplex Package Grinder Pump Station: Pumps shall be installed per manufacturer's specifications, instructions, and in accordance with all OSHA, local, state, and federal codes and regulations.

1. Contractor shall field leak test the wet well. To ensure no damage to wet well has occurred during shipping and installation. The field leak test shall occur after the wet well portion the of station is installed. Contractor shall fill the wet well to the maximum operating level or to the contracting Officer's discretion. The testing duration shall be three days. The wet well shall be inspected daily for damp spots, seepage, and leakage. If any visual leaks are identified, the leak shall be repaired and the wet well emptied and the test restarted. There shall be no measurable loss of water. No measurable loss of water means the drop in the water surface shall not exceed 1/8 in. (3mm) in three days.

2. In accordance with the requirements of SECTION 01650 – FACILITY STARTUP, an authorized service representative of the manufacturer shall visit the site and witness the following:
   a. Installation of the equipment.
   b. Inspection, checking, and adjusting the equipment.
   c. Startup and field-testing for proper operation.
   d. Performing field adjustments to ensure that the equipment installation and operation comply with the Specification.
   e. The manufacturer's representative shall provide field service rates to the State and the Contractor. In the event that the field service time required by this section is not sufficient to properly place the equipment into operation, additional time shall be purchased by the Contractor to correct deficiencies in installation, equipment, or material at no additional cost to the State.
   f. The Contracting officer reserves the right to manually test the alarms.

3. Prior to system start up, the manufacturer's representative shall inspect the installation to verify system installation is satisfactory for operation. The Contracting Officer shall be advised in writing of any corrections or adjustments that are required for the equipment installation.

4. The manufacturer's representative shall observe the start-up of equipment, verify all functions of the equipment, and make adjustments as needed to meet the performance goals of this section. Complete testing of the equipment functionality shall be performed in the presence of the Contracting Officer before final acceptance of the system is given.

5. Upon completion of the installation, all components of the system shall be tested for satisfactory operation without any leaking, excessive noise, vibration, overheating, or other operative malfunction. All equipment shall be adjusted and checked for alignment, clearances, supports, and adherence to safety standards until found satisfactory by the Contracting Officer.

6. After the installation has been completed to the manufacturer's satisfaction, a letter of certification shall be furnished by the manufacturer's representative stating that all equipment is installed in accordance with its instructions and that the equipment is ready for operation.

7. Provide training sessions in accordance with SECTION 01650 – FACILITY STARTUP. A representative of the manufacturer shall demonstrate the operation, maintenance, safety procedures, and rebuilding instruction demonstrations for all systems and equipment to personnel designated by the Contracting Officer. Provide 8 hours of training, separate from the equipment start-up and commissioning, to instruct the State/pump station personnel to adjust, operate, and maintain systems and subsystems.

F. Testing of Sewer Lines

1. Contractor shall furnish all equipment for tests, any required supports, and pay for all costs associated with repairing any damages during such testing. Tests shall be performed in the presence of, and to the satisfaction of the Contracting Officer. Any re-testing shall be performed by the Contractor at no additional cost.

2. Provide leak testing of all new piping. The new systems shall be installed, but not connected until testing is completed to the satisfaction of the Contracting Officer. Submit all test results to the Contracting Officer.

3. For sewer force main piping, pressure test at a minimum of 35 psi. Water shall be pumped into the line to maintain the specified test pressure of a two-hour period with no leakage allowed. Exhaustion of the supply or inability to maintain the test pressure shall be considered a failure.

4. Gravity sewers shall be tested as specified in Section 18, “Vitrified Clay Sewer Pipe and Appurtenances” of the DPW “Standard Specifications”.

G. Backfill: Backfill excavated area with suitable material in accordance with SECTION 02200 – EARTHWORK.

H. Davit Crane: Davit crane shall be installed as indicated on the plans and per manufacturer’s recommendation. Contractor shall demonstrate the davit crane is able to lift all items inside the pump wet well as requested by the Contracting Officer.

I. Install sewer force main to connect to the existing sewer lateral as indicated on the Plans.

J. The Contractor shall notify the City Department of Planning and Permitting and Department of Environmental Services at least 1 week prior to working on the City’s sewer system.

3.06 FINAL INSPECTION

A. Prior to final inspection of work, all sanitary sewage work shall be completed. Contractor to ensure that sanitary sewage work is operating as designed.

B. Sanitary sewage structures and pipes shall be clear of debris, silt, and other obstructions.

END OF SECTION

SECTION 02723 – STORMWATER SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish all labor, materials, equipment, and tools to install stormwater piping, stormwater pumps and other appurtenances as shown on the Contract Drawings and specified herein.

1.02 RELATED SECTIONS

A. SECTION 01650 – FACILITY STARTUP

B. SECTION 16000 – ELECTRICAL WORK

1.03 SUBMITTALS

A. Product Data: The Contractor shall submit complete product data and installation instructions for stormwater equipment and appurtenances.

B. Certificates: The Contractor shall furnish affidavits from the manufacturers of pipe, fittings, valves and accessories furnished and installed under this section certifying that such materials delivered to the project conform to the requirements of this specification.

C. Warranty: The Contractor shall furnish to the Contracting Officer warranties from the manufacturers of pipe, fittings, valves, and accessories furnished and installed under this section.

D. Leakage Test Results: Submit all leakage test results to the Contracting Officer.

1.04 INSPECTION

A. The connection to the existing catch basin shall be inspected and approved by the City Department of Design and Construction. The Contractor shall make arrangements directly with the City for inspection of the work.

PART 2 – PRODUCTS

2.01 MATERIALS

A. PVC Pipes and Fittings:

1. General: Stormwater pipes and fittings shall be PVC pressure pipes in compliance with AWWA C900-16, AWWA Standard for “Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. Through 60 in.”

2. PVC Pipe shall have an SDR of 18 and be pressure class 150 psi. Fittings shall be Mechanical Joint Fittings. Gasket bells shall conform to ASTM D3212 and ASTM F477.

3. All pipes and fittings must be free from injurious cracks, checks, blisters, broken extremities, or other imperfections as determined by the Contracting Officer. The following imperfections in a pipe or fitting will be considered injurious and cause for rejection.

a. Any crack in the barrel or ball of the pipe, extending through the entire thickness, regardless of the length of such crack. Any crack which extends through 1/5 or more of the barrel or bell thickness and is over three (3) inches long. Any crack which is more than 1/32 inch wide at its widest point.

b. Lumps, blisters, pits, or flakes on the interior surface.

c. When the spigot or bell of the pipe varies from a true circle more than three percent of its nominal diameter.

d. When a pipe or fitting, designated to be straight, exhibits a deviation from a straight line of more than 1/16 inch per linear foot. The deviation shall be measured from a straightedge on the concave side of the pipe.

e. Any piece broken from the socket or bell end of the pipe or fitting.

f. Foreign matter that has fused permanently to the exterior or interior surface of the pipe or fitting.

B. Ductile Iron Piping and Fittings
1. Ductile Iron Pipe: Conform to ANSI/AWWA C151. Pipe shall be Class 53. Pipe shall be centrifugally cast ductile iron of the sizes shown.

2. Ductile Iron Fittings: Conform to ANSI/AWWA C110 or to ANSI/AWWA C153. Fittings shall be flanged in accordance with the drawings and shall be rated for 350 psi. Flanged fittings shall be Class 53. Flanges shall be ANSI/AWWA C115 threaded 125 lb. flanges rated for 250 psi. Flange gaskets shall be 1/8-inch thick rubber meeting the material requirements of ANSI/AWWA C111/A21.11 and shall be similar or equal to US Pipe FLANGE-TYTE gaskets or approved equal.

3. Lining: Ductile iron pipe and fittings shall be cement mortar lined. Lining thickness shall be double thickness in accordance with ANSI/AWWA C104/A21.4 and shall be seal coated.

4. Flange Bolts: All flange bolting material for new flange joints shall be Type 316 stainless steel unless otherwise specified. Replace all bolts where connecting to existing piping.

2.02 STORMWATER PUMP SYSTEM

A. Gate Valve: The gate valves shall be pressure rated to a minimum of 250 psi. Gate valves shall be iron wedged, symmetrical and fully incapsulated with molded rubber; no exposed iron. The valves shall comply with the latest version of the AWWA C509, and shall also be tested and certified to ANSI/NSF 61 and 372. Provide type and model Mueller (2300 series) or approved equal. Valve end connections shall be flanged. End flanges shall be integral with the valve body and be faced and drilled in accordance with ANSI B16.1, class 125. E. The valve type shall be a non-rising stem. The valves shall be provided with a 2-inch square operating nut the bolt that attaches the operating nut to the stem shall be recessed into the operating nut so as to not interfere with valve wrench operation. The valve stem shall have at least one “anti-friction” thrust washer

above and below the stem collar to reduce operating torque. Valves with cast stems or two-piece stem collars are not acceptable. The valve shall be epoxy coated inside and out.

Materials of gate valve construction shall be as follows:

Component	Material
Body	Ductile Iron conforming to the requirements of ASTM A536
Disk	Ductile Iron, fully incapsulated in molded rubber, ASTM A536
Disk Encapsulated	Rubber, ASTM D2000
Wrench nut	Ductile Iron, ASTM A536
Fasteners	Type 316 Stainless Steel
Exterior Nuts & Bolts	All exterior nuts and bolts shall be Type 316 Stainless Steel

B. Check Valve: The check valves shall be pressure rated to a minimum of 150 psi. Lever and spring, rubber seated swing check valve. The valve shall permit flow in one direction only and close tightly, without slamming, when its discharge pressure exceeds its inlet pressure. Valve end connections shall be flanged. End flanges shall be integral with the check valve body and be faced and drilled in accordance with ANSI B16.1 for 125-pound flanges. The valve shall be epoxy coated inside and out.

Materials of gate valve construction shall be as follows:

Component	Material
Body	Cast Iron (ASTM A-126B)
Hinge Shaft	18-8 Stainless Steel
Support Type	Type 316 Stainless Steel
Exterior Bolts	all exterior bolts shall be type 316 Stainless Steel

PART 3 - EXECUTION

3.01 PREPARATION

A. Layout of Stormwater Work: Contractor shall be responsible for precisely laying out the stormwater work to ensure positive flow and installation of work at the slopes and invert elevations shown on the drawings.

B. Verify Existing Utility Work: Contractor shall excavate and expose all utility work which will be crossed by new stormwater force main to verify location and elevations. Invert elevations of new stormwater work connection points to existing work shall be verified.

C. Should Contractor find any discrepancies which may affect the alignment or grade of stormwater work, Contractor shall stop work and notify Contracting Officer of his findings. Contractor shall not continue without direction from the Contracting Officer.

D. The Contractor shall notify the Contracting Officer prior to any work being done on the existing stormwater system in accordance with SECTION 01735 – MAINTAINING EXISTING UTILITIES.

3.02 DEMOLITION

A. Demolish and remove portions of existing stormwater system as indicated on the plans as necessary to install the proposed improvements.

B. Cut and plug portions of the pipe to be abandoned at the locations indicated on the Plans.

3.03 INSTALLATION

A. General

1. The work shall be phased in such a manner to avoid interruptions in utility service to the Judiciary Building. Anticipate weather conditions and schedule work on the stormwater system during dry weather periods. Work sequencing shall be done in accordance with SECTION 01650 – FACILITY STARTUP.

2. Each pipe shall be laid accurately to the line and grade shown on the drawings.

3. Pipe shall be protected during handling against impact shocks and free fall. The pipe interior shall be free of extraneous material.

4. Contractor shall ensure adequate trench ventilation and protection for workers installing pipe.

5. Contractor shall furnish all equipment for tests, any required supports, and pay for all costs associated with repairing any damages during such testing. Tests shall be performed in the presence of, and to the satisfaction of the Contracting Officer. Any re-testing shall be performed by the Contractor at no additional cost.

6. Provide leak testing of all new piping. The new systems shall be installed, but not connected until testing is completed to the satisfaction of the Contracting Officer. Submit all test results to the Contracting Officer.

7. For stormwater force main piping, pressure test at a minimum of 30 psi. Water shall be pumped into the line to maintain the specified test pressure for a two-hour period with no leakage allowed. Exhaustion of the supply or inability to maintain the test pressure shall be considered a failure.

B. Piping and Fittings: Install per manufacturer's recommendations and as indicated on the Plans.

C. Joints between different pipe materials shall be made as hereinbefore specified using approved joining methods. Contractor can submit alternate jointing methods to Contracting Officer for approval. All couplings and adapters necessary to make the connection are considered incidental to construction.

D. Install stormwater force main to connect to the existing catch basin as indicated on the Plans.

3.04 FINAL INSPECTION

A. Prior to final inspection of work, all stormwater work shall be completed. Contractor to ensure that stormwater work is operating as designed.

B. Stormwater structures and pipes shall be clear of debris, silt, and other obstructions.

END OF SECTION

SECTION 02740 – FLEXIBLE PAVEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. The work of this section consists of furnishing all labor, materials, equipment, and tools to cover the composition, mixing, and placement upon the prepared subgrade of asphalt concrete pavement.

1.02 REFERENCES

A. The “Standard Specifications for Public Works Construction”, September 1986, of the Department of Public Works, as applicable to the City and County of Honolulu, hereafter referred to as the DPW “Standard Specifications”, or as herein specified. (Paragraphs concerning Measurement and Payment are not applicable to this project.)

1.03 SUBMITTALS

A. The Contractor shall furnish to the Contracting Officer the following:
   1. Affidavits and data from the supplier for the design mix for asphalt concrete pavement, base course, and subbase material

   2. Certificate of compliance for asphalt cement, accompanied by substantiating test data.

   3. Reports for the control and acceptance testing.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials for shall be in accordance with the appropriate sections of the DPW “Standard Specifications”

B. New asphaltic concrete pavement shall use City Mix #4.

C. Aggregate base course material shall be free of organic matter and other deleterious substances and shall have a minimum California Bearing Ratio value of 85 percent.

D. Subbase course material shall be free of organic matter and other deleterious substances and shall have a minimum California Bearing Ratio value of 20 percent.

E. Prime coat is not required for this project.

F. Tack coat shall conform to AASHTO M 140, Type SS-1 or SS-1h emulsified asphalt.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The Contractor shall backfill all trenches and excavated areas in accordance with SECTION 02200 – EARTHWORK of these Specifications to the satisfaction of the Contracting Officer before any paving work is done.

B. Trenches running perpendicular or skew to the travel way and/or longitudinal trenches less than ten feet in length shall be repaved a minimum of four feet wide with the trench centered within the paved width or the paved area shall be the trench width plus an additional one foot on each side of the trench, whichever is greater. The length of the repaved trench shall be repaved a recommended two feet in added length to each end of the trench. The replaced pavement shall have a minimum thickness of four inches of asphalt concrete or match the existing pavement thickness, whichever is greater.

C. Rectangular excavations for manholes shall be a minimum of ten (10) feet by ten (10) feet or two feet larger in each dimension than the excavated area, whichever is greater. The replaced pavement shall have a minimum thickness of four inches of asphalt concrete or match the existing pavement thickness, whichever is greater.

D. The pavement subgrade shall be moisture conditioned to about 2 percent above the optimum moisture content and compacted to between 90 and 95 percent compaction as determined by ASTM D 1557.

E. The base course and subbase shall be compacted to a minimum 95 percent compaction as determined by ASTM D 1557.

F. Restore asphalt pavement in accordance with Section 38, “Restoring Pavements and Other Improvements” of the “STANDARD SPECIFICATIONS” and as indicated on the Plans and these Specifications.
   1. Permanent pavement restoration shall be accomplished as soon as practicable but not to exceed two months after trench is backfilled.

3.02 PAVEMENT MARKINGS

A. Restore all affected pavement markers and markings in accordance with SECTION 02577 – PAVEMENTS MARKINGS of these Specifications.

3.03 REPAIR OF EXISTING IMPROVEMENTS

A. Any existing asphaltic concrete pavements that have been damaged by construction activities shall be repaired to the original condition and to the satisfaction of the Contracting Officer at no cost to the State.

END OF SECTION

SECTION 02920 – LAWNS AND GRASS

PART 1 - GENERAL

1.01 SUMMARY

A. The work of this section consists of furnishing all labor, materials, equipment, and tools for grass planting as specified herein. Grass shall be planted in all areas disturbed as listed below:
   1. All existing grassed areas that are damaged by construction operations; and

   2. Areas from which existing structures are to be removed.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Grass shall be “Manienie” (Bermuda grass) or as selected by the Contracting Officer. At the option of the Contractor, grass planting may be by seeds (plain seeding or by hydro-mulching) or by sprigs.
   1. Grass seeds shall be fresh, hulled, and meet the following requirements:

Pure Seed	95.0% minimum
Crop Seed	1.0% maximum
Weed	0.5% maximum
Inert Material	5.0% maximum
Germination	85.0% minimum

   2. Grass seeds shall be delivered to the site in unopened, sealed containers, labeled with the brand name and per cent purity. Labeling shall indicate that the seeds passed a certified germination test no more than 12 months prior to use.

B. Grass sprigs shall be healthy living runners and stolons, a minimum of 6 inches long with at least 3 nodes. After they are dug, they shall be covered and kept moist until planted.

C. Fertilizer shall be pelleted and shall consist of the following percentages by weight of active ingredients:

Nitrogen	16%
Phosphate	16%
Potash	16%

D. Mulch Materials
   1. Mulch shall be specially-processed fiber containing no growth or germination-inhibiting factors. It shall be such that any addition and agitation in the hydraulic equipment with seed, fertilizer, water and other additives not detrimental to plant growth, the fibers will form a homogeneous slurry. When hydraulically sprayed on the soil, the fibers shall form a blotter-like ground cover which readily absorbs water and allows infiltration to the underlying soil.

   2. Stabilizing and water retaining agent for hydro-mulching option only shall be "Verdyol Super", "Ecology Control M-Binder" or approved equal. Rate of application of "Verdyol Super" shall be 50 lbs./acre and that for "Ecology Control M-Binder shall be 60 lbs./acre.

E. Organic Soil Amendments: Organic amendments shall be brown, gray, or black in color. It shall be free of live seeds, cuttings, fungus, spores and foul odor. It shall also not contain resins, tannin or other materials in quantities that would be detrimental to plant life. Soil amendment shall be one, or a combination of the following:
   1. Burnt bagasse mix shall be a mixture of sugar cane ash, aged sugar cane trash and milled forest waste products.

   2. Redwood shavings shall be a nitrogen-stabilized compost of redwood material passing through a ½ inch screen.

   3. Peat Moss.

   4. Shredded hapuu shall be finely shredded hapuu fern.

   5. Macadamia nut husks shall be air-classified fine husk, sifted through a ¼ inch screen and free of shells.

   6. Composted green waste shall be stabilized compost of recycled green waste material passing through a ½ inch screen. The material shall not contain any treated or painted woods.

F. Screened soil shall be a fertile, friable soil of loamy character, and shall contain organic matter. It shall be obtained from well-drained arable land; be free from weeds, stone and debris; and shall pass a maximum ½ inch screen. Screened soil shall be capable of sustaining healthy plant life.

G. Water shall be potable.

PART 3 - EXECUTION

3.01 INSTALLATION AND WORKMANSHIP

A. Site Preparation:
   1. Placement of screened soil shall be in accordance with SECTION 02200 - EARTHWORK. The Contractor shall accept the condition of the site prior to starting work.

   2. Before tilling and adding any soil amendments, weeds and other obnoxious vegetation shall be removed by manual or chemical methods.

   3. Soil Amendments and Tilling: The Contractor shall notify the Contracting Officer two days before this work is to be done.

      A 1-inch layer of organic soil conditioner shall be placed over all planting areas. The material shall then be roto-tilled a minimum of 2 inch into the existing soil until the latter is loose and fine textured. All rocks larger than 1 inch in diameter and all debris such as stumps, roots, wire, grade stakes and other rubbish that are turned up by tilling shall be removed. Tilling shall be omitted on slopes where watering is likely to wash the soil away.

   4. Any undulations or irregularities in the surface resulting from tilling or other operations shall be leveled out before planting operations are begun.

B. Planting: The Contractor shall notify the Contracting Officer two days before planting of grass.
   1. Immediately prior to planting operations, all planting areas shall be cleared of weeds, debris, rocks over ½ inch in diameter and clumps of earth that will not break up.

   2. Option by Grass Seeding: If grass seeds are used, the following procedure shall be used (NOTE: Contractor shall exercise caution in seeding slopes where seeds may be washed away):
      a. The grass seeds shall be broadcast uniformly by hand or by sowing equipment at the rate of 100 lbs./acre. Half the seeds shall be sown with the sower moving in one direction and the remainder shall be sown at right angles to the first direction.

      b. The surface shall then be raked to a smooth even plane while the seeds are simultaneously worked into the soil to a depth of about ½ inch.

      c. The surface shall then be smoothed and compacted by means of a culti-packer, roller or other similar equipment weighing 60 to 90 pounds per lineal foot of roller.

      d. The planted area shall then be watered sufficiently to provide water penetration to a depth of at least 2 inches and shall then be kept moist until roots are established.

   3. Option by Grass Sprigging
      a. Furrows shall be placed perpendicular to drainage aisles and parallel to contours on slopes and shall be spaced no more than 4 inches apart.

      b. Fresh sprigs shall be planted in each furrow a maximum of 6 inches apart and covered with soil to a minimum depth of 2 inches.

      c. The surface shall then be smoothed and compacted by means of a culti-packer, roller or other similar equipment weighing 60 to 90 pounds per lineal foot of roller.

      d. The planted areas shall be watered immediately after rolling in sufficient quantity to provide water penetration to a depth of at least 2 inches and shall then be kept moist until roots are established.

   4. Option by Hydro-Mulching of Grass Seed: This work shall consist of furnishing and applying hulled proposed grass seed, fertilizer, mulch and stabilizing and water retaining agent by hydro-mulching.
      a. The seeds shall be applied at the rate of 100 lbs./acre minimum. Mulch shall be applied at a rate of 500 lbs./acre minimum (31 lbs. per 900 sq. ft.). In every application, complete and uniform coverage of the soil shall be attained.

      b. First application of fertilizer shall be included with mulch and seed.

      c. The hydro-mulch equipment shall be capable of mixing all the necessary ingredients to a uniform mixture and to apply the slurry to provide uniform coverage. Seed, fertilizer, mulch mix and stabilizing water retaining agent shall be applied in one operation by hydraulic equipment

made specifically for this use. The equipment shall have a built-in agitation system with an operating capacity sufficient to keep the mix in uniform distribution until pumped from the tank. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with hydraulic discharge spray nozzles which provide a uniform distribution of the slurry.

d. Areas inaccessible to hydro-mulching application shall be seeded or hand sprigged and fertilized by approved hand methods.

e. Water shall be applied immediately following mulching and the planted area shall then be kept moist until roots are established.

C. Application of Fertilizer: The Contractor shall notify the Contracting Officer one day before application of fertilizer.
   1. Fertilizer shall be distributed uniformly over the planted area.

   2. The first application of fertilizer shall be applied at the rate of 300 pounds per acre about 2 weeks after grassing and shall be followed by watering. (First application of fertilizer if using hydro-mulching option shall be mixed with the seeded mulch.)

   3. The second application of fertilizer shall be applied at the rate of 300 pounds per acre about 1 week before the end of the maintenance period and shall be followed by watering.

D. Maintenance:
   1. General: The Contractor shall be responsible for the proper care of the grassed areas. Maintenance shall include watering, weeding, moving, repairing, regrassing and protection, and shall be required until the entire project is accepted, but not less than a maintenance period of not less than 45 days after planting of grass.

   2. Watering: After planting of seeds or grass sprigs or mulching the ground shall be watered as deemed necessary by the Contractor to establish a healthy growth. Watering shall be done in a manner that will prevent erosion due to the application of excessive quantities of water, and the watering equipment shall be of a type that will prevent damage to the finished surface.

   3. Weeding: Weeds shall be uprooted and removed completely and in no case shall they be allowed to grow and propagate more seeds. Large holes caused by weeding shall be filled with screened soil and raked level.

   4. Mowing: Grass shall be mowed to a height of 1 inch whenever the height of grass becomes 1-1/2 inches.

   5. Repairing and Regrassing: When any portion of the surface becomes gullied or otherwise damaged and grass has failed to grow, such areas shall be repaired with screened soil and replanted with grass. Any area of one foot square or more in which grass has failed to grow after 30 days of maintenance shall be regrassed.

   6. Protection: The grassed areas shall be protected against traffic so that the grass establishes a healthy growth. Grassed areas damaged by traffic shall be replanted.

3.02 ACCEPTANCE OF GRASSING

A. At the time of acceptance, the grass shall have been well-established and shall be given a final weeding and a final mowing to a height of 1 inch. If the maintenance period has expired before acceptance of the entire project, the Contractor shall continue to maintain the grass until acceptance of the entire project. If the maintenance period should extend beyond acceptance of the entire project, the Contractor shall continue to maintain the grass until the end of the specified period of time required for maintenance.

B. At the end of the maintenance period, should there appear areas where grass has failed to grow, such areas shall be replanted with grass, refertilized and maintained beyond the maintenance period until a healthy growth is established.

END OF SECTION

SECTION 02940 – TRAFFIC CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. This section shall govern furnishing, installing, maintaining and subsequently removing traffic control devices to control vehicular and pedestrian traffic during construction as indicated on the Plans and as specified herein.

1.02 REFERENCES

A. The “Manual on Uniform Traffic Control Devices for Streets and Highways”, 2009 as amended, of the U.S. Department of Transportation, Federal Highway Administration, hereafter referred to as the MUTCD.

1.03 SUBMITTALS

A. Traffic Control Plans: The Contractor shall provide access to adjacent facilities and properties in accordance with SECTION 01100 – PROJECT REQUIREMENTS of these Specifications..

B. Schedules: The Contractor shall submit in writing to the Contracting Officer a brief description of the work and the time when the work is to be done. The schedules shall be submitted 10 working days before the work is scheduled to begin.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials shall meet the requirements specified on the Plans and these Special Provisions and shall conform to applicable provisions of the MUTCD, as amended, published by the Federal Highway Administration.

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall furnish, install and maintain all barricades, signs, cones, barriers, lights, and other traffic control devices necessary to adequately ensure safety around the project site.

B. No material or equipment shall be stored where it will interfere with the free and safe passage of the facility users and personnel.

C. All barricades, construction and warning signs, and other traffic control devices shall be kept in good condition throughout their usage. The Contractor shall repair, repaint, clean or replace the barricades, signs or other devices as directed by the Contracting Officer and as required to maintain the effectiveness and appearance. The Contracting Officer will be the sole judge in determining the suitable condition of each barricade, sign, or other traffic control device.

D. All traffic lanes shall be a minimum of ten feet wide.

E. The Contractor shall provide special-duty police officers as required to direct traffic around the work areas.

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.

1.02 DEFINITIONS

A. Cementitious Materials: Portland cement with fly ash.

1.03 SUBMITTALS

A. Product Data:
   1. Reinforcing steel - Certified mill test results or laboratory test results. Indicate bar size, yield strength, ultimate tensile strength, elongation and bend test. Provide chemical composition for rebars.

B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
   1. Indicate amounts of mix water to be withheld for later addition at Project site.

C. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
   1. Form-release agents.
   2. Steel reinforcement and reinforcement accessories.
   3. Curing materials.
   4. Joint-filler strips.
   5. Sealant.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

B. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
   1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.

D. ACI Publications: Comply with the following, unless more stringent provisions are indicated and maintain a copy at the field office.
   1. ACI 301, “Specification for Structural Concrete.”

   2. ACI 117, “Specifications for Tolerances for Concrete Construction and Materials.”

   3. ACI 347R “Guide to Formwork for Concrete”

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.01 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Comply with ACI 347R. Provide new or good finish form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
   1. Plywood, metal, or other ACI 347R approved panel materials.

   2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
      a. High-density overlay, Class 1, or better.

      b. Medium-density overlay, Class 1, or better, mill-release agent treated and edge sealed.

      c. Structural 1, B-B, or better, mill oiled and edge sealed.

      d. B-B (Concrete Form), Class 1, or better, mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces. Form oils or waxes shall not be used for concrete surfaces intended to be painted.

D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
   1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of the exposed concrete surface.

   2. Furnish ties that, when removed, will leave holes not larger than 1-1/2 inches in diameter in concrete surface.

2.02 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed, unless otherwise noted on the drawings.

2.03 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place that will not puncture the vapor retarder. Use plastic straps or brightly colored tie wires to secure reinforcing. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports. Refer to paragraph 3.06 for chair support spacing.

2.04 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type II.

B. Pozzolans.

1. Fly Ash: ASTM C 618, Class C or F.

C. Normal-Weight Aggregate: ASTM C 33, uniformly graded, and as follows:

1. Class: Moderate weathering region, but not less than 3M.

2. Aggregate Size: No. 67 (3/4 inch to No. 4).

D. Size of Coarse Aggregate: Except when otherwise specified or permitted, maximum size of coarse aggregate shall not exceed three-fourths of the minimum clear spacing between reinforcing bars (or bundled bars), one-fifth of the narrowest dimension between the sides of forms, or one-third of the thickness of slabs or toppings.

E. Water: Potable and complying with ASTM C 94.

2.05 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.

B. Water-Reducing Admixture: ASTM C 494, Type A.

C. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.

D. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

2.06 CURING MATERIALS

A. Clear, Solvent-Borne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

2.07 RELATED MATERIALS

A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Sealant: Two-component, traffic grade, polyurethane elastomeric sealant conforming to ASTM C 920, Type M, Grade NS, use T, NT, O, M, G, A.

2.08 CONCRETE MIXES

A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
   1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301

B. Footings and Slabs: Proportion normal-weight concrete mix as follows:
   1. Compressive Strength (28 Days): 4000 psi.

C. Concrete Walkways and Curbs: Proportions normal-weight concrete mix as follows:
   1. Compressive Strength (28 Days): 3000 psi.

D. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:
   1. Fly Ash: 25 percent.

E. Maximum Water-Cementitious Materials Ratio: 0.45.

F. Do not add air entrainment to concrete. Do not allow entrapped air content to exceed 3 percent.

G. Admixtures: Use admixtures according to manufacturer's written instructions.
   1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.

   2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

   3. Use water-reducing admixture in pumped concrete, and concrete with a water-cementitious materials ratio below 0.50.

2.09 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.10 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and ASTM C 1116 and furnish batch ticket information. Batch ticket information shall include design mix reference, water that can be added at the jobsite, and admixtures. For transit mixing, complete not less than 70

revolutions of the drum at the manufacturer's rated mixing speed. Discharge concrete into its final position within 90 minutes after introduction of batch water to the cement. If a retarder admixture is used, the discharge time limit of 90 minutes may be increased by the time specified for retardation by the admixture manufacturer or the concrete supplier. Mix concrete a minimum of one minute at mixing speed immediately prior to discharge.

B. Project-Site Mixing: Measure, batch, and mix concrete materials according to ASTM C 94. Mix concrete materials in appropriate drum-type batch machine mixer.
   1. For mixer capacity of 1 cu. yd. or less, continue mixing at least one and one-half minutes, but not more than five minutes after all ingredients are in mixer, before any part of batch is released.

   2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.

   3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of concrete placement in structure.

   4. Hand mixed concrete will not be allowed, unless otherwise approved.

PART 3 - EXECUTION

3.01 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
   1. Class A, 1/8 inch.

D. Construct forms to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces.
   1. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Do not chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.02 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   1. Install anchor bolts and hatch frame, accurately located, to elevations required

B. Locate electrical or mechanical conduits and fittings so that the strength of the concrete member is not impaired. “Conduits” include pipes, ducts, and electrical conduits.

3.03 REMOVING AND REUSING FORMS

A. General: Formwork that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained. The 24 hour period may be reduced to 12 hours in compliance with ACI 347R with prior approval from the Contracting Officer.

B. Leave formwork, for beam soffits, joists, slabs, and other structural elements, that supports weight of concrete in place until concrete has achieved the following:
   1. At least 70 percent of 28-day design compressive strength (minimum requirement).

   2. 28-day design compressive strength.

   3. Determine compressive strength of in-place concrete by testing representative field or laboratory-cured test specimens according to ACI 301.

3.04 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, and other foreign materials.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

3.05 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed. Provide three business days notification to the Contracting Officer for each scheduled pour. Contracting Officer may reject concrete pour if insufficient notification is given.

B. Do not add water to concrete during delivery, at Project site, or during placement, unless approved by the Contracting Officer.

C. Convey concrete from mixer to the place of final deposit rapidly by methods that prevent segregation or loss of ingredients and will insure the required quality of concrete. Use conveying equipment, conveyors, hoppers, baffles, chutes, pumps that are sized and designed to prevent cold joints from occurring and prevent segregation in discharged concrete. Clean conveying equipment before each placement.

D. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.

E. Deposit concrete in forms in horizontal layers with proper consolidation into previous layers and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
   1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.

   2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.

3. Make construction joints only where located on Drawings unless otherwise approved by the Contracting Officer. Plan pours to continuously place concrete from one construction joint to another.

F. Deposit and consolidate concrete for slabs in a continuous operation.
   1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

   2. Maintain reinforcement in position on chairs during concrete placement.

   3. Screed slab surfaces with a straightedge and strike off to correct elevations.

   4. Slope surfaces uniformly to drains where required.

   5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleed-water appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

G. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
   1. Cool ingredients before mixing to maintain concrete temperature below 90 degrees F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

   2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

   3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.06 CONCRETE SLABS ON GRADE

A. For exterior areas, unless specified elsewhere, place concrete slabs directly over compacted fill.

3.07 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch in height.

1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.

2. Do not apply rubbed finish to smooth-formed finish.

C. Related Unformed Surfaces: At tops of unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.08 FINISHING SLABS

A. General: Comply with recommendations in ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

C. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
   1. Apply a trowel finish to surfaces indicated and to slab surfaces exposed to view.

   2. Finish and measure surface so gap at any point between concrete surface and an unleveled freestanding 10-foot-long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed the following:
      a. 1/8 inch.

3.09 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

B. Electrical Work: Use 3/4" maximum size of aggregates for duct encasement. Unless detailed otherwise, encase underground ducts or conduits as follows:
   1. Provide 3 inches minimum concrete cover around ducts or conduits. Use spacers to place and hold ducts. Provide 18 inches minimum earth cover over top of concrete encasement unless otherwise detailed.

   2. For future connections, provide a one foot section of ducts or conduits to extend beyond concrete encasement and terminate with a coupling or end cap.

C. Concrete for Drainage, Sewer and Plumbing Systems:
   1. Do not use calcareous coarse aggregates in sewerage structures or components.

   2. Unless specified elsewhere, construct sewer manholes in accordance with the latest adopted/amended edition of Section 23 SEWER MANHOLES of the "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".

3.10 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive hot temperatures. Comply with recommendations in ACI 305R for hot-weather protection during curing.

B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the curing methods listed in paragraph 3.10.C

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including slab by:
   1. Curing Compound: Apply uniformly in continuous operation by spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.11 JOINT SEALANT

A. Prepare, clean, and install joint sealant according to manufacturer's written instructions. Defer joint sealant as long as possible. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and debris from joints; leave contact faces of joint clean and dry

3.12 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
   1. Testing Frequency: Obtain one composite sample for each day's pour.

   2. Slump: ASTM C 143; one test at point of placement for each composite sample.

   3. Concrete Temperature: One test for each composite sample.

4. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of four standard cylinder specimens for each composite sample.

5. Compressive-Strength Tests: ASTM C 39; test two laboratory-cured specimens at 7 days and two at 28 days.
   a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.

C. Strength of each concrete mix will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to the Contracting Officer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by the Contracting Officer but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by the Contracting Officer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by the Contracting Officer.

END OF SECTION

SECTION 03310 – CONTROLLED LOW STRENGTH MATERIAL (CLSM)

PART 1 - GENERAL

1.01 SUMMARY

A. The work of this section consists of furnishing and placing CLSM to fill utility trenches where adequate compaction of backfill material cannot be attained where shown in the Plans.

1.02 REFERENCES

A. The “Standard Specifications for Public Works Construction”, September 1986, of the Department of Public Works, as applicable to the City and County of Honolulu, hereafter referred to as the DPW “Standard Specifications”, or as herein specified. (Paragraphs concerning Measurement and Payment are not applicable to this project.)

1.03 SUBMITTALS

A. Submit five (5) copies of mix design.

B. Submit five (5) copies of 28-day compressive strength test results.

C. Submit five (5) copies of manufacturer's certifications that all materials meet the standards stated herein and that required factory tests have been successfully performed. Submit mill certificates for all cement.

PART 2 – PRODUCTS

2.01 MATERIALS

CLSM is a mixture of Portland cement, fine aggregate, and water. The Contractor shall proportion the CLSM to produce a backfill material that is self-compacting and capable of being excavated later with hand tools. The proportions of the CLSM shall:

A. Produce a uniform, flowable mixture that is essentially self-leveling when placed;

B. Have a 28-day compressive strength of approximately 50 psi to 100 psi;

C. Be pumpable through a 2-inch diameter hose for a distance of 500 feet with a pump pressure not to exceed 5 psi; and

D. Have a wet unit weight sufficient enough to displace groundwater and achieve the required compressive strength.

E. All materials shall conform to Section 39, “Portland Cement Concrete,” of the DPW “Standard Specifications”.

Aggregates shall be from a source acceptable to the Contracting Officer and conform to Subsection 39.2 – Materials for Fine Aggregate. The Contractor may use aggregates that are different from Subsection 39.2 - Materials

subject to acceptance by the Contracting Officer. Aggregate shall stay in suspension in the CLSM to the extent required for proper flow.

PART 3 - EXECUTION

3.01 GENERAL

A. Provide CLSM to backfill the utility trenches at the locations indicated on the Plans.

B. The Contractor shall notify the Officer-in-Charge at least 24 hours in advance of placement of CLSM.

C. Place the CLSM as shown on Plans or as specified by the Contracting Officer without vibration or other means of compaction. Provide sufficient mixing capacity to allow the CLSM to be placed without interruption. The Contractor shall approximate the volume of CLSM required prior to placement based upon the size of void to be filled.

D. During placement of CLSM, maintain and submit daily logs including pressure, volume pumped, and other data as required by the Contracting Officer.

E. Proportion and place the CLSM as specified herein. Submit a manufacturer's certification of the CLSM and include the unconfined 28-day compressive strengths. The material certification shall include the actual test data for each mixture used.

END OF SECTION

SECTION 13281 - REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS

PART 1 - **GENERAL**

1.01 GENERAL REQUIREMENTS

A. Furnish all labor, materials, and equipment necessary to carry out the safe removal and disposal of all asbestos-containing materials (ACM) and suspected ACM as necessary for the safe performance of the renovation project in compliance with the Specifications and all applicable Federal, State and local laws and regulations. If there is a conflict with the requirements, the more stringent requirement shall apply. Ignorance of the above requirements and any applicable regulations resulting in additional cost to the Contractor shall not be reimbursable or billable to the Officer-in-Charge. Any question regarding conflict or inconsistency between Specification and/or regulations should be directed to the Officer-in-Charge's Authorized Representative.

B. The asbestos abatement work shall include, but may not be limited to:
   1. Removal and disposal of ACM from the areas affected by the Project.

   2. The Contractor is responsible for conducting his own site visit to verify all quantities and material locations.

   3. The Contractor is responsible for conducting all work without disturbing ACM to remain in place.

1.02 REFERENCES

A. The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only, and include but are not limited to, the following:

B. CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926.103	Respiratory Protection
29 CFR 1926.51	Sanitation
29 CFR 1926.200	Accident Prevention Signs and Tags
29 CFR 1926.59	Hazard Communication
29 CFR 1926.1101	Asbestos, Tremolite, Anthophyllite, Actinolite
40 CFR 61-SUBPART A	General Provisions
40 CFR 61-SUBPART M	National Emission Standard for Asbestos
40 CFR 763 Asbestos	Containing Material in Schools
49 CFR 172	Hazardous Materials, Tables, and Hazardous Materials Communications Regulations
49 CFR 178	Shipping Container Specification

C. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 560/5-85-024	Guidance for Controlling ACM in Buildings

D. HAWAII OCCUPATIONAL SAFETY AND HEALTH (HIOSH)

12-114.2	Personal Protective Equipment
12-121.2	Fall Protection
12-122.2	Materials Handling, Storage, Use, and Disposal

12-145.1	Asbestos
12-151	Hazardous Waste Operations and Emergency Response

E. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.2	(1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems
ANSI Z88.2	(1992) Respiratory Protection

F. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 1368	(1990) Visual Inspection of Asbestos Abatement Projects
ASTM E 1494	(1992) Encapsulants for Spray- or Trowel-Applied Friable Asbestos-Containing Building Materials

G. UNDERWRITERS LABORATORIES INC. (UL)

UL 586	(1990) High-Efficiency, Particulate, Air Filter Units

1.03 DEFINITIONS

A. Abatement: Procedure to control fiber release from asbestos containing material.
   1. Removal: Shall adhere to all specified procedures herein and shall include the proper removal and disposal of asbestos containing material as per all applicable Federal, State and local rules, regulations, and industry standards.

   2. Post-Removal Surface Encapsulation: Procedures necessary to coat surfaces from which ACM have been removed to control any residual fiber release.

B. Amended Water: Water containing a wetting agent or surfactant with a maximum surface tension of 2.9 Pa (29 dynes per square centimeter) when tested in accordance with ASTM D 1331.

C. Asbestos: The term asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos and any of these minerals that has been chemically treated or altered.

D. Asbestos Containing Material (ACM): Materials that contain more than one percent asbestos as determined by Polarized Light Microscopy or Transmission Electron Microscopy.

E. Asbestos Control Area: That area where asbestos removal operations are performed which is isolated by physical boundaries which assist in the prevention of the uncontrolled release of asbestos dust, fibers, or debris.

F. Asbestos Fibers: Those fibers having an aspect ratio of at least 3:1 and longer than 5 micrometers as determined by NIOSH Method 7400.

G. Asbestos Permissible Exposure Limit (PEL): 0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101 or other Federal legislation having legal jurisdiction for the protection of workers health.

H. Background: The ambient airborne asbestos concentration in an uncontaminated area as measured prior to any asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar but asbestos free locations.

I. Certified Clean: Certification that a work area has no visible signs of fibrous materials or other contamination, and does not have levels of airborne fibers above the defined air clearance criteria.

J. Competent Person: As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of asbestos hazards in accordance with current Federal, State, and local regulations and has the authority to take prompt corrective actions to control the asbestos hazards.

K. Contractor: The Contractor is that individual, or entity engaged under contract to the Officer-in-Charge or General Contractor to remove, encapsulate and/or dispose of ACM.

L. Decontamination Facility (DF) or Area: A series of connected rooms or spaces including Clean, Shower, and Contaminated Equipment Areas, used for both the decontamination of all workers, equipment and their personal protective equipment upon departing an asbestos removal work area, and for access to such work areas.

M. Officer-in-Charge's Authorized Representative: The person or persons designated by the Officer-in-Charge to act on his/her behalf, who performs inspection activities during abatement and renovation work and shall have the authority to initiate engineering controls.

N. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area without dismantling.

O. Friable Asbestos Material: ACM that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

P. High Efficiency Particulate Air (HEPA) Filter Equipment: HEPA filtered vacuum and/or exhaust ventilation equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall retain 99.97 percent of particles 0.3 microns or larger as indicated in UL 586.

Q. Non-Friable ACM: ACM in which the asbestos fibers have been immobilized by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not normally release asbestos fibers during any appropriate use, handling, storage or transportation. It is understood that Non-Friable ACM may release asbestos fibers under other conditions such as demolition, removal, or mishap.

R. Post-Removal Encapsulant: A liquid material applied to surfaces from which ACM has been removed, to control the possible release of residual fibers, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components (penetrating encapsulant).

S. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

T. Wetting Agent: A chemical added to water to reduce the water's surface tension thereby increasing the water's ability to soak into the material to which it is applied.

1.04 ABBREVIATIONS

A. ANSI: American National Standards Institute, Inc.

B. CFR: Code of Federal Regulations

C. HIOSH: Division of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii

D. EPA: U.S. Environmental Protection Agency

E. NESHAP: National Emission Standards for Hazardous Air Pollutants

F. NIOSH: National Institute for Occupational Safety and Health

G. OSHA: Occupational Safety and Health Administration

H. The State: The State of Hawaii

1.05 AUTHORITY TO STOP WORK

The Officer-in-Charge's Authorized Representative has the authority to stop the abatement work at any time they determine that conditions are not within the drawing/specification requirements and applicable regulations. The work stoppage shall continue until corrective steps have been taken and specified conditions restored to the satisfaction of the Officer-in-Charge's Authorized Representative. Standby time required to resolve violations shall be at the Contractor's expense. Stop Work Orders may be issued for, but shall not be limited to the following:

A. Excessive airborne fibers inside (>0.5 f/cc) and/or outside (>0.01 f/cc) the work area.

B. Visible emissions of dust or debris going beyond the work area boundaries.

1.06 SUBMITTALS

A. Submit in accordance with SECTION 01300 – SUBMITTALS.

B. Detailed Schedule: Submit the actual start date and completion dates for each phase of the asbestos removal.

C. Notices: As regulated by each agency and before commencement of any on-site project activity send written notice of the proposed asbestos abatement work as early as possible but at least 10 working days prior to commencement of work in accordance with Hawaii Administrative Rules, Title 11, 501.Send notice with copies to the Officer-in-Charge's Authorized Representative and to the following agencies:

State of Hawaii, Department of Health, "Notification of Demolition and Renovation" form. Send to: Indoor and Radiological Health Branch, Asbestos Program, 99-945 Halawa Valley Street, Aiea, Hawaii 96701.

D. Permits and Licenses: Submit copies of all permits, licenses and arrangement for removal, transportation and disposal of ACM no later than 20 consecutive working days from notice of award unless otherwise instructed in writing by the Officer-in-Charge's Authorized Representative.

E. Landfill Approval: Submit written evidence that the landfill for disposal is approved for asbestos disposal by the EPA and Hawaii regulatory agency(s).

F. Manufacturer's Data: Submit copies of manufacturer's specifications, installation instructions and field test materials for all equipment related to asbestos handling and abatement, including any other data that may be required to demonstrate compliance with these Specifications and proposed uses.

G. Samples: Submit samples of the following items for approval prior to ordering materials:
   1. Asbestos encapsulant(s): Copies of manufacturer's literature including all laboratory data, SDS, and application instructions.

   2. Plastic sheeting: Three 8-1/2 by 11-inch pieces of each thickness and type with labels indicating actual mil thickness.

   3. Surfactant: Copies of manufacturer's literature including all laboratory data, MSDS, and mixing and application instructions.

   4. Tapes and adhesives: Copies of manufacturer's literature including all laboratory data.

   5. Warning labels and signs.

   6. Protective clothing: Copies of manufacturer's literature on all protective clothing and one sample of each item. Samples submitted will be returned to the Contractor.

   7. Respiratory equipment: Copies of manufacturer's literature on all respiratory equipment and one sample of each item along with a description of where and how each item will be used. Samples submitted will be returned to the Contractor.

H. Shop Drawings: Submit no later than 10 consecutive working days from award notice, copies of shop drawings for the following items as a minimum:
   1. Description of any equipment to be employed not discussed in this Section.

   2. Security provisions, if any, in and around the project area.

   3. Outline of work procedures to be employed.

   4. Location and construction of all airtight barriers.

   5. Staging of the work.

6. Entrances and exits to the work place.

7. Location and construction of worker and equipment decontamination units.

8. Type of respiratory protection to be used.

9. Water filtration system for all contaminated water.

10. Existence and location of negative air exhaust ports and containment.

I. Asbestos Abatement Plan: Contractor shall develop, submit for approval to the Officer-in-Charge's Authorized Representative no later than 15 consecutive days from notice of award, and implement a work procedure for abatement work describing work practices and Officer-in-Charge controls to be used to prevent emissions of asbestos from the work site, ensure maximum site safety and safeguard the public, workers and the environment from asbestos exposure. The Asbestos Abatement Plan will be a detailed plan of the safety precautions such as lockout-tagout, fall protection, and equipment, and work procedures to be used in the removal of ACM. The plan shall be prepared, signed, and sealed by a State of Hawaii Certified Project Designer. Such plan shall include but not be limited to the precise personal protective equipment protection, the location of asbestos control areas including clean and dirty areas, buffer zones, showers, storage areas, change rooms, removal method, interface of trades involved in the construction, sequencing of asbestos related work, disposal plan, type of wetting agent and asbestos sealer to be used, locations of local exhaust equipment, and a detailed description of the method to be employed in order to control environmental pollution. This plan must be approved in writing prior to starting any asbestos work. The Contractor and the Officer-in-Charge's Authorized Representative shall meet prior to the start of work to discuss in detail the standard operating procedures. Once approved by the Officer-in-Charge's Authorized Representative, the plan will be enforced as if an addition to the Specification.

J. Documentation of Training: Submit no later than 10 consecutive working days from notice of award, documentation that each and every individual, including foreman, supervisors, other company personnel or agents, and any other individual who may be exposed to airborne asbestos fibers and who may be responsible for any aspects of abatement activities which may occur, has currently attended and passed the AHERA Abatement Worker and/or AHERA Abatement Contractor/Supervisor course, whichever is relevant to that workers responsibilities, as specified in Hawaii Administrative Rules, Title 11, 504 and 40 CFR Part 763, "Asbestos Materials in Schools". These courses shall be approved by the State of Hawaii Department of Health in the most current listing of the Federal Register. Also submit documentation that all individuals have current certification for the appropriate course from the State of Hawaii. No worker shall be allowed on site if they are found to have either an expired certification or do not comply with the requirements set forth in Hawaii Administrative Rules, Title 11, 501-504 and 40 CFR Part 763 on training. The Contractor shall be responsible for keeping the documentation up to date and submitting subsequent documentation to the Officer-in-Charge's Authorized Representative before any additional employee or individual, not currently on the list, is allowed within the project site.

K. Documentation of Instructions: Submit no later than 10 consecutive working days from notice of award, documentation that all personnel or agents who may be exposed to airborne asbestos fibers and who may be responsible for any aspects of abatement activities which may occur have had instructions on the nature of the activities and operations which create a risk of asbestos exposure and the necessary protective steps, on use and fitting of respirators in accordance with qualitative procedures as detailed in HIOSH 12-145.1 Appendix C, Qualitative and Quantitative Fit Testing.

L. Documentation From Physician: Submit no later than 10 consecutive working days from notice of award, documentation from a licensed medical doctor that all employees or agents who may be required to wear a respirator have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the required respirator without suffering adverse health effects. In addition, document that all individuals permitted within the project site have received medical monitoring or had such monitoring made available to them as required in HIOSH 12-145.1. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the work place environment (e.g. high temperatures, humidity, chemical contaminants) that may impact the employee's ability to perform work activities. The Contractor shall keep and make available to all affected individuals a record and the results of such examinations.

M. Medical Surveillance Program: Submit no later than 10 consecutive days from notice of award, all medical examinations for employees to be used on this project and a copy of the Contractor's medical surveillance program prepared in accordance with all applicable Federal, State and local laws.

N. Respiratory Protection Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Respiratory Protection Program prepared in accordance with all applicable laws. The Contractor shall also submit fit test records on all employees to be used on this project who may be required to wear a respirator.

O. Hazard Communication Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Hazard Communication Program prepared in accordance with all applicable laws.

P. Safety Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Health and Safety Plan prepared in accordance with all applicable laws.

Q. HEPA Vacuums: Submit no later than 10 consecutive working days from notice of award, manufacturer's certification that vacuums conform to ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems as applicable to this project.

R. Rental Equipment: When rental equipment is to be used in abatement areas or to transport asbestos contaminated waste, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the Officer-in-Charge's Authorized Representative.

S. Testing Laboratory: Submit no later than 10 consecutive working days from notice of award name, address and telephone number of testing laboratory responsible for analysis and report of airborne fiber concentration for compliance with HIOSH 12-145.1 and this specification, along with evidence that the air monitoring testing laboratory is a successful participant in the American Industrial Hygiene Association's (AIHA) Proficiency Analytical Testing (PAT) program for phase contrast microscopy (PCM).

T. Emergency Planning and Procedures: The Contractor shall submit an emergency plan prior to abatement initiation for review and acceptance by the Officer-in-Charge's Authorized Representative.
   1. Emergency procedures shall be in written form and prominently posted adjacent to the Health and Safety Plan. Prior to entering the work area, everyone must read and sign these procedures to acknowledge receipt of emergency exits and emergency procedures.

   2. Emergency planning shall include notification of police, fire, and emergency medical personnel of the work schedule of the planned abatement activities, and of the layout of the work area, particularly any barriers that may affect response capabilities.

   3. Emergency planning shall include considerations of fire, explosion, toxic atmosphere, electrical hazards, slips, trips and falls, confined spaces, and heat related injury. Written procedures shall be developed and employee training procedures shall be provided in the Contractor's plan.

U. Visitor/Worker Entry Log: Maintain a log of all personnel including the Contractor's employees and agents who enter the work area while asbestos abatement operations are in progress, until final clearance is passed. The log shall contain the following information as a minimum and certified copies shall be submitted to the Officer-in-Charge's Authorized Representative weekly:
   1. Date of visit.

   2. Visitor's name, employer, business address, and telephone number.

   3. Time of entry and exit from work area.

   4. Purpose of visit.

   5. Type of protective clothing and respirator worn.

   6. Certificate of release signed and filed with the Contractor.

V. Field Test Reports
   1. Employee Exposure Sampling Results: Submit test results to the Officer-in-Charge's Authorized Representative and the affected Contractor's employees within three (3) working days, signed by the testing laboratory employee performing the analysis.

   2. Asbestos Disposal Quantity Report.

W. Waste Disposal Manifest Forms: Submit copies of all transport manifests, trip tickets and disposal receipts for all asbestos containing waste materials no later than 10 consecutive working days from the date the waste is removed from the work area during the abatement process.

1.07 PRODUCT HANDLING

Deliver materials to the site in original packaging, containers or bags fully identified with manufacturer's name, brand and lot number. Store materials in a dry, well-ventilated space under cover, off the ground and away from surfaces subject to dampness or condensation as approved by the Officer-in-Charge's Authorized Representative. Material that becomes contaminated with asbestos shall be disposed of in accordance with applicable regulations. Replacement materials shall be stored outside the contaminated work area until abatement is completed.

1.08 PROTECTION

A. Site Security:

1. The work area is to be restricted only to authorized, trained, and protected personnel. These may include the Contractor's employees, the Officer-in-Charge's Authorized Representative, State and local inspectors and any other designated individuals. A list of authorized personnel shall be established prior to job start.

2. Entry to the work area by unauthorized individuals shall not be permitted without the express approval of the Officer-in-Charge's Authorized Representative and any such entry shall be reported immediately to the Officer-in-Charge's Authorized Representative by the Contractor.

3. A Visitor/Worker Entry Log shall be maintained.

4. The Contractor shall have control, subject to approval of the Officer-in-Charge's Authorized Representative, of security in the work area and in proximity of Contractor's equipment and materials.

B. Site Protection and Safety: As a minimum, follow the requirements of all applicable Federal, State and local regulations. Take all necessary precaution to ensure there is no asbestos contamination to those areas not included in the work schedule.

C. Protective Covering: The Contractor shall provide and install protective covering as required or upon request by the Officer-in-Charge's Authorized Representative. Protective covering shall be unused plastic sheets.

D. Safeguarding of Property: The Contractor shall take whatever steps necessary to safeguard his work area, any property of the Officer-in-Charge, and all other individuals in the vicinity of his work area during the execution of this Contract. The Contractor shall be responsible for and shall compensate to the injured party's satisfaction any and all damages resulting from their employee's negligence.

1.09 ADDITIONAL REQUIREMENTS

A. The Contractor shall examine and have at all times in his possession at his office (one copy) and in view at each job site office (one copy) the following materials:

1. Hawaii Administrative Rules, Title 11, Chapters 501, 502, 503 and 504;

2. Title 29 Code of Federal Regulations Part 1926.62; Safety and Health Standards;

3. Title 29 Code of Federal Regulations Part 1926.1101; Asbestos;

4. Title 29 Code of Federal Regulations Part 1910.134; Respiratory Protection;

5. Title 40 Code of Federal Regulations Part 261; Identification and Listing of Hazardous Waste;

6. Title 40 Code of Federal Regulations Part 262; Standards Applicable to Generators of Hazardous Waste;

7. Title 40 Code of Federal Regulations Part 263; Hazardous Waste Transporters;

8. Copies of any other applicable Federal, State and local regulations, standards, documents and codes;

9. Documentation of the adequacy of compressed air systems and respiratory protection system including a list of compatible components and specifications of the types and maximum number of respirators that may be used with the system;

10. Copies of the procedures for the use of the decontamination enclosure system or any other procedures which have been established to prevent contamination or areas outside the work area;

11. Copies of procedures to be followed during medical emergencies, including phone numbers of the nearest hospital or other emergency facility, which shall be posted by the nearest telephone;

12. Copies of the Contractor's Respiratory Protection Program, Hazardous Communication Program, Safety Program and Asbestos Abatement Plan;

13. Copies of Safety Data Sheets for all chemicals used;

14. Copies of all relevant certificates held by abatement workers and abatement contractors/supervisors actively engaged in the abatement project;

15. Certification of the Project Designer who wrote procedures for the job;

16. Copies of bulk sampling results, including inspector and laboratory names, of all suspect material to be disturbed that is not assumed to be asbestos-containing; and

17. Records of all air sampling as required in HIOSH section 12-145.1-5.

B. Whenever approval of the Officer-in-Charge's Authorized Representative is required prior to proceeding with other work, the Contractor shall comply with the following:
   1. The Contractor shall give, at a minimum, five (5) days notification to the Officer-in-Charge's Authorized Representative prior to the start of any asbestos work.

2. The Contractor shall not begin any work without the Officer-in-Charge's Authorized Representative present onsite.

3. The Contractor shall allow the Officer-in-Charge's Authorized Representative 24 hours from notification to respond to the request for site inspection(s).

4. The Contractor shall designate one person (either a foreman or superintendent) who will be authorized to request inspections. The name of the designated person shall be submitted in writing to the Officer-in-Charge's Authorized Representative prior to commencing work. Requests from any other person will not be considered official requests.

5. The designated person requesting an inspection shall provide the following information:
   a. Name of caller.
   b. Building and rooms to be inspected.
   c. Work phase of inspection, as specified.

PART 2 - **PRODUCTS**

2.01 MATERIALS

A. Plastic Sheeting: 6-millimeter-minimum-thickness polyethylene film.

B. 6-mil Plastic Bags: Transparent, 6-millimeter minimum thickness, seamless bottomed polyethylene bags. All bags used to transport ACM must carry the DOT class 9 label, a space for generator information and the following warning:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

C. Tape: Tape shall be capable of sealing joints of adjacent sheets of polyethylene, attaching polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions such as when amended water is used.

D. Adhesives: Adhesive shall be capable of sealing joints of adjacent sheets of polyethylene, attaching polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions such as when amended water is used.

E. Encapsulant: The encapsulant shall be capable of being applied to surfaces of ACM and surfaces from which ACM has been removed to control the possible release of asbestos fibers. The encapsulant shall be capable of either creating a membrane over the surface (i.e. a bridging encapsulant) or penetrating into the material and

binding its components (i.e. a penetrating encapsulant) and shall be compatible with the existing finishes.

F. Post-Removal Encapsulation: The encapsulant shall be capable of being applied to surfaces from which asbestos-containing material has been removed to control the possible release of residual fibers. The encapsulant shall be capable of either creating a membrane over the surface (i.e. a bridging encapsulant) or by penetrating into the material and binding its components (i.e. a penetrating encapsulant) and shall be compatible with the existing finishes.

G. Surfactant (Wetting Agent): 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or pre-approved equal, and shall be mixed with water to provide a minimum concentration of one ounce of surfactant to five (5) gallons of water.

H. Warning Labels, Tape and Signs: As required by OSHA 29 CFR 1926.1101 and HIOSH regulation 12-145.1.

I. Protective Clothing: The Contractor shall have all the coveralls required for this project on site prior to the start of work.

J. Other Products: Provide all other materials including but not limited to, lumber, plywood, nails, fasteners, metal studs, hardware, sealants, and caulking which may be required to properly prepare and complete this project.

2.02 TOOLS AND EQUIPMENT

Provide sufficient and suitable tools for the asbestos abatement procedures, including but not limited to:

A. Water Sprayer: Airless or pressure sprayer for amended water application as applicable.

B. Paint/Encapsulant Sprayer: Airless type only.

C. HEPA vacuum.

D. Negative Air Pressure Units: Portable “exhaust units with air purification equipment in accordance with “Guidance for Controlling Asbestos Containing Materials in Buildings” (the Purple Book) EPA 560/5-85-024 June 1985, Appendix J – Recommended Specifications and Operating Systems Procedures for the Use of Negative Air Pressure Systems for Asbestos Abatement. Ensure that at least one functional back-up negative air pressure unit is on-site.

E. Ladders or Scaffolds: All ladders and scaffolds shall be OSHA approved, and shall be of sufficient dimensions and quantities so that all work surfaces can be easily and safely accessed by the workers, the Officer-in-Charge’s Authorized Representative and other inspectors. Scaffold joints and ends shall be sealed with tape to prevent migration of asbestos fibers.

F. Electrical Equipment: All electrical equipment shall be Underwriter’s Laboratory listed and approved, and shall have ground fault circuit interrupter protection, installed by a licensed electrician.

G. Hand Power Tools: All hand power tools shall be equipped with HEPA–filtered local exhaust ventilation if used to drill, cut or otherwise disturb ACM.

H. Other tools and equipment as necessary.

2.03 ELECTRICAL EQUIPMENT PROTECTION

A. Non-current carrying metal parts of the Contractor's fixed, portable and plug-connected equipment shall be grounded. Portable tools and appliances protected by a UL approved system of double insulation need not be grounded. All light and power circuits in the asbestos removal area shall be protected by ground fault circuit interrupters.

B. Extension cords shall be the 3-wire type, protected from damage, and shall not be fastened with staples, hung from nails, or suspended with wires. Splices shall have soldered wire connections with insulation equal to the cable. Worn or frayed cords shall not be used.

C. As necessary, safe lighting equipment for each work area shall be provided by the use of wire guard protected floodlights. Temporary wiring shall be properly insulated and substantially supported. Circuits shall be properly designed and fused. All temporary lighting inside the asbestos removal area shall be weather-proofed.

2.04 PERSONAL PROTECTION REQUIREMENTS

A. The contractor acknowledges that he alone is responsible for instruction and for enforcement of personal protection requirements and that these specifications provide only a minimum acceptable standard.

B. Personal Protective Equipment (PPE)

1. Respirators: Provide personnel engaged in pre-cleaning, cleanup, handling, removal and demolition of asbestos materials with respiratory protection as indicated in 29 CFR 1926.1101, 29 CFR 1926.103 and 29 CFR 1910.134. Respirators shall be worn at all times within the work area and any other areas where workers may be exposed to asbestos.

2. Outer protective clothing: Provide personnel exposed to asbestos with disposal "non-breathable," whole body outer protective clothing, head coverings, gloves, and foot coverings. Provide disposal plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for comfort, but shall not be used alone. Make sleeves secure at the wrists, make foot coverings secure at the ankles, and make clothing secure at the neck by the use of tape. Reusable whole body outer protective clothing shall not be used.

3. Additional safety equipment (e.g. hardhats meeting the requirements of ANSI Z89.11981, eye protection meeting the requirements of ANSI Z41.1-1967, disposable PVC gloves), as necessary, shall be provided to all workers.

PART 3 - **EXECUTION**

3.01 DECONTAMINATION AREA

A. The decontamination area as outlined below shall be employed during removal work involving only exterior materials that do not extend to the interior, where all work is performed from the exterior and the work area is fully sealed off from the interior.

B. General: The Contractor shall construct the decontamination area, acceptable to the Officer-in-Charge's Authorized Representative, adjacent to the work area. The decontamination area shall consist of an area covered by an impermeable drop cloth on the floor or horizontal working surface. The area must be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area.

C. Access: In all cases, access between contaminated rooms or areas and clean rooms or areas shall be through the decontamination system.

D. Cleaning: Work clothing and personal protective equipment must be cleaned in the decontamination area with a HEPA vacuum prior to removal. All equipment and surfaces or containers filled with ACM must be cleaned in the decontamination area prior to removal.

E. Clean Area: The Contractor shall establish a clean area adjacent to the decontamination area with sufficient space for storage of any worker's and agent's street clothes, personal effects and other non-contaminated items.

3.02 DECONTAMINATION ENCLOSURE SYSTEM

A. The decontamination enclosure system as outlined below shall be employed during any abatement work involving indoor materials, including materials extending from the exterior to the interior such as window or vent sealant, except where openings to the interior are fully sealed and all work is performed from the exterior of the building.

B. General: The Contractor shall construct the decontamination enclosure system or use portable units acceptable to the Officer-in-Charge's Authorized Representative that are connected to the work area with framed-in or accordion tunnels. The Contractor shall line all tunnels with 6-mil plastic and shall seal this lining with tape at all joints. All vertical surfaces subject to observation from the exterior, non-contaminated areas shall be constructed of opaque materials.

C. Access: In all cases, access between contaminated rooms or areas and the decontamination enclosure unit shall be through an airlock. In all cases, access between any two rooms/areas within the decontamination enclosure unit shall be through a curtained doorway.

D. Decontamination Unit: Provide personnel decontamination unit within the asbestos control area in an area approved by the Officer-in-Charge's Authorized Representative. The Unit shall contain the following:
   1. An Equipment Area with two doorways, one leading to the Work Area and another leading to the Shower Area.

2. A Shower Area with two doorways, one leading to the Equipment Area and another leading to the Clean Area. An adequate supply of soap shall be maintained within this Shower Area. The Contractor must ensure that no leakage from the shower area occurs and that all wastewater shall be disposed of as contaminated or filtered through the wastewater filtering system.

3. A Clean Area with two doorways, one leading to the Shower Area and another leading to a non-contaminated area outside the asbestos work area. The Clean Area shall have sufficient space for storage of any worker's and agent's street clothes, personal effects and other non-contaminated items.

3.03 NEGATIVE PRESSURE SYSTEM

A. The negative pressure system outlined below shall be employed for all interior asbestos abatement work, including materials extending from the exterior to the interior such as window or vent sealant, except where openings to the interior are fully sealed and all work is performed from the exterior of the building.

B. Local Exhaust System: Provide a local exhaust system in the asbestos control area in accordance with ANSI Z9.2 and 29 CFR 1926.1101 that will provide at least six air changes per hour within the negative enclosure. Local exhaust equipment shall be operated continuously until the asbestos control area is removed and shall be leak proof. To lengthen the life of the HEPA filter, the local exhaust system shall be equipped with a 10-micron particle arrestance pre-filter, a 5-micron particle arrestance secondary filter placed ahead of the HEPA filter. Maintain a minimum pressure differential in the work area of (–) 0.08 inches of water gauge relative to the air pressure outside the work area. HEPA filters shall conform to ANSI Z9.2 and UL 586.

C. Location of Exhaust Units: Locate units to ensure that the flow of air moves from the decontamination unit and passes through as much of the work area as is possible. The local exhaust system shall not terminate in an occupied space or near a ventilation intake.

D. Filter Replacement: Change filters in the local exhaust units in accordance with the manufacturer's recommendations or when there is a loss of negative pressure. With the unit in operation change the prefilter and check for pressure drop. If the pressure drop remains, with the unit in operation change the secondary filter. If the pressure drop still remains, stop work, shut off the unit and replace the HEPA filter as per the manufacturer's recommendations. All used filters are to be disposed of as asbestos waste.

3.04 WASTEWATER FILTERING SYSTEM

A. All wastewater shall be treated as contaminated with asbestos and shall be filtered using two in-line filter cartridges with 2" inlets and outlets and be removed from the site by the Contractor. The outlet of the first cartridge shall connect to the inlet of the second cartridge. The first cartridge shall contain six 100-micron prefilters and the second cartridge shall contain six 0.5-micron filters or equivalent staging according to type of filtering unit.

B. One spare set of 100-micron prefilters shall be maintained at the site at all times to replace prefilters during cleaning. Maintain at least one set of 0.5-micron or equivalent filters at the site at all times for replacements as necessary.

C. When prefilters become clogged, replace with spares, and wash out the prefilters in the Wash Area allowing drainage from the cleaning operation to go through the filtering system.

D. When the final filters become clogged, remove the filters, replace with new, and dispose of the clogged filters as contaminated waste.

E. Provide a holding tank for contaminated wastewater as required to prevent backup of water into the shower when the amount of water generated exceeds the flow rate of the filters.

3.05 WORK AREA PREPARATION

A. Posting of Danger Signs: Post danger signs in and around the work area to comply with 29 CFR 1926.1101, HIOSH 12-145.1 and all other Federal, State and local requirements. Signs shall be posted at a distance sufficiently far enough away from the work area to permit a person to read the sign and take the necessary protective measure to avoid exposure.

B. Inspection of Building Openings: At the beginning of each work day, the Contractor shall inspect and ensure that all doors, windows and other openings of affected buildings are closed and locked.

C. Critical Barrier Enclosures: Cover all openings including, but not limited to, glazed openings, doors, corridors, ducts, grilles, floor drains or plates, diffusers, vents, windows, electrical outlets, and any other penetrations to the work areas with two layers of 6-mil plastic and seal with tape.

D. Decontamination System: Provide a decontamination area as described in section 3.1 for exterior work and decontamination enclosure system as described in section 3.2 for interior work.

E. Pre-Cleaning/Wet-Wiping:
   1. Pre-clean fixed objects within the work area by using HEPA vacuum equipment and then wet-wiping as appropriate. All such fixed object will then be covered in 6-mil plastic sheeting and sealed with tape.

   2. Clean the work area using HEPA vacuum equipment and the wet-wiping as appropriate. Do not use dust generating methods such as dry sweeping or non-HEPA vacuuming.

F. Plastic: Objects which may be contaminated during abatement or will be difficult to clean after abatement shall be taped and sealed in 6-mil plastic.

G. Temporary Electricity: Existing Electrical service to the facility may be used for temporary electrical power during abatement and replacement work. However, the electrical power within the work area must be shut off. The contractor shall verify the locations of available electrical service or use generators as needed.

H. Temporary Light: Provide a minimum of 35 foot-candles of illumination on surfaces for finishing operations and 100 foot-candles of illumination for removal operations. Provide 24-volt safety lighting.

I. Temporary Water: Existing water services to the facility may be used as a temporary water source during construction. Locations of line tie-ins must be approved by the Officer-in-Charge's Authorized Representative.

J. Temporary Sanitation Facilities: The Contractor shall provide toilet facilities for the use of Contractor personnel and agents during abatement work. Maintain toilet facilities in a clean and sanitary condition in compliance with all applicable Federal, State and local regulations.

K. Temporary Fire Protection: The Contractor shall provide and maintain temporary fire protection equipment during the asbestos abatement operations. Equipment shall be of the appropriate type to fight fires associated with the materials to be found within the work area.

L. Work Area Isolation and Protection: The Contractor shall isolate the work area for the duration of the project. The work area shall be protected subject to the approval of the Officer-in-Charge's Authorized Representative.

M. Warning Signs: The Contractor shall post warning signs that meet the requirements of OSHA 29 CFR 1926.1101 (k)(1) and (k)(2)(ii) at the outside door to the Decontamination System. The Officer-in-Charge's Authorized Representative may also require that the Contractor post additional warning signs around the work area or at other potential exposure points.

AFTER THE POSTING, SEALING AND TEMPORARY FACILITY WORK HAS BEEN COMPLETED, NOTIFY THE OFFICER-IN-CHARGE'S AUTHORIZED REPRESENTATIVE FOR APPROVAL BEFORE PROCEEDING WITH THE ABATEMENT.

3.06 REMOVAL OF ASBESTOS CONTAINING MATERIALS

A. Surfaces to remain in areas where asbestos containing materials will be removed shall be covered with one layer of 6-mil plastic sheeting. Ventilation intake air sources shall be isolated or the system shall be shut down.

B. Wet the asbestos containing materials with a wetting agent (amended water) using a fine mist sprayer prior to the start of abatement. Wetting agent shall continuously be applied to control the release of asbestos fibers from the ACM prior to and during removal.

C. Carefully remove asbestos containing materials by lifting them in whole and unbroken pieces to the greatest extent possible. Continue to apply the wetting agent during removal to control dust. Avoid breaking and pulverizing the material.

D. The Contractor is prohibited from using methods or removal that create excessive amounts of dust and debris.

E. Waste debris shall be double bagged and sealed leak-tight in properly labeled 6-mil plastic bags immediately after removal. The Contractor shall not allow removed ACM to accumulate in work area. All gross debris created by the removal process shall be bagged and sealed before the main break and again at the end of each workday.

F. Asbestos containing roof material that has been removed from the roof shall not be dropped or thrown to the ground. Material shall be carried or passed to the ground by hand or lowered to the ground via covered, dust-tight chute, crane or hoist.

G. Intact asbestos containing roof materials and any debris that is not intact shall be lowered to the ground as soon as is practicable, but in no event later than the end of the work shift. While the material is on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting. Once lowered, unwrapped material shall be transferred to a closed receptacle.

H. The Contractor shall minimize contamination of the work floor, the exterior of disposal containers, and all other surfaces within the work area.

3.07 CLEANUP

All contaminated equipment and tools used for removal work shall be washed and cleaned in the work area prior to removing them from the work area. No washing of contaminated equipment and tools will be allowed outside the work area.

3.08 CLEARANCE

A. Remove all visible accumulation of ACM and debris by HEPA vacuums, sponging, and wet-wiping.

B. The Officer-in-Charge's Authorized Representative will visually inspect the affected areas for residual asbestos debris and waste. The Contractor shall re-clean areas showing asbestos debris and waste. If re-cleaning is required, the Officer-in-Charge's Authorized Representative will visually inspect for asbestos debris and waste after re-cleaning. This process will be repeated until the Officer-in-Charge's Authorized Representative deems the area free of visible asbestos debris and waste.

C. The work area shall be totally visibly clean before the remaining material is encapsulated. After the visual inspection has been passed, encapsulate all remaining materials.

D. Interior Removal Work Area:
   1. Upon the approval of the Officer-in-Charge's Authorized Representative, the work area shall be completely vacated for at least a 24-hour period after material encapsulation and enclosure to permit the Officer-in-Charge's Authorized Representative to collect air clearance samples according to SECTION 13288 – TESTING/AIR MONITORING.

   2. If the air clearance sample results fail the clearance criteria, the Contractor shall be required to perform additional cleaning and decontamination. Once this has been completed, additional visual inspection and air clearance sampling shall be performed by the Officer-in-Charge's Authorized Representative. If additional

clearance testing is required due to a failed initial clearance test, the costs of such testing shall be the responsibility of the Contractor.

E. If the work area passes the clearance criteria, the Contractor shall remove all signs, temporary barriers and materials when their use is no longer required.

3.09 DISPOSAL OF ASBESTOS CONTAINING MATERIAL

A. Collect asbestos waste, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing which may produce airborne concentrations of asbestos fibers and place them in properly labeled transparent 6-mil plastic seamless bottomed bags. Wastes within the bags must be adequately wet in accordance with 40 CFR 61-SUBPART M.

B. Affix a warning and Department of Transportation (DOT) label to each bag or use bags preprinted with the approved warnings and DOT labeling. The name of the waste generator and the location at which the waste was generated shall be clearly indicated on the outside of each container.

C. Vehicles used for transporting waste to the disposal sites shall have a completely enclosed, lockable storage compartment. Storage compartments shall be covered and sealed with a minimum of one layer of 6-mil plastic sheeting on the sides and top and two layers of 6-mil plastic sheeting on the floor. The compartments shall be thoroughly wet-cleaned and HEPA vacuumed following the disposal of each load at the approved disposal sites.

D. Workers unloading bags at the disposal sites shall wear full body protective clothing and dual HEPA cartridge full-face air purifying respirators.

E. Waste disposal manifest forms shall be properly completed to verify custody and ensure disposal of all ACM and asbestos contaminated waste at approved disposal sites. Forms shall be kept on file as directed by the Officer-in-Charge's Authorized Representative. Copies shall be submitted to the Officer-in-Charge's Authorized Representative no later than the next working day after each trip. It is the Contractor's responsibility to assure that any landfill used for disposal of asbestos containing or asbestos contaminated waste is approved for that purpose.

3.10 PAYMENT

Payment for removal, hauling and disposal of ACM shall be made at the lump sum price bid as scheduled in the Proposal.The final payment will not be made until proper documentation of the disposal of ACM and related waste are submitted.

END OF SECTION

SECTION 13282 - LEAD-CONTAINING PAINT CONTROL MEASURES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Furnish all labor, materials and equipment necessary to complete the safe removal, transportation and disposal of lead-containing paint in areas that may be affected by the renovation activities in compliance with the Specifications and all applicable Federal, State and local laws and regulations. If there is a conflict with the requirements, the more stringent requirement shall apply. Ignorance of the above requirements and any applicable regulations resulting in additional cost to the Contractor shall not be reimbursable or billable to the State. Any question regarding conflict or inconsistency between Specification and/or regulations should be directed to the Officer-in-Charge.

B. The lead work shall include, but may not be limited to:

1. Areas including lead-containing paint (LCP) that is loose and flaking or areas where LCP has the potential to become airborne or otherwise create dust during the renovation activities. Lead was detected on painted surfaces of structures at the site as specified in the *Limited Hazardous Materials Survey, Kapuaiwa Building Pump Station Improvements, Honolulu, Oahu, Hawaii, dated September 13, 2018, prepared by EnviroServices & Training Center, LLC*. The Contractor shall be responsible for conducting a site visit to verify all quantities and material locations.

2. Preparation of work areas and removal, transportation and disposal procedures. All work shall be performed as required of lead-containing and lead-contaminated materials by persons trained, knowledgeable and qualified in the techniques of handling and disposing of lead-containing and lead-contaminated materials and in the subsequent cleaning of lead-contaminated areas. Workers shall be EPA-certified lead workers and capable and willing to perform the work of this contract.

3. Separation and recycling as scrap metal of renovation debris, steel components and miscellaneous metal elements. Debris and waste resulting from renovation work, except as otherwise specified, shall become the property of the Contractor.

1.02 REFERENCES

A. The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only, and include but are not limited to, the following.

B. CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926.33	Access to Employee Exposure and Medical Record
29 CFR 1926.55	Gases, Vapors, Fumes, Dusts, and Mists
29 CFR 1926.59	Hazard Communication
29 CFR 1926.62	Lead Exposure in Construction
29 CFR 1926.65	Hazard Waste Operations and Emergency Response
29 CFR 1926.103	Respiratory Protection
40 CFR 260	Hazardous Waste Management Systems: General

40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Generators of Hazardous Waste
40 CFR 263	Transporters of Hazardous Waste
40 CFR 265	Interim Status Standard for Engineers and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 268	Land Disposal Restriction
40 CFR 745	Lead; Requirement for Lead-Based Paint Activities
49 CFR 172	Hazardous Materials, Tables, and Hazardous Materials Communications Regulations
49 CFR 178	Shipping Container Specification

C. HAWAII OCCUPATIONAL SAFETY AND HEALTH DIVISION (HIOSH)

12-114.2	Personal Protective Equipment
12-121.2	Fall Protection
12-122.2	Materials Handling, Storage, Use, and Disposal
12-148.1	Lead
12-151	Hazardous Waste Operations and Emergency Response

D. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z88.2	(1992) Respiratory Protection

E. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

HUD Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing

F. UNDERWRITERS LABORATORIES INC. (UL)

UL 586	(1990) High-Efficiency, Particulate, Air Filter Units

1.03 DEFINITIONS

A. Action Level: Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8-hour period.

B. Authorized Visitor: Inspector, air monitoring personnel, or a representative of any regulatory or other agency having jurisdiction over the project.

C. Competent Person: As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations, has the authority to take prompt corrective actions to control the lead hazards and is an EPA-certified lead inspector or risk assessor.

D. Contaminated Area: An area where unwanted toxic or harmful substance exists.

E. Contractor: For this project, the Contractor is that individual, or entity under contract to the General Contractor to perform the herein listed work.

F. Officer-in-Charge's Authorized Representative: person who is a Qualified Environmental Consultant (QEC), hired by the Officer-in-Charge, who performs

inspection activities during abatement and renovation work and shall have the authority to initiate engineering controls.

G. EPA: United States Environmental Protection Agency

H. High Efficiency Particulate Air (HEPA) Filter: HEPA filtered vacuuming equipment with a filter system capable of collecting and retaining lead-contaminated particulate. A high efficiency particulate filter demonstrates at least 99.97 percent efficiency against 0.3 micron or larger size particles.

I. Lead: Metallic lead, inorganic lead compounds, and organic lead soaps. Excludes other forms of organic lead compounds.

J. Lead-Based Paint (LBP): Protective or decorative coating which contains at least 1.0 mg per square centimeter of lead by area or at least 0.5 percent (5,000 milligrams per kilogram) of lead by weight.

K. Lead Containing Paint (LCP): Protective or decorative coating which contains any detectable quantity of lead; includes Lead-Based Paint.

L. Lead Control Area: A temporary area or structure or containment, sometimes equipped with HEPA filtered local exhaust that prevents the spread of lead dust or debris. Usually critical barriers and physical boundaries are employed to isolate the lead control area and to prevent migration of lead contamination and unauthorized entry of personnel.

M. OSHA: United States Department of Labor, Occupational Safety and Health Administration

N. Permissible Exposure Limit (PEL): 50 micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more or less that 8 hours in a work day, the PEL shall be determined by the following formula: PEL (micrograms per cubic meter of air) = 400/number of hours worked per day

O. Physical Boundary: Area physically roped or partitioned off around lead control area to limit unauthorized entry of personnel.

P. Qualified Environmental Consultant (QEC): An EPA-certified Lead Inspector/Risk Assessor and who is an Industrial Hygienist or similar safety professional with experience in enforcing lead safety regulations and performing airborne lead sampling.

Q. State: The State of Hawaii

1.04 QUALITY ASSURANCE

A. Officer-in-Charge's Authorized Representative's responsibilities:
   1. Review and approve Contractor personnel training.

   2. Review and approve Contractor's Work Procedure Plan for conformance to the applicable reference standards.

3. Inspect work for conformance to the Contractor's approved Work Procedure Plan.

4. Schedule and conduct required air monitoring, inspection and reporting.

5. Monitor work to verify that work is performed at all times in accordance with the requirements of this Specification.

6. Monitor work to verify that adequate control is being maintained at all times of hazardous exposure to employees and to the environment.

7. Be onsite during all worksite preparation and cleaning, be available by telephone, pager or answering service at all other times during the work and able to be present at the work site in no more than 2 hours.

8. After final cleanup, verify that the lead control area is free of any visible lead paint chip debris, waste or dust and that final area air samples have lead concentrations at or below the background level.

B. Safety and Health Compliance
   1. In addition to the detailed requirements of this Specification, the Contractor shall comply with laws, ordinances, rules, and regulations of Federal, State, and local authorities regarding removing, handling, storing, transporting, and disposing of lead waste materials.

   2. Comply with the applicable requirements of the current issue of 29 CFR 1926.62, HIOSH 12-148.1, and HIOSH 12-202-33.

   3. Where requirements of this Specification and the referenced documents vary, the most stringent requirement shall apply.

C. Pre-Construction Conference
   1. The Officer-in-Charge's Authorized Representative shall meet with the Contractor and Officer-in-Charge to discuss in detail the work procedures, precautions and area and personal air monitoring to be employed.

   2. If rental equipment is to be used during lead-containing material handling and disposal, notify the rental agency in writing concerning the intended use of the equipment. Submit a copy of the written notification to the Officer-in-Charge's Authorized Representative.

1.05 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor acknowledges that he alone is responsible for the instruction of personnel in and enforcement of personal protection requirements. The Contractor shall comply with all requirements of 29 CFR 1926.62 and HIOSH 12-148.1. The Contractor shall also be responsible for complying with all applicable EPA regulations in regards to lead-containing materials.

B. The Contractor shall examine and have at all times at his office (one copy) and in view at each job site (one copy) the following materials:

1. State of Hawaii Department of Labor and Industrial Relations; Occupational Safety and Health Standards; Part 8, Section 12-148.1;

2. Department of Housing and Urban Development; Office of Public and Indian Housing; Lead Paint Guidelines;

3. Title 29 Code of Federal Regulations Part 1926.62; Safety and Health Standards;

4. Title 29 Code of Federal Regulations Part 1910.134; Respiratory Protection;

5. Title 40 Code of Federal Regulations Part 261; Identification and Listing of Hazardous Waste;

6. Title 40 Code of Federal Regulations Part 262; Standards Applicable to Generators of Hazardous Waste;

7. Title 40 Code of Federal Regulations Part 263; Hazardous Waste Transporters;

8. Title 40 Code of Federal Regulations Part 745; Lead; Requirement for Lead-Based Paint Activities;

9. Copies of any other applicable Federal, State and local regulations, standards, documents and codes;

10. Copies of the procedures to be followed during medical emergencies, including phone numbers of the nearest hospital or other emergency medical facility, which shall be posted by the nearest telephone;

11. Copies of the Contractor's Respiratory Protection Program, Hazardous Communication Program, Safety Program, and Work Procedure Plan;

12. Copies of Safety Data Sheets for all chemicals used;

13. Copies of the Contractor's Competent Person's qualifications and employee training Certificates; and

14. Copies of Personal Air Monitoring results.

C. Whenever approval of the Officer-in-Charge's Authorized Representative is required prior to proceeding with other work, the Contractor shall comply with the following:
   1. The Contractor shall give, at a minimum, five (5) days notification to the Officer-in-Charge's Authorized Representative prior to the start of any lead work.

   2. The Contractor shall not begin any work without the Officer-in-Charge's Authorized Representative present onsite.

   3. The Contractor shall allow the Officer-in-Charge's Authorized Representative 24 hours from notification to respond to the request for site inspection(s).

   4. The Contractor shall designate one person (either a foreman or superintendent) who will be authorized to request inspections. The name of the designated

person shall be submitted in writing to the Officer-in-Charge's Authorized Representative prior to commencing work. Requests from any other person will not be considered official requests.

5. The designated person requesting an inspection shall provide the following information:
   a. Name of caller.
   b. Building and rooms to be inspected.
   c. Work phase of inspection, as specified.

D. Pollution Control: The Contractor shall not contaminate the air, water, soil or other items with hazardous materials such as cleaning solutions, lead-containing paint or lead-contaminated debris and wastes, etc. The Contractor shall immediately clean the contaminated area and dispose of the waste in compliance with all Federal, State and local laws, ordinances, rules and regulations at his or her own expense.

E. Use of Site:
   1. Confine operation at the site to the areas permitted under the contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting work while at the project site.

   2. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage to the areas authorized by the Officer-in-Charge's Authorized Representative.

1.06 COMMENCEMENT OF WORK

Each time work that calls for the disturbance of lead-containing paint is to begin in a new work area the Contractor shall not commence work unless the following requirements have been met.

A. Submittals: All submittals, notifications, posting and permits must be provided and be satisfactory to the Officer-in-Charge's Authorized Representative.

B. Equipment: All equipment required for the work such as removal, clean-up and disposal must be on hand.

1.07 SUBMITTALS

A. Submit in accordance with SECTION 01300 – SUBMITTALS.

B. Manufacturer's Catalog Data: Submit copies of manufacturer's specifications, installation instructions and field test materials for all chemicals and equipment related to lead-containing and lead-contaminated materials, including any other data that may be required to demonstrate compliance with these Specifications and proposed uses. This includes, but is not limited to, data for vacuum filters and respirators.

C. Safety Data Sheets: Submit copies of the Safety Data Sheets for all chemicals used.

D. Notifications: Submit written notification to the Officer-in-Charge's Authorized Representative 15 days prior to the start of any renovation or demolition work involving lead-containing paints.

E. Respiratory Protection Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Respiratory Protection Program prepared in accordance with all applicable laws. The Contractor shall also submit fit test records on all employees to be used on this project who may be required to wear a respirator.

F. Hazard Communication Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Hazard Communication Program prepared in accordance with all applicable laws.

G. Safety Program: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Health and Safety Plan prepared in accordance with all applicable laws.

H. Work Procedure Plan: Submit no later than 10 consecutive working days from notice of award, a copy of the Contractor's Work Procedure Plan. The following are required components of a Work Procedure Plan:
   1. A sketch showing the location, size, and details of lead control areas, signage, security, decontamination and support areas including eating, drinking, smoking, and restroom areas;

   2. Procedures, interface of trades, sequencing of lead-related work, respirators, protective equipment;

   3. A detailed description of the methods of control of the work to ensure that airborne lead concentrations of 30 micrograms per cubic meter of air are not exceeded;

   4. Work plan and schedule for waste containment and disposal including daily cleanup and disposal of stray paint chips and paint dust;

   5. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment;

   6. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes;

   7. Estimated quantities of wastes to be generated and disposed of as well as a description of the methods used to identify hazardous wastes encountered with the work;

   8. Spill prevention, containment, and cleanup contingency measures to be implemented;

   9. Description of procedures to stop work in the event that area monitoring and laboratory analysis indicate air concentrations of lead in excess of the action level; and

   10. Methods to eliminate runoff of the water used to minimize dust created by renovation work, and collection and disposal plan for wastewater and paint debris.

I. Rental Equipment: When rental equipment is to be used during lead-containing material handling and disposal, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the Officer-in-Charge's Authorized Representative.

J. HEPA Vacuums: Submit no later than 10 consecutive working days from notice of award, manufacturer's certification that vacuums conform to ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems as applicable to this project.

K. Contractor's Competent Person's Qualifications: The Contractor shall submit no later than 10 consecutive working days from notice of award the Contractor's Competent Person's name, contact information, valid qualifications, and current certification of completion of the EPA Lead Inspector/Risk Assessor course.

L. Certification of medical examinations: The Contractor shall submit documentation from a physician that all employees or agents who may be exposed to airborne lead-containing dust or fumes have been medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. In addition, the Contractor shall document that his personnel have received medical monitoring as required in the HIOSH lead standard (12-148.1).

M. Employee EPA Lead Worker/Supervisor Certifications: Submit no later than 10 consecutive working days from notice of award, documentation that each and every individual, including foreman, supervisors, other company personnel or agents, and any other individual who may be exposed to airborne lead dust and who may be responsible for any aspects of lead-containing paint removal activities which may occur, has currently attended and passed the EPA Lead Worker and/or EPA Lead Supervisor course, whichever is relevant to that worker's responsibilities. These courses shall be EPA-approved or approved by a State Accreditation Program in the most current listing of the Federal Register. No worker shall be allowed in the lead control area if they are found to have an expired accreditation certificate. The Contractor shall be responsible for keeping the documentation up to date and submitting subsequent documentation to the Officer-in-Charge's Authorized Representative before any additional employee or individual, not currently on the list, is allowed within the lead control area.

N. Employee training certifications: Submit documentation within 10 consecutive calendar days of award, satisfactory to the Officer-in-Charge's Authorized Representative, that the Contractor's employees, including foreman, supervisors and any other company personnel or agents who may be exposed to airborne lead dust or who may be responsible for any aspects of lead work activities, have received training in accordance with OSHA 29 CFR 1926.62 and the HIOSH lead standard (12-148.1). Training shall include, but not be limited to, the dangers of lead exposure, respirator use and decontamination procedures.

O. Laboratory Qualifications
   1. Personal Air Monitoring Laboratory Qualifications - Submit name, address and telephone number of testing laboratory responsible for analysis of personal air monitoring samples and reporting concentrations of airborne lead.

   2. TCLP Testing Laboratory - Submit name, address and telephone number of testing laboratory responsible for TCLP analysis.

P. Personal Air Monitoring Results: Submit test results to the Officer-in-Charge's Authorized Representative and the affected Contractor's employees within three (3) working days of collection, signed by the testing laboratory employee performing the analysis and the Contractor's Competent Person. Test results for the first two full days of initial personal air monitoring shall be submitted to the Officer-in-Charge's Authorized Representative within 48 hours after completion of sampling.

Q. TCLP Results: Submit test results to the Officer-in-Charge's Authorized Representative within three (3) working days of collection, signed by the testing laboratory employee performing the analysis and the Contractor's Competent Person.

R. Log of Lead Disturbance Work: Complete and submit a daily log of all lead disturbance work performed.

S. Certification of work performance: Certification in writing that the regions both inside and outside of the lead control area have airborne lead concentrations below the background level, that the respiratory protection for the employees was adequate, and that the work procedures were performed in accordance with 29 CFR 1926.62 and this Specification.

T. Waste Disposal Manifest Forms: Submit copies of all transport manifests, trip tickets and disposal receipts for all hazardous waste removed from the work area and disposed of at a disposal facility during the work process.

PART 2 - PRODUCTS

2.01 EQUIPMENT AND MATERIALS

A. Respirators: Select respirators approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services. Respirators shall comply with the requirements of 29 CFR 1926.62 and HIOSH 12-148.1. For this project, respirators shall be worn at all times throughout the renovation or as deemed necessary by the Contractor's Competent Person.

B. Protective Clothing: Furnish personnel exposed to lead dust with appropriate personal protective whole body clothing, head covering, and foot coverings as required by 29 CFR 1926.62 and HIOSH 12-148.1. No altering of personal protective equipment shall be allowed.

C. Chemicals: Submit applicable Safety Data Sheet for all chemicals used on this project. Use the least toxic product approved by the Officer-in-Charge's Authorized Representative.

D. Warning Signs and Labels: Provide warning signs at approaches to the lead control areas.

E. Tapes: Tape shall be capable of sealing joints of adjacent sheets of polyethylene and for attaching polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including the use of amended water. Silver cloth duct tape, minimum 2 inches wide.

F. Adhesives: Adhesives shall be capable of sealing joints of adjacent sheets of polyethylene and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

G. Tools: Filters on vacuums and exhaust equipment shall be High Efficiency Particulate Air (HEPA) filters and UL 586 labeled.

PART 3 - EXECUTION

3.01 TESTING AND AIR MONITORING

Refer to Section 13288 – TESTING AND AIR MONITORING for testing and monitoring requirements.

3.02 LEAD CONTROL AREA REQUIREMENTS

A. Boundary Requirements:

1. Establish a lead control area to contain renovation operations by demarcating a boundary around the structure to be demolished or renovated in accordance with the Contractor's approved Work Procedure Plan. The lead control area shall be isolated by physical boundaries, such as temporary fencing, boundary tape and rope, to prevent unauthorized entry of personnel.

2. Post Warning and Danger signs in accordance with 29 CFR 1926.62 and HIOSH 12-148.1. Signs shall be placed at all approaches to lead control area and at the boundary of the lead control area. Signs shall be posted at all locations where airborne lead concentrations may exceed ambient background levels. Locate signs at such a distance that personnel may read the sign and take necessary protective measures to avoid exposure. In addition, post signs with "Authorized Entry Only, Lead Control Area" and "PPE Required" at every entry point.

B. Personal Protection Requirements:

1. No one will be permitted in the lead control area unless they have been given appropriate training, Personal Protective Equipment (PPE) and medical examinations. PPE is required for all employees and persons within the lead control area.

2. Eating, drinking, smoking and application of cosmetics shall be permitted only in areas designated by the Contractor, approved by the Officer-in-Charge's Authorized Representative, and which are free of dust generated by the renovation. Eating, drinking, smoking and application of cosmetics are not permitted in the lead control area.

3. Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.

C. Environmental Protection Requirements:
   1. Ensure airborne lead levels outside the lead control area are below the Action Level.

   2. Perform work without damage to or contamination of the areas adjacent to locations where lead-containing or lead-contaminated material will be disturbed as a result of renovation activities. If any part of the work area is damaged or contaminated during the disturbance of lead-containing materials, restore the damaged or contaminated area to its original condition or better, as determined by the Officer-in-Charge's Authorized Representative.

   3. Drainage inlets, downspouts, and all entrances to underground utilities which lie within, or provide drainage for, a lead control area shall be sealed until that lead control area has been cleaned, visually inspected and cleared.

   4. Within a lead control area, any windows, doors or vents shall be sealed and air-conditioning units with intake or exhaust in a lead control area shall be shut down and sealed until that lead control area has been cleared with a level of airborne lead below the background level.

D. Exit Procedures: Whenever personnel exit the lead control area, they shall perform the following procedures and shall not leave the work place wearing any clothing or other equipment worn in the lead control area.
   1. Vacuum themselves off with HEPA-filtered vacuum equipment, using UL-586 labeled HEPA filters;

   2. Remove protective clothing in the designated changing area within the lead control area and place them in an approved impermeable disposal bag;

   3. Wash their hands and faces in the designated changing area before exiting to the designated clean area outside of lead control area; and

   4. Prevent migration of mud, dust and/or debris carried on work boots, clothing or equipment from the renovation site into areas beyond the lead control area.

3.03 RENOVATION INVOLVING LEAD-CONTAINING PAINT

A. Perform lead work as specified herein. Use procedures and equipment required to limit occupational exposure and environmental contamination with lead when renovation is performed in accordance with 29 CFR 1926.62 and as specified herein.

B. Disturbance of lead-containing paint as a result of renovation activities shall be kept to a minimum. Spot remove lead-containing paint only as necessary for the safe renovation of LCP painted structures. Water spray, vacuuming and other engineering controls shall be used to minimize airborne lead dust. Care shall be taken to avoid pulverizing, scraping, or crumbling lead debris.

C. Dispose of all lead-containing paint and associated waste in compliance with all Federal, State and local requirements.

D. Clean, as needed, all floor surfaces adjacent to the lead control area using a HEPA filtered vacuum.

E. Use 6-mil polyethylene sheeting to cover ground underneath the work area.

F. Use 6-mil polyethylene sheeting to cover any surfaces and equipment that will not be painted, disturbed or utilized during disturbance of lead-containing paint. After completion of work, the Contractor shall repair all damage from fastening and sealing and remove all adhesive residue from surfaces at no additional cost to the State.

G. Manual or power sanding, grinding, abrasive or sand blasting of painted surfaces is not permitted. Select removal processes (describe in the Work Procedure Plan) to minimize contamination of work areas with lead-contaminated dust or other lead-contaminated debris/waste.

H. Open flame burning or torching of lead-containing paint is prohibited.

I. The use of heat guns or hot knives which reach temperatures above 650 degrees Fahrenheit, on surfaces containing lead-containing paint, is prohibited.

J. Use of vacuum equipment without HEPA filters in areas containing lead-containing paint is prohibited.

K. The use of chemical paint strippers containing methylene chloride is prohibited.

L. Control of Airborne Lead Level – The Contractor shall control the lead level outside of the work boundary to less than the action level at all times.

M. Control of Visible Emissions – The Contractor shall control lead dust emissions from the project site so that no visible lead dust emissions leave the project work areas during renovation work. Wet methods or other engineering controls shall be used to control the emission of dust and/or debris from the renovation site in accordance with all applicable Federal, State, and local regulations. Emissions in excess of the above shall be cause for immediate shut down of the project until corrective measures are implemented.

N. Control of Water Runoff – Water used to control emissions of dust from the renovation activities shall not be allowed to flow uncontrolled from a lead control area, to any adjacent area or to enter the sanitary or storm water sewer system. All water runoff from lead control areas shall pass through a filter berm to remove particulate matter prior to discharge to water sewer system. The Contractor shall use only sufficient water to adequately control dust. Under no conditions shall wastewater be disposed of in storm drains or dumped on the ground.

O. Perform renovation involving lead-containing paint as indicated in Federal, State, and local regulations. The worksite preparation (barriers or containments) shall be job dependent.

3.04 CLEANUP

A. Clean surfaces and surrounding ground within the lead control area daily. Do not allow paint chips, dust and debris to accumulate.

B. Restrict and minimize the spread of dust and debris. Keep waste from being distributed over the general area. Do not dry sweep or use compressed air to clean the area.

C. When the operation has been completed, the area will be cleaned of all visible lead contamination. The Officer-in-Charge's Authorized Representative will visually inspect the affected areas for residual lead paint chips and debris, and the Contractor shall re-clean areas showing residual paint chips and debris.

D. If re-cleaning is required, the Officer-in-Charge's Authorized Representative will visually inspect for lead debris after the re-cleaning. This process will be repeated until the Officer-in-Charge's Authorized Representative deems the area free of visible paint chips and debris.

E. Do not remove the lead control area barriers or roped-off perimeter and warning signs prior to the Officer-in-Charge's receipt of the Officer-in-Charge's Authorized Representative's lead clearance certification.

3.05 DISPOSAL

A. Disposal of Non-Hazardous Lead Construction Debris (TCLP for Lead Not Exceeding EPA Limit of 5.0 Milligrams per Liter):
   1. Remove non-hazardous lead waste including debris, scraps, waste materials, rubbish, and trash from the site and dispose of such waste at a landfill approved for such purposes.

   2. The Contractor shall submit to the Officer-in-Charge's Authorized Representative documentation that the lead-containing waste material removed from the work area has been accepted by the landfill.

B. Disposal of Hazardous Lead Construction Debris (TCLP for Lead Exceeding EPA Limit of 5.0 Milligrams per Liter):
   1. Collect lead-contaminated wastes, scraps, debris and any other lead-contaminated materials and place into U.S. Department of Transportation approved and appropriately labeled containers.

   2. Store lead wastes and debris in U.S. Department of Transportation approved containers in an interim storage area assigned by the Officer-in-Charge's Authorized Representative at the site. Any and all hazardous wastes shall be removed from the site to an EPA approved disposal facility within 90 days of the removal work (as applicable).

   3. Handle, store, transport, and dispose of lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 264, and 40 CFR 265. Comply with land disposal restriction notification requirements as required by 40 CFR 268.

4. The Contractor shall submit to the Officer-in-Charge's Authorized Representative documentation that the lead-containing waste material removed from the work area has been accepted by the landfill.

3.06 CERTIFICATION

A. The Contractor or his authorized representative shall certify in writing that the regions both inside and outside of the lead control area have airborne lead concentrations below the background level, that the respiratory protection for the employees was adequate, and that the work procedures were performed in accordance with 29 CFR 1926.62 and this Specification.

B. Upon inspection and approval of the area by the Officer-in-Charge's Authorized Representative, the Contractor shall certify that there were no visible accumulations of lead-contaminated paint, dust and debris remaining on the work site.

C. The Contractor shall not remove the lead control area boundary and warning signs prior to the submittal and approval by the Officer-in-Charge's Authorized Representative of the Contractor's certification that there were no visible accumulations of lead contaminated paint, dust and debris remaining on the work site.

D. The Contractor shall re-clean areas showing residual paint chips, debris or wastes. Chips, debris and wastes shall be disposed of properly, in accordance with this Specification and all applicable Federal, State and local regulations.

3.07 MEASUREMENT AND PAYMENT

Payment for removal, hauling and disposal of all lead-related wastes shall be made at the lump sum price bid as scheduled in the Proposal. The final payment will not be made until a signed copy of the manifest from the treatment or disposal facility certifying the amount of lead-contaminated material delivered is submitted to the Officer-in-Charge's Authorized Representative.

END OF SECTION

SECTION 13288 - TESTING/AIR MONITORING

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

Furnish all labor, materials, and equipment necessary to carry out the personnel monitoring, record keeping, air monitoring and inspectional services in compliance with the Specifications and all applicable Federal, State and Local laws and regulations during the performance of the project. If there is a conflict with the requirements, the more stringent requirement shall apply. Ignorance of the above requirements and any applicable regulations resulting in additional cost to the Contractor shall not be reimbursable or billable to the State. Any question regarding conflict or inconsistency between Specification and/or regulations should be directed to the Officer-in-Charge.

1.02 REFERENCES

A. The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only, and include but are not limited to, the following:

B. CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926.33	Access to Employee Exposure and Medical Record
29 CFR 1926.55	Gases, Vapors, Fumes, Dusts, and Mists
29 CFR 1926.59	Hazard Communication
29 CFR 1926.62	Lead Exposure in Construction
29 CFR 1926.103	Respiratory Protection
29 CFR 1926.1101	Asbestos, Tremolite, Anthophyllite, Actinolite
29 CFR 1910. 134	Respiratory Protection
40 CFR 61-SUBPART A	General Provisions
40 CFR 61-SUBPART M	National Emission Standard for Asbestos
40 CFR 763	Asbestos-Containing Material in Schools
40 CFR 745	Lead; Requirement for Lead-Based Paint Activities
49 CFR 172	Hazardous Materials, Tables, and Hazardous Materials Communications Regulations

C. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 560/5-85-024	Guidance for Controlling ACM in Buildings

D. HAWAII OCCUPATIONAL SAFETY AND HEALTH (HIOSH)

12-114.2	Personal Protective Equipment
12-145.1	Asbestos
12-148.1	Lead
12-151	Hazardous Waste Operations and Emergency Response

E. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

HUD Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing

F. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z88.2	(1992) Respiratory Protection

1.03 DEFINITIONS

A. Action Level - Lead: Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8-hour period.

B. Area Sampling: Sampling of concentrations which is representative of the airborne concentrations but is not collected in the breathing zone of personnel (approximately 1.5 to 1.8 meters above the floor).

C. Background: The ambient airborne asbestos concentration in an uncontaminated area as measured prior to any asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar locations.

D. Competent Person - Asbestos: As used in relation to asbestos, refers to a person employed by the Contractor who is trained in the recognition and control of asbestos hazards in accordance with current federal, State, and local regulations and has the authority to take prompt corrective actions to control the asbestos hazards.

E. Competent Person - Lead: As used in relation to lead, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations, has the authority to take prompt corrective actions to control the lead hazards and is an EPA certified lead inspector or risk assessor.

F. Permissible Exposure Limit (PEL) - Asbestos: 0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101 or other Federal legislation having legal jurisdiction for the protection of workers health.

G. Permissible Exposure Limit (PEL) - Lead: 50 micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more or less that 8 hours in a work day, the PEL shall be determined by the following formula:

   PEL (micrograms per cubic meter of air) = 400/number of hours worked per day

H. Personal Sampling: Air sampling which is performed to determine concentrations within the breathing zone of a specific employee. Samples shall be representative of the employees work tasks. The breathing zone shall be considered an area within 12 inches of the nose or mouth of an employee.

I. Qualified Testing Laboratory – Asbestos: Laboratories shall be accredited by the American Industrial Hygiene Association (AIHA) for each type of asbestos analysis performed by the laboratory.
   1. Environmental and Work Area Monitoring Laboratory – The testing laboratory employed by the Officer-in-Charge to perform analysis of environmental and work area air monitoring samples and report concentrations of airborne lead.

   2. Personal Air Monitoring Laboratory – The testing laboratory utilized by the air monitoring firm retained by the Contractor to perform analysis of personal air monitoring samples and report airborne concentrations of asbestos. Collection of the Contractor’s OSHA personal air samples will be performed by a firm independent of the Contractor, at the Contractor’s expense.

J. Qualified Testing Laboratory – Lead: Laboratories shall be accredited under the EPA's National Lead Laboratory Accreditation Program (NLLAP) by the American Industrial Hygiene Association's (AIHA's) Environmental Lead Laboratory Accreditation Program (ELLAP) and successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program for each lead matrix analyzed by the laboratory. The laboratory shall fulfill all requirements of accreditation for analyzing lead in air. Laboratory personnel performing the work shall have been judged proficient in the analysis of lead in the applicable parameter by successful participation within the last year in AIHA's ELPAT.

1. Environmental and Work Area Monitoring Laboratory – The testing laboratory employed by the Officer-in-Charge to perform analysis of environmental and work area air monitoring samples and report concentrations of airborne lead.

2. Personal Air Monitoring Laboratory – The testing laboratory utilized by the air monitoring firm retained by the Contractor to perform analysis of personal air monitoring samples and report airborne concentrations of lead. Collection of the Contractor's OSHA personal air samples will be performed by a firm independent of the Contractor, at the Contractor's expense.

3. Toxicity Characteristic Leaching Procedure (TCLP) Testing Laboratory - The testing laboratory employed by the Contractor to perform TCLP tests of a representative sample of the debris waste stream of each structure and of any lead-contaminated chips or debris generated through abatement to determine whether or not the waste is hazardous or non-hazardous. The laboratory shall be experienced in and analyze TCLP samples using the EPA Method 1311/6010.

K. In addition, Definitions as outlined in Section 13281 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS and Section 13282 – LEAD-CONTAINING PAINT CONTROL MEASURES.

1.04 ABBREVIATIONS

A. ANSI: American National Standards Institute, Inc.

B. CFR: Code of Federal Regulations

C. HIOSH: Division of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii

D. EPA: U.S. Environmental Protection Agency

E. NESHAP: National Emission Standards for Hazardous Air Pollutants

F. NIOSH: National Institute for Occupational Safety and Health

G. OSHA: Occupational Safety and Health Administration

H. The State: The State of Hawaii

1.05 AUTHORITY TO STOP WORK

The Officer-in-Charge's Authorized Representative has the authority to stop the abatement work at any time they determine that conditions are not within the drawing/specification requirements and applicable regulations. The work stoppage shall continue until corrective steps have been taken and specified conditions restored to the satisfaction of the Officer-in-Charge's Authorized Representative. Standby time required to resolve violations shall be at the Contractor's expense. Stop Work Orders may be issued for, but shall not be limited to the following:

A. Excessive asbestos airborne fibers inside (>0.5 f/cc) and/or outside (>0.01 f/cc) the work area.

B. Excessive lead dust outside (>30 micrograms per cubic meter of air) the work area.

C. Visible emissions of dust or debris going beyond the work area boundaries.

1.06 COORDINATION

A. The Contractor shall coordinate with the Officer-in-Charge's Authorized Representative for the testing/air monitoring requirements included in these specifications for testing/air monitoring consultants or inspectors and all applicable Federal, State and local regulations.

B. Whenever approval of the Officer-in-Charge's Authorized Representative is required prior to proceeding with other work, the Contractor shall comply with the following:
   1. The Contractor shall give, at a minimum, ten (10) days notification to the Officer-in-Charge's Authorized Representative prior to the start of any work.

   2. The Contractor shall not begin any work without the Officer-in-Charge's Authorized Representative present to observe.

   3. The Contractor shall allow 24 hours from notification to respond to the request for site inspection(s).

   4. The Contractor shall designate one person (either a foreman or superintendent) who will be authorized to request inspections. The name of the designated person shall be submitted in writing to the Officer-in-Charge's Authorized Representative prior to commencing work. Requests from any other person will not be considered official requests.

   5. The designated person requesting an inspection shall provide the following information:
      a. Name of caller.
      b. Building and rooms to be inspected.
      c. Work phase of inspection, as specified.

1.07 PRE-CONSTRUCTION CONFERENCE

A conference shall be held prior to construction and shall be conducted by the Project Manager assisted by the Officer-in-Charge's Authorized Representative.

A. Attendance: The Contractor, Project Designer, industrial hygienist/air monitoring personnel shall also attend.

B. Agenda:
   1. Review final schedule for project

2. Verify legal requirements and special conditions

3. Verify compliance with pre-construction requirement

4. Obtain copies of all mandatory notifications

5. Inspect sample respiratory equipment and other abatement equipment

6. Review procedures and responsibilities

7. Clarify the scope of work and its best impact on the users of the building

1.08 SUBMITTALS

As specified in Section 13281 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS and Section 13282 – LEAD-CONTAINING PAINT CONTROL MEASURES.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 AIR SAMPLING - ASBESTOS

A. Sampling for airborne concentrations of asbestos fibers shall be performed by the Certified Asbestos Project Monitor. Sampling of airborne concentrations of asbestos fibers shall be performed in accordance with 29 CFR 1926.1101 and as specified herein. Unless otherwise specified, NIOSH Method 7400 will be followed for all sampling and analysis.

1. Sampling Prior to Asbestos Work: Baseline air sampling may be conducted by the Certified Asbestos Project Monitor one-day prior to the masking and sealing operations for each removal site.

2. Sampling During Asbestos Work: The performance and execution of the Contractor's work shall be closely and continuously monitored by the Certified Asbestos Project Monitor. Air monitoring and inspection by the Certified Asbestos Project Monitor shall be performed inside the work area, in the work area surroundings and in any occupied adjacent buildings to ensure full compliance with the Specification and all applicable regulations. The Contractor shall provide full cooperation and support to the Certified Asbestos Project Monitor and to their technicians throughout the work.

B. Air Monitoring with Respect to Contractor's Employees

1. The Contractor shall be responsible for all personal air monitoring as required by OSHA regulations. All personal air monitoring will be conducted by an agent of the Contractor who is currently certified by the Hawaii Department of Health to conduct personal air sampling.

2. The Contractor shall provide own personal sampling of 25 percent of his workers or minimum of two workers, whichever is greater as indicated in 29 CFR 1926.1101 and governing environmental regulations.

3. Laboratory performing analysis shall be an independent party, not financially or managerially connected with the Contractor. Laboratory shall also be approved by the Officer-in-Charge and AIHA accredited in the type of analysis being performed.

4. At the conclusion of each day's sampling, copies of all air monitoring records shall be provided to the Officer-in-Charge.

5. Results of sample analysis shall be provided to the Officer-in-Charge within forty-eight (48) hours of collection.

C. All other air sampling for compliance with the Specification shall be performed by the Certified Asbestos Project Monitor.

3.02 AIR SAMPLING – LEAD

A. Environmental and work area air monitoring of airborne lead concentrations shall be performed by the Qualified Environmental Consultant in accordance with 29 CFR 1926.62 and as specified herein.

1. Sampling Prior to Lead Work: The Qualified Environmental Consultant shall collect area air samples outside the work area prior to the start of work in order to establish the background level of lead in the air. The samples shall be analyzed by the Environmental and Work Area Monitoring Laboratory for the airborne concentration of lead. This concentration shall be the background level.

2. Sampling During Lead Work: The Qualified Environmental Consultant shall perform area air monitoring during the entire abatement operation. The Contractor shall allow access to the work area and assist the Qualified Environmental Consultant as needed.

a. Sufficient area air monitoring shall be conducted at the border of the lead control area to ensure unprotected personnel are not exposed to lead concentrations above 30 micrograms per cubic meter of air at all times. As a minimum, conduct area monitoring in areas immediately adjacent to the lead control area daily during each shift in which abatement operations are performed. At least one sample on each shift shall be taken on the downwind side of the lead control area.

b. If the outside boundary of the lead control area is determined to have air lead levels above the background levels the Contractor shall be required to adequately correct the conditions causing the increased lead levels. Any work necessary to correct the condition will be completed by the Contractor at no additional cost to the State.

c. If the outside boundary of the lead control area is determined to have air lead levels at or above 30 micrograms per cubic meter of air, the Contractor shall immediately stop work and correct the conditions causing the increased level.

d. Work shall resume only when approval is given by the Qualified Environmental Consultant.

B. Air Monitoring with Respect to Contractor's Employees

1. The Contractor's Competent Person shall perform initial personal air monitoring to determine employee exposure during abatement work. During initial personal monitoring, the first two full days of work (two 8-hour work shifts), all workers shall be provided with a minimum of air-purifying half-mask respirators and disposable protective clothing.

2. Personal monitoring samples shall be taken on at least 25 percent of the employees or a minimum of 2 employees, whichever is greater, or a representative sample of employees with the greatest potential for exposure as determined by the Qualified Environmental Consultant during each work shift.

3. At the end of the period of initial determination all results shall be submitted to a laboratory for analysis by NIOSH Method 7082.

4. Results from the first two full days (two 8-hour work shifts) of initial air monitoring, signed by the testing lab employee performing the analysis and the Competent Person, shall be provided to the Officer-in-Charge's Authorized Representative within 48 hours after completion of sampling. Results of initial air monitoring shall be used by the Contractor's Competent Person to determine appropriate worker protection requirements for similar work activities. Determination shall be submitted to Officer-in-Charge's Authorized Representative within 48 hours.

5. Regardless of initial air monitoring results, continue personal air monitoring during the entire abatement operations.

6. If the personal air monitoring tests covering a period of two full work days (two 8-hour work shifts) show airborne lead concentrations below the action level, the Contractor's Competent Person may determine that the use of HEPA-filtered air purifying respirators is not required. Other elements of protective clothing shall continue to be worn throughout the abatement operation.

7. If exposure to lead at or in excess of 30 micrograms per cubic meter of air as an 8-hour time weighted average is indicated, the Contractor's Competent Person will immediately notify the Contractor and Officer-in-Charge's Authorized Representative. The Contractor will provide and require all persons exposed to this concentration of airborne lead dust to wear, at a minimum, half mask air purifying respirators with HEPA filters. In addition, the Contractor's work procedures will be immediately reviewed by the Officer-in-Charge's Authorized Representative and the Contractor and modifications in the Contractor's work performance shall be implemented to lower the concentration of airborne lead.

8. Results of air monitoring shall be submitted to the Officer-in-Charge's Authorized Representative within three (3) working days of collection, signed by the testing lab employee who performed the analysis and the Competent Person.

3.03 LEAD WASTE CHARACTERIZATION

A. TCLP testing of the gross solid lead abatement debris shall be performed by the Contractor to characterize the debris as either non-hazardous or hazardous waste. Metal items to be demolished and removed shall be recycled.

B. The Contractor shall not concentrate, treat, or intermix wastes from outside this project with the debris and wastes generated by this project.

C. For lead wastes generated by abatement operations, including used disposal PPE, lead paint chips and waste from paint stripping operations, TCLP testing of the waste shall be provided and paid for by the Contractor as specified herein.

D. All TCLP test samples shall be collected by the Qualified Environmental Consultant in accordance with SW 846, “Test Methods for Evaluating Solid Waste – Physical/Chemical Methods.”

E. All TCLP test samples shall be analyzed for lead concentration using EPA Method 1311/6010 by the TCLP Testing Laboratory.

F. Submit results of TCLP tests to the Officer-in-Charge’s Authorized Representative within 3 working days of collection, signed by the testing lab employee performing the analysis and the Contractor’s Competent Person.

3.04 PAYMENT

Payment for abatement monitoring shall be included at the lump sum price bid under Hazardous Material Testing and Monitoring as scheduled in the Proposal. The final payment will not be made until proper documentation of the disposal of hazardous waste is submitted.

END OF SECTION

SECTION 16000 - ELECTRICAL WORK

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

A. GENERAL PROVISIONS preceding specification shall govern this section.

B. As specified in Section 01100 – PROJECT REQUIREMENTS.

1.02 WORK INCLUDED

A. This section covers the work necessary for the complete power, lighting, and control systems shown in the Plans, including but not limited to the following:

1. Complete electrical conduit and wire system for connection to the new sewer pump.

2. Reconnection of existing storm water pumps.

3. Final adjustment and testing of pumps and associated controls.

4. All incidental work where not specifically shown or specified, but is necessary and required to complete the work to an acceptable and operational stage.

1.03 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. Section 01650 – FACILITY STARTUP

B. Materials Connected But Furnished & Installed Under Other Sections: This list is for the convenience of the Contractor, and materials connected are not necessarily limited by this list.

1. Pumps: Section 15450 – PUMPS

2. Flow meter and wet well level transmitters: Section 15400 –PIPING AND APPURTENANCES.

1.04 QUALITY ASSURANCE

A. Comply with the latest applicable rules, regulations, requirements, and specifications of the following:

1. Local laws & ordinances

2. State & Federal laws

3. National Electrical Code

4. County of Honolulu electrical code

5. State Fire Marshal

6. Underwriter's Laboratory

7. National Electrical Safety Code

B. Any conflicts that may exist between the above items will be resolved by the Contracting Officer. Wherever the requirements of the Specifications or Drawings exceed those of the items above, the requirements of the Specifications or Drawings shall govern.

C. Prior to start of the rough-in work, verify all dimensions and equipment sizes with the approved shop drawings including equipment sizes with the approved shop drawings including equipment furnished by others. Circuits and raceway routes are diagrammatic and may be altered in any logical manner. However, all changes from the contract documents shall be subject to review and acceptance by the Contracting Officer and indicated on the "As-built" Drawings.

D. Specifications are accompanied by civil and structural, plans and diagrammatical electrical plans showing locations of luminaries, standards, outlets, feeder runs, devices and other electrical equipment. Locations are approximate and before installation, Contractor shall study adjacent construction details and make installation in the most logical manner. Prior to installation and at the direction of the Contracting Officer, relocate any device, equipment, feeder, or circuit within 10'-0" of the location presently shown without added cost to the County.

E. Materials and Equipment: Material and equipment shall conform to requirements of applicable technical specifications sections, publications specified therein and shall be as shown on the drawings. Materials and equipment shall be new and shall be the product of manufacturers regularly engaged in the manufacture of such products.

F. All items shall essentially duplicate materials and equipment which have been in satisfactory use at least two years prior to bid opening and shall be supported by a service organization that is located reasonably close to the site of installation.

1.05 SUBMITTALS

A. Submit the following to the Contracting Officer in accordance with Section 01300 – SUBMITTALS.

B. Departures from Drawings: Submit to the Contracting Officer, in writing for review, details of any necessary proposed departures from these Contract Documents, and the reasons therefore, as soon as practicable and within 30 days after the award of the Contract. Make no such departures without the prior written approval of the Contracting Officer.

1. Departures resulting from substitutions of materials of systems shall be accompanied by appropriate changes in all affected work of every trade and shall include stamped and signed drawings by an engineer licensed in the State of Hawaii for any portion of the project requiring re-design. Such changes shall be done at no increase to the contract amount and shall be the responsibility of the Sub-Contractor or supplier responsible for the departures. Changes proposed by the Contractor shall be based on a system approach and may be allowed if implemented without decreased in quality, performance and operations, increase in utility costs or adverse effect on the available physical space to install the equipment. Such departures shall be submitted and noted in shop drawings for review and acceptance by the Contracting Officer. Departures initiated by other trades, requiring changes in the electrical system as well as other systems, shall be accompanied by appropriate changes to all affected work of every trade, at no increase in contract amount. Submission for departure shall be as followed.

   Example:

Item	Manufacturer and Catalog Number Specified	Substitute Manufacturer and Catalog Number
Cable	John Doe – No. 3200	King – No. 2200

2. The General Contractor shall be responsible to coordinate, approve and select systems that do not impose unaccounted for impacts on the electrical works. It shall be understood that after the award of contract, all departures having electrical impact, unless otherwise noted, have been reviewed and approved by the General Contractor.

C. Equipment & Materials: Within 30 days after the Notice to Proceed, provide Manufacturer's complete descriptive information for the items of material, equipment, and systems listed hereinafter. Submit all data at one time in ring binder.

1. Provide shop drawings, literature, and requested samples showing item proposed for use, size, dimensions, capacity, special features required, schematic (elementary) control diagrams, equipment schedules, rough-in, etc., as required for complete check and for installation. Use NEMA device designations and symbols for all electric circuit diagrams submitted. Make content of schematic (elementary) connection or interconnection diagrams in accordance with the latest edition of NEMA IC 1.

2. The Contractor shall check submittals for number of copies, adequate identification, correctness, and compliance with Drawings and Specifications, and initial all copies.

3. Furnish submittal information on the following items:

   a. Conductors

b. Conduit
c. Circuit breakers
d. Junction boxes

4. Equipment Manufacturers Installation Instructions.

D. Instructions Books: Provide hard-backed ring binders containing:

1. Operation, maintenance, and renewal parts information for all equipment furnished under this section.

2. Set of complete as-approved information herein required to be submitted for review following contract award.

3. As-built electric circuit and equipment drawings.

4. List of all equipment suppliers or current names, addresses, and telephone numbers of those who should be contacted for service, information, and assistance.

5. Record Drawings marked with red indelible pencil to show all departures from the original Drawings, underground cable, conduit, or duct runs dimensioned from established building lines, and all electrical work revisions.

6. All test results.

7. All material to be clean and filed under dividers with heading in accordance with specification item title.

8. Submit material to the Contracting Officer for approval prior to delivery. Make additions or changes as required by the Contracting Officer.

E. Factory Tests and Inspections:

1. The equipment furnished shall be inspected mechanically and electrically, and all manufacturer's routine factory tests shall be performed to verify conformance with the specified requirements. The test equipment and test methods shall conform to the requirements of standards specified. The contract price shall include cost of performing all tests.

2. The Contractor shall furnish, at time of equipment delivery, six (6) certified copies of all test results.

1.06 PRODUCT HANDLING

A. Provide protection for materials and equipment against loss or damage. Protect everything from the effects of weather. Prior to installation, store items to be installed in indoor locations, items subject to corrosion under damp conditions, and items containing insulation such as transformers, motors, and control, in indoor, heated, dry locations.

B. Following installation, protect materials and equipment from corrosion, physical damage, and the effects of moisture on insulation. Cap conduit runs during construction with manufactured seals. Keep openings in boxes or equipment closed during construction.

C. In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the County.

1.07 RESPONSIBILITY

A. Complete systems in accordance with the intent of these Contract Documents.

B. Referring to all of the Drawings and Specifications, and shop drawings for other trades for details of facility equipment and construction which affect the work covered under this section.

C. Checking the approximate locations of light fixtures, electrical outlets, equipment, and other electrical system components shown on plans for conflicts with openings, structural members, and components of other systems and equipment having fixed locations. In the event of conflicts, consult the Contracting Officer. The Contracting Officer's decision shall govern. Make necessary changes at no additional cost to the County.

D. Installing materials and equipment in a workmanlike manner.

E. Installing materials and equipment in strict accordance with manufacturer's recommendations, unless otherwise specified or directed by the Contracting Officer.

F. Furnishing and installing all incidental items not specifically shown or specified which are required by good practice to provide the complete systems specified herein.

1.08 INTENT OF DRAWINGS

A. Drawings are partly diagrammatic and are intended to show circuiting and switching details which shall be exactly as shown.

B. Exact conduit locations are not shown unless so indicated or specifically dimensioned.

C. One-line diagrams are schematic and do not show physical arrangement of equipment.

D. Discrepancies and Interpretations:

1. Should the Contractor find any discrepancies in or omissions from any of the documents or be in doubt as to their meaning, he shall advise the Contracting Officer who will issue any necessary clarifications within a

time period within a time period which does not disrupt the progress of the work.

2. Should any discrepancies arise from the failure of the Contractor to notify the Contracting Officer, the higher quality of item shall prevail. The Contracting Officer shall make the final interpretation and judgment.

3. In the event of a discrepancy between small scale drawings and large scale details, or between Drawings and Specifications, of which is in violation of any regulations, ordinances, laws or codes, the discrepancy, if known to the Contractor, shall be immediately brought to the attention of the Contracting Officer for a decision before proceeding with the particular work involved. Work carried out disregarding these instructions will be subjected to removal and replacement at the Contractor's expense.

1.09 PERMITS AND INSPECTION

A. All materials and workmanship are subject to inspection at any time by the Contracting Officer. Correct any work or materials not in accordance with these Contract Documents or found to be deficient or defective in a manner satisfactory to the Contracting Officer at no additional cost to the County.

B. Obtain and pay for electrical permits and arrange for all necessary electrical inspections by the County and all other agencies having jurisdiction.

PART 2 - PRODUCTS

2.01 GENERAL

A. Unless otherwise indicated, provide all first quality, new materials, free from any defects, in first class condition, and suitable for the space provided. Provide materials approved by UL wherever standards have been established by that agency. Where two or more units of the same class of material or equipment are required, provide products of a single manufacturer. Component parts of materials or equipment need not be products of the same manufacturer. All electrical equipment enclosures and equipment mounting hardware for outdoor installations shall be Type 316 Stainless Steel, unless otherwise noted.

2.02 STANDARD PRODUCTS

A. Unless otherwise indicated, provide materials and equipment which are the standard products of manufacturers regularly engaged in the production of such materials and equipment. Provide the manufacturer's latest standard design which conforms to these specifications.

2.03 EQUIPMENT FINISH

A. Electrical equipment may be installed with manufacturer's standard finish and color, except where specific color, finish, or choice is indicated. If the

manufacturer has no standard color, equipment shall be painted ANSI G1, Light Gray.

2.04 CONDUIT

A. Conduit, Rigid Steel, Zinc-Coated: Rigid steel conduit, including couplings, elbows, and nipples shall be galvanized by hot-dipping, electroplating, sherardizing, or metallizing process, and shall meet the requirements of ANSI C80.1, UL, and the NEC.

B. Conduit, Rigid PVC: Rigid polyvinyl chloride (PVC) conduit shall be Schedule 40 UL listed for concrete encased, direct burial underground, and exposed use. Rigid PVC conduit, including couplings, elbows, and nipples, shall conform with the requirements of the latest edition of NEMA TC-2, NEC, Federal Specification W-C-1094, and shall meet applicable ASTM test requirements for the intended use.

C. Conduit, Flexible: All flexible conduits shall be moisture-proof flexible steel, polyvinyl chloride jacketed type, UL approved, with continuous copper ground path in the flexible steel tube, and shall be American Brass Sealtite Flexible Conduit, or approved equal.

D. Conduit Fittings, Metallic: Metallic conduit fittings shall be of the type indicated or required for the anticipated purpose, and shall meet applicable requirements of ANSI C80.4, UL, NEC, and NEMA FB 1.

E. Conduit Fittings, PVC: PVC conduit fittings shall be of the type indicated or required for the anticipated purpose and shall meet the requirements of NEMA TC-3, Federal Specification W-C-1094, UL, and NEC.

2.05 CONDUCTORS

A. Conductors 600 Volts and Less: Conductors in raceways, ducts, and cables shall be copper with the type of insulation specified. Conductors, including insulation, cabling, jacket, filler, shielding, covering, and testing, shall meet all applicable requirements of IPCFA S-19-81 and S-61-402, the NEC, and UL. Conductor sizes shall not be less than those shown.

1. Conductors shall be copper No. 12 AWG minimum. Conductors No. 10 and smaller, solid and round **except for control type conductors which shall be stranded**. Conductors No. 8 and larger, 7 or 19 strands, concentric. All conductors No. 6 and smaller shall be NEC type THW insulated. All conductors No. 4 and larger shall be NEC type THWN insulated. Wiring in lighting fixtures shall be NEC Type AF, TF, and TFF insulated. Manufacture and install according to NEC Articles 310 and 402. Wiring for all controls shall be extra flexible machine tool, color coded, THWN, #12 AWG machine wire.

2. All conductors and cables for underground use shall carry the UL labeling "Type USE", and shall have RHW insulation and heavy-duty, black, neoprene sheath meeting the physical requirements and minimum

thickness requirements of IPCEA S-19-81.

B. Identification Tags: Each set of cables in handholes and manholes shall be identified by a non-corrosive metal tag. Letters shall be minimum 1/4 inch high identifying the cable as to use and/or voltage. Tags shall be wrapped around the cables and taped. Power tags shall be red.

C. Connectors and Terminals: Shall be designed and approved for use with the associated conductor material, and shall provide a uniform compression over the entire contact surface. Solderless terminal lugs shall be used on all stranded conductors. Crimp type connectors will be acceptable; however, the type which makes only one indentation will not be acceptable. The crimping tool shall make a minimum of four indentations around the circumference of the cable. In addition, crimp type connectors to be used on 250 MCM and larger conductors shall have adequate length for two sets of indentations on each half of the connector.

D. Equipment Grounding Conductors: Conductors for equipment grounding shall be stranded copper. Conductors shall have green Type TW insulation with a minimum thickness of 2/64-inch.

2.06 JUNCTION BOXES

A. Junction boxes of the required type and size shall be provided where indicated. The junction boxes shall be provided with terminal strips or terminal blocks with a separate connection point for each conductor entering or leaving the box. These terminal strips or blocks shall have a minimum of 25 percent spare terminal points. Weatherproof boxes shall be gasketed Type 316 Stainless Steel type with conduit hubs.

2.07 ENCLOSURES AND CABINETS

A. Enclosures and cabinets for panelboards, breakers, and switches shall be NEMA type, fabricated from galvanized steel, or as indicated, prime painted and enamel finished according to NEMA specifications. For dry interior locations, enclosures shall be NEMA 1. For areas exposed to the elements, damp and wet locations, enclosures shall be NEMA 4X stainless steel (316) with stainless steel (316) fasteners and hardware. For breakers and switches located in damp, wet or high humidity areas provide NEMA 4X stainless steel (316) enclosures. Field painting shall be as specified hereinafter.

2.08 DEVICES AND COVER PLATES

A. Plates for interior flush construction shall be smooth reinforced plastic, with suitable hole, and color to match device.

B. Plates for areas exposed to the elements, damp, or wet installations shall be weatherproof with lockable stainless steel (316) covers. Covers shall permit plugs to be connected without compromising the integrity of the protective nature of the cover.

C. Light switch plates for areas exposed to the elements, damp, or wet installations shall be neoprene gasketed cast aluminum, gray powder coat finish, with spring loaded neoprene gasketed flip-open lids.

D. Plates for receptacles on emergency circuits shall be red.

E. Plates for receptacles shall be labeled with the name of the panelboard and circuit number serving the receptacle.

2.09 PROTECTIVE EQUIPMENT

A. Panelboard: Copper busses with bolted molded plastic case circuit breaker complement. Assembly shall be mounted in a NEMA 1 surface mount type or mounted in the motor control center, as indicated. Provide circuit directory in metal frame. Manufacture and install according to NEC Articles 240 and 384.

1. Surge Protective Device (SPD)

a. Provide a SPD in panelboards where indicated on the drawings. Each SPD shall be bus connected for parallel operation, rated for 208Y/120V, 3-phase, 4-wire systems; and have a minimum surge rating of 120kA per phase. The SPD shall be designed, manufactured and tested in accordance with the latest applicable UL Listed standards (UL 1449, 3rd Edition), UL 1283 and CSA certified per CSA 22.2. Each SPD shall have an audible alarm with silence switch, an alarm indicator light, and indicator lights for line-to-neutral, line-to-ground, and neutral-to-ground monitoring. Ground per NEC and manufacturer’s instructions.

B. Individual circuit breaker shall consist of molded plastic case circuit breaker with toggle operated mechanism and thermal-magnetic overload trips. Interchangeable trip shall be provided when available. Toggle positions "ON" and "OFF", engraved or embossed on body. Breakers shall have 10,000 ampere minimum interrupting capacity unless indicated otherwise.

C. Equipment disconnect switch: Heavy-duty horsepower rated, lever-operated contacts, spring-loaded.

2.10 HARDWARE, SUPPORTS, BACKING, ETC

A. All hardware, supports, backing and other accessories necessary to install electrical equipment shall be provided. Wood materials shall be "wolmanized" treated against termites, steel materials shall be type 316 stainless steel, and non-ferrous materials shall be brass or bronze.

PART 3 - EXECUTION

3.01 GENERAL

A. Work shall be performed in a workmanlike manner by craftsmen skilled in the particular trade. All work shall present a neat and finished appearance.

3.02 MATERIAL & EQUIPMENT INSTALLATION

A. Follow manufacturer's installation instructions explicitly unless otherwise indicated. Follow Contracting Officer's decision, at no additional cost to the County, wherever any conflict arises between manufacturer's instructions, codes and regulations, and these Contract Documents. Keep copy of manufacturer's installation instructions on the job site available for review at all times.

3.03 CUTTING & PATCHING

A. Lay out work carefully in advance. Do not cut or notch any structural member or building surface without specific approval of the Contracting Officer. Carefully carry out any cutting, channeling, chasing, or drilling of floors, walls, partitions, ceilings, paving, or other surfaces required for the installation, support, or anchorage of conduit, raceways, or other electrical materials and equipment. Following such work, restore surfaces neatly to original condition using skilled craftsmen of the trades involved at no additional cost to the County.

3.04 LOAD BALANCE

A. Balance electrical load between phases as nearly as possible on panelboards, switchboards, etc.

3.05 MOTOR ROTATION

A. After final service connections are made, check and correct, if necessary, the rotation of all motors. Coordinate all such task with the pump installation contractor.

3.06 CLEANING & TOUCH-UP PAINTING

A. Keep the premises free of accumulation of waste material or rubbish. Upon completion of work, remove materials, scraps, and debris from premises and from interior and exterior of all devices and equipment. Touch-up scratches, scrapes, or chips in interior and exterior surfaces of devices and equipment with finishes matching as nearly as possible the type, color, consistency, and type of surface of the original finish.

3.07 WIRING METHODS

A. Generally, and unless otherwise specified or indicated, wiring shall consist of insulated conductors installed in raceways of types indicated.

3.08 CONDUIT

A. Minimum size conduit shall be one-half inch, unless otherwise indicated. Use the following types of conduit for the locations listed:

1. Exterior, Exposed:

    a. Rigid steel, galvanized.

2. Exterior, Underground:

    a. Direct buried: Rigid PVC Schedule 80 heavy wall conduit.
    b. Concrete encased: Rigid PVC Schedule 40 heavy wall conduit.

3. Interior, Concealed:

    a. Rigid steel, galvanized.

4. Interior, Exposed:

    a. Rigid steel, galvanized.

3.09 INSTALLATION

A. Conduit:

1. Conduit system installations shall meet or exceed the requirements of the NEC. Raceways shall be concealed or exposed as indicated, and shall be at least six inches away from parallel runs of flues and steam or hot water pipes. Group raceways in same area together. Raceways shall be supported at intervals required by the NEC, and shall have exposed runs installed parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceilings. Avoid field-made bends and offsets where possible, but where necessary, make them with an approved hickey or conduit bending machine. Heating of conduit to facilitate bending will not be acceptable. Changes in direction of runs shall be made with symmetrical bends or cast metal fittings. Do not install crushed or deformed raceways. Avoid trapped raceways where possible. Take care to prevent the lodgment of plaster, dirt, or trash in raceways, boxes, fittings, and equipment during the course of construction. Raceways shall be entirely free of obstructions or shall be replaced. All conduit shall be reamed, burrs removed, and cleaned for proper introduction of wires and cables. Immediately after installation, plug or cap all conduit ends with watertight and dust-tight conduit seals until the time for pulling wires.

2. Install insulated grounding bushings on the ends of all rigid conduits, except where conduits terminate in threaded hubs on cast boxes or cabinets, in which case insert manufacturer's standard insulating sleeves. Provide suitable expansion fittings for raceways crossing expansion joints in concrete slabs, or provide other suitable means to compensate for the building expansion and contraction. Wooden plugs inserted in concrete or masonry are not acceptable as a base for raceway fastenings, nor shall raceways or pipe straps be welded to steel structures. Support multiple raceways adjacent to each other by ceiling trapeze. Support individual raceways by wall brackets, strap hangers, or

ceiling trapeze, fastened by wood screw on wood, toggle bolts on hollow masonry units, expansion shields on concrete or brick, and machine screws or welded threaded studs on steel work. Threaded studs driven in by a powder charge and provided with lock washers and nuts are acceptable in lieu of expansion shields.

3. PVC conduit installed underground shall have a minimum cover of two feet. Use rigid steel, factory-made ells for all bends 30 degrees or larger. Provide expansion joints as required or as recommended by the manufacturer. When joining PVC to conduit to metallic fittings, use approved PVC terminal adapter. When joining PVC conduit to rigid steel conduit, use an approved PVC female adapter. All PVC conduit joints shall be solvent welded with solvent recommended by the conduit manufacturer.

4. Separate parallel runs of two or more conduits in a single trench with spacers designed for the purpose. Install spacers at intervals not greater than that specified in the NEC for support of the type conduit used. Support conduits installed in fill areas suitably to prevent accidental bending until backfilling is complete.

5. Do not backfill underground conduit until it has been inspected and approved by the Contracting Officer.

6. Final connection to motors, wall or ceiling mounted fans, dry transformers, and to other equipment where flexible connection is desired or required to minimize vibration shall be made with 18-inch minimum lengths of liquid-tight, polyvinyl chloride jacketed, flexible steel conduit where the required conduit size is three inches or less. Where the required conduit size is greater than three inches, rigid steel conduit shall be continued to the motor terminal box.

7. Pullstrings shall be placed in all empty conduits ten feet in length or longer.

B. Conductors: Conductors 600 Volts & Below: All wire shall be continuous from outlet to outlet. Splices, where required, may be made in outlet and pull boxes only. Use wire connectors of insulating material or solderless pressure connectors properly taped for all splices. Soldered mechanical joints insulated with tape will not be acceptable. Vinyl plastic tape of suitable quality is acceptable in lieu of rubber and friction tapes. Conductor sizes shall not be less than those shown. Conductors shall not be smaller than No. 12 AWG for lighting or power circuits, or No. 14 AWG for control circuits, unless otherwise indicated.

   Arrange wiring in cabinets, panels and motor control centers neatly cut to proper lengths, and remove surplus wire. Apply Stak-On or similar terminals to control wiring for connection to terminals, and bridle and secure in an approved manner. List all circuits emanating from power, distribution, and lighting panelboards by function on the directory card. Identify all circuits entering motor control centers or other control cabinets by directory card

listing terminal block number and function or by means of tags securely fastened to the conductors

C. Pull Boxes: Construct pull boxes, where specified or required, of code-gauge galvanized sheet metal of not less than the minimum size required by the NEC. Pull boxes for exterior use shall be stainless steel. Furnish boxes with screw-fastened covers. Where several feeders pass through a common pull box, tag the feeders to indicate clearly their electrical characteristics, circuit number, and panel designation. All boxes shall be readily accessible and shall not be installed in finished areas unless approved by the Contracting Officer. Provide pull boxes not more than 150 feet apart in long runs.

D. Device Plates: Install plates with all four edges in continuous contact with the finished wall surfaces without the use of mats or similar devices. Plaster fillings will not be permitted. Install plates vertically and with an alignment tolerance of 1/16-inch. Do not use sectional type device plates.

E. Grounding: Except where specifically indicated otherwise, ground all exposed noncurrent-carrying metallic parts of electrical equipment, raceway systems, and the neutral of all wiring systems in strict accordance with the NEC, State, and other applicable laws and regulations. Where ground rods are indicated or used, they shall be of copper-clad, not less than 3/4-inch diameter, ten feet long, driven full length into the earth. Special requirements shall be as shown and as specified herein.

1. Grounding Circuits Above 150 Volts to Ground: Ground all enclosing cases and mounting frames of all switches. Control panels, motors, junction boxes, and other electrical or electrically operated equipment with a separate grounding conductor from the source of supply. Run the grounding conductor inside the conduit enclosing the power conductors supplying the equipment. Supply all metallic conduits with grounding bushings and connect at each end to the grounding conductor.

    a. Make the ground conductor connections to motors ten HP and above or circuits 20 amperes and above by solderless terminal and a 5/16-inch minimum bolt tapped to the motor frame or equipment housing. Ground connections to smaller motors or equipment may be made by fastening the terminal to a connection box. Connect junction boxes to the equipment grounding system with grounding clips mounted directly on the box or with 3/8-inch machine screws.

2. Grounding Circuits Below 150 Volts to Ground: Ground circuits protected at 60 amperes or more, or serving motors larger than five HP in accordance with the provisions for "Grounding Circuits Above 150 Volts to Ground". On smaller circuits, the metallic conduit system may serve as the equipment ground where allowed by the NEC.

3. Grounding Connections: Make all buried grounding connections by brazing or cadweld type joint. Make all other grounding connections by brazing, cadweld, or with approved pressure terminals.

4. Overload Protective Devices: The Contractor shall compile, by visual inspection of equipment installed for each motor, the following data in neatly tabulated form:

   a. Equipment drive.
   b. Nameplate amperes.
   c. Service factor.
   d. Overload catalog number.
   e. Overload current range and setting.

   A typed copy of this information shall be filed with the Contracting Officer prior to the start-up of any equipment.

3.10 Tests:

A. After completion of all wiring, insulating resistance testing of all power and control circuits shall be performed with a 500-volt megger. The test on each circuit shall be performed for one minute in the presence of the Contracting Officer, and a written test report of the results shall be submitted to the Contracting Officer before acceptance can be obtained. Equipment which may be damaged during this test should be disconnected. The tests shall be performed with all other equipment connected to the circuit. After the electrical system installation is completed, and at such time as the Contracting Officer may direct, the Contractor shall conduct an operating test for approval. The equipment shall be demonstrated to operate in accordance with the requirements of these specifications. The test shall be performed in the presence of the Contracting Officer. The Contractor shall furnish all instruments, electric power and personnel required for the tests.

3.11 Guarantee:

A. The complete electrical system, equipment, materials, and associated items shall be guaranteed against defective parts and operation due to faulty material or workmanship during the period of one year following acceptance and final payment by the Contracting Officer. The Contractor shall make all repairs or replacements necessary to accomplish the required performance within the time specified by the Contracting Officer and agreed to by the Contractor.

END OF SECTION