

LAND DIVISION

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION  
Honolulu, Hawaii

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BOARD OF LAND AND NATURAL RESOURCES

Suzanne D. Case  
Chairperson

CONTRACT SPECIFICATIONS AND PLANS

Job No. J40CO30A  
KALAUHA`IHA`I  
FISHPOND (LUCAS SPRING)  
DEMOLITION PACKAGE  
Niu Valley, Oahu, Hawaii

Prime Consultant &  
Civil Engineer:  
Architect:  
Environmental Engineer:

R.M. Towill Corporation  
Fung & Associates  
Element Environmental

May 2016

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION  
Honolulu, Hawaii

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Job No. J40CO30A  
KALAUHA'IIHA'I FISHPOND (LUCAS SPRING)  
DEMOLITION PACKAGE  
Niu Valley, Oahu, Hawaii

Approved:



RUSSELL Y. TSUJI  
Administrator  
Land Division

Approved:



CARTY S. CHANG, P.E.  
Chief Engineer  
Engineering Division

May 2016

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PLANS (Bound Separately)

DEPARTMENT OF LAND AND NATURAL RESOURCES INTERIM GENERAL  
CONDITIONS, DATED OCTOBER 1994 (Bound Separately)

NOTICE TO BIDDERS  
(Chapter 103D, HRS)

COMPETITIVE BIDS for Job No. J40CO30A, KALAUHA' IHA' I FISHHPOND (LUCAS SPRING) DEMOLITION PACKAGE, Niu Valley, Oahu, Hawaii shall be submitted to the Department of Land and Natural Resources, Engineering Division on the specified date and time through the Hawaii State e-Procurement (HIePRO). HIePRO is accessible through the State Procurement Office website at [www.spo.hawaii.gov](http://www.spo.hawaii.gov).

The Department of Land and Natural Resources Interim General Condition, dated October 1994, as amended, and the General Conditions –AG008, latest revision shall be made part of the specifications.

The project is located at 5839 Kalaniana'ole Highway, Honolulu, Hawaii; and 5841 Kalaniana'ole Highway, Honolulu, Hawaii; TMK (1) 3-7-002: 018 and 077, respectively, Niu Valley, Oahu, Hawaii.

The work shall generally consist of demolition, removal and disposal of two vacant houses and incidental structures, including hazardous material removal and disposal, capping/plugging of existing aboveground utilities, and related work.

Due to the nature of work contemplated, bidders must possess a valid State Contractor's license, classification "A".

All interested parties are invited to attend a State conducted site visit. The site visit will be held at the project site on May 16, 2016, at 3:30 P.M. No on-site parking is available on the property. Attendance to the site visit is highly encouraged.

The estimated cost of construction is \$150,000.

The award of the contract, if it be awarded, will be subject to the availability of funds.

This project is subject to preference to Hawaii Products established by Section 103D, Hawaii Revised Statutes. The Hawaii Product List may be examined at the State Procurement Office website.

Since the estimated value of the cost of construction is less than \$250,000, the apprenticeship agreement preference pursuant to Hawaii Revised Statutes §103-55.6 (ACT 17, SLH 2009) shall not apply.

Should there be any questions, please refer to the HIePRO solicitation.

# INFORMATION AND INSTRUCTIONS TO BIDDERS

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## INFORMATION AND INSTRUCTIONS TO BIDDERS

- A. PROJECT LOCATION AND SCOPE OF WORK: The project location and scope of work shall be as generally described in the Notice to Bidders.
- B. PROPOSALS: Bidders shall submit their bid, including the completed proposal form, bid bond, and any other documents required by the solicitation as part of their bid through the State of Hawaii e-Procurement System (HIePRO). See Item D, PROPOSAL FORM.
- C. GENERAL CONDITIONS: The Department of Land and Natural Resources Interim General Conditions dated October 1994, as amended, shall be made a part of these contract specifications and are referred to hereafter as the General Conditions.
- D. PROPOSAL FORM: **The Bidders shall fill out and upload the electronic copy of the proposal form to the HIePRO website when submitting the bid. Bid Proposals shall not be mailed, faxed or delivered to the State, unless requested to do so after the designated closing date. The successful Bidder shall fill out and print a hard copy of the proposal form, sign and submit the form with the contract award package.**
- E. OMISSIONS OR ERASURES: Any proposal which contains any omission or erasure or alteration not properly initialed, or conditional bid, or other irregularity may be rejected by the Board of Land and Natural Resources (Board).
- F. NOTICE OF INTENT TO BID AND QUESTIONNAIRE:  
A Notice of Intent to Bid is not required for this project. In compliance with HRS Section 103D-310, the lowest responsive and responsible bidder may be required to complete a questionnaire. When requested by the State, the completed questionnaire shall be submitted to the Chief Engineer for evaluation. Failure to furnish the requested information within the time allowed may be grounds for a determination of non-responsibility, in accordance with HRS Section 103D-310 and HAR Section 3-122-108.
- G. BID SECURITY: A bid security will be furnished by each bidder as provided in sub-section 2.7 of the General Conditions. The successful bidder's bid security will be retained until Contract execution and furnished a performance and payment bond in an amount equal to one hundred percent (100%) of the total Contract price, including an amount estimated to be required for extra work, is furnished.
- The Board reserves the right to hold the bid securities of the four lowest bidders until the successful bidder has entered into a contract and has furnished the required performance bond. All bid securities will be returned in accordance with sub-section 3.5 of the General Conditions.
- Should the successful bidder fail to enter into a contract and furnish a satisfactory performance bond within the time stated in the proposal, the bid security shall be forfeited as required by law.
- H. CONTRACTOR'S LICENSE REQUIRED: The Board will reject all bids received from contractors who have not been licensed by the State Contractors License Board in accordance

with Chapter 444, HRS; Title 16, Chapter 77, Hawaii Administrative Rules; and statutes amendatory thereto.

- I. IRREGULAR BIDS: No irregular bids or propositions for doing the work will be considered by the Board.
- J. WITHDRAWAL OF BIDS: No bidder may withdraw his bid between the time of the opening thereof and the award of contract.
- K. SUCCESSFUL BIDDER TO FILE PERFORMANCE AND PAYMENT BONDS: The successful bidder will be required to file performance and payment bonds each; in the amount equal to the total contract price, including amounts estimated to be required for extra work, as provided in sub-section 3.6 of the General Conditions.
- L. NUMBER OF EXECUTED ORIGINAL COUNTERPARTS OF CONTRACT DOCUMENTS: If requested by the Board, six copies of the Contract, performance and payment bonds shall be executed.
- M. CHANGE ORDERS: No work of any kind in connection with the work covered by the plans and specifications shall be considered as change order work, or entitle the Contractor to extra compensation, except when the work has been ordered in writing by the Chief Engineer (Engineer) and in accordance with sub-section 4.2 of the General Conditions.

The Contractor shall clearly identify and inform the Engineer in writing of any deviations from the contract documents at the time of submission and shall obtain the Engineer's written approval to the specified deviation prior to proceeding with any work.

- N. WAGES AND HOURS: In accordance with sub-sections 7.3 to 7.9 of the General Conditions relative to hours of labor, minimum wages and overtime pay, the current minimum wage rates promulgated by the Department of Labor and Industrial Relations (DLIR) shall be paid to the various classes of laborers and mechanics engaged in the performance of this contract on the job site. The minimum wages shall be increased during the performance of the contract in an amount equal to the increase in the prevailing wages for those kinds of work as periodically determined by the DLIR.

The Department of Land and Natural Resources will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the said minimum wage rates. The possibility of wage increase is one of the elements to be considered by the Contractor in determining his bid, and will not, under any circumstances, be considered as the basis of a claim against the Department under this Contract.

No work shall be done on Saturdays, Sundays, legal State holidays, and/or in excess of eight (8) hours each day without the written consent of the Engineer. Should permission be granted to work at such times, the Contractor shall pay for all inspection administrative costs thereof. No work shall be done at night unless authorized by the Engineer.

- O. PERMITS: The State will process permit applications whenever possible, and the Contractor shall procure the pre-processed permits and pay the required fees. If permit applications are not processed by the State, the Contractor shall process the permit applications, permits and

licenses, and pay all charges and fees. In all cases, the Contractor shall give all notices necessary and incident to the due and lawful prosecution of the work.

- P. PROPERTY DAMAGE: It shall be the responsibility of the contractor to respect State property and to prevent damage to existing improvements. The Contractor will be responsible for damages resulting from construction operations. Immediately upon discovery, the Contractor shall repair such damage to the satisfaction of the Engineer.

All trees and shrubbery outside the excavation, embankment or construction limits shall be fully protected from injury.

- Q. TIME: The time of completion is specified in the Proposal. It is the Board's intention to insist the Contractor diligently prosecute the work to completion within the specified time.

Prospective bidders are reminded that the State has the option to proceed with or abandon a project depending on whether the project can be completed for occupancy in the specified time.

It is the bidder's responsibility to check the availability of all materials before bidding. The bidder shall select sub-contractors and suppliers who can warrant availability and delivery of all specified or qualified materials to assure project completion within the specified time.

The successful bidder must assume all risks for completing the project by the specified date. There shall be no extension of time for any reason except for delays caused by acts of God, labor disputes involving unions, or actions of the State. If for any reason the project falls behind schedule, the Contractor shall at its own cost, take necessary remedial measures to get the project back on schedule, i.e., working overtime, air freighting all materials, etc. In addition, if the Contractor fails to fully complete the project by the completion date, Contractor will be required to make the facility usable at its own cost.

- R. BIDDER'S RESPONSIBILITY TO PROVIDE PROPER SUPERINTENDENCE: The successful low bidder shall designate in writing to the Engineer the name of its authorized superintendent (Superintendent), who will be present at the job site whenever any work is in progress. The Superintendent shall be responsible for all work, receiving and implementing instructions from the Engineer in a timely manner. The cost for superintendence shall be considered incidental to the project.

If the Superintendent is not present at the site of work, the Engineer shall have the right to suspend the work as described under sub-section 5.5 c. and 7.20 - Suspension of Work of the General Conditions.

- S. LIQUIDATED DAMAGES: Liquidated damages in the amount specified in the Proposal will be assessed for each and every calendar day from and after the expiration of the time period stated in the Contract for the completion of the project.

- T. HIRING OF HAWAII RESIDENTS: The Contractor shall comply with Act 68, SLH 2010, in the performance and for the duration of this contract. The Contractor shall ensure that Hawaii residents compose not less than eighty percent of the workforce employed to perform the contract work on the project. The eighty percent 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 this section. The hours worked by employees with shortage trades, as determined by the Department of Labor and Industrial Relations (DLIR), shall not be included in the calculation for this section.

The requirements 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 compose not less than eighty percent of the Subcontractor's workforce used to perform the subcontract.

- U. WATER AND ELECTRICITY: The Contractor shall make all necessary arrangements and pay all expenses for water and electricity used in the construction of this project.
- V. PUBLIC CONVENIENCE AND SAFETY: The Contractor shall conduct construction operations with due regard to the convenience and safety of the public at all times. No materials or equipment shall be stored where it will interfere with the safe passage of public traffic. The Contractor shall provide, install, and maintain in satisfactory condition, all necessary signs, flares and other protective facilities and shall take all necessary precautions for the protection of the work and the convenience and safety of the public. The Engineer shall have the right to suspend the performance of the work in accordance with sub-section 7.20 - Suspension of Work of the General Conditions.
- W. WORK TO BE DONE WITHOUT DIRECT PAYMENT: Whenever the contract that the Contractor is to perform work or furnish materials of any kind for which no price is fixed in the contract, it shall be understood that the Contractor shall perform such work or furnish said materials without extra charge or allowance or direct payment of any sort. The cost of performing such work or furnishing said material is to be included by the Contractor in a unit price for the appropriate item unless it is expressly specified that such work or material is to be paid for as extra work.
- X. AS-BUILT DRAWINGS: As-built drawings, the intent of which is to record the actual in-place construction so that any future renovations or tie-ins can be anticipated accurately, shall be required. All authorizations given by the Engineer to deviate from the plans shall be drawn on the job site plans. All deviations from alignments, elevations and dimensions which are stipulated on the plans shall be recorded on the as-built drawings. Final as-built drawings shall be submitted to the Engineer for review and approval. After the Engineer approves the as-built drawings, the contractor shall submit an electronic copy in Adobe PDF format on CD ROM.
- Y. ASBESTOS CONTAINING MATERIALS: The use of asbestos containing materials or equipment is prohibited. The Contractor shall insure that all materials and equipment incorporated in the project are asbestos-free
- Z. WORKER SAFETY: The Contractor shall provide, install and maintain in satisfactory condition all necessary protective facilities and shall take all necessary precautions for the protection and safety of its workers in accordance with the Occupational Safety and Health Standards for the State of Hawaii. The Engineer shall have the right to suspend the performance of the work in accordance with sub-section 7.20 - Suspension of Work of the

General Conditions.

- AA. TOILET FACILITIES: All toilet facilities constructed at the project site shall be in accordance with the Public Health Regulations of the State Department of Health (DOH). All necessary precautions shall be observed at the project site. The use of sanitary facilities shall be strictly enforced and workers violating these provisions shall be promptly discharged.
- BB. SIGNS: Whenever the project involves closing or obstructing any public thoroughfare, the Contractor shall provide traffic signs conforming to the applicable provisions of the current edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", published by the Federal Highway Administration as directed by the Engineer for the purpose of diverting or warning traffic prior to the construction area. All traffic signs shall bear proper wording stating thereon the necessary information as to diverting or warning traffic.

When indicated in the Proposal, the Contractor shall provide a project sign, size 4'-0" x 7'-0" to be placed as directed by the Engineer. The sign shall be constructed in accordance with Section 01581 - Project Sign of these specifications and approved by the Engineer. All wording, type and size of lettering and color selection shall be as specified in these specifications or as approved by the Engineer.

All signs shall be kept neat and clean, and properly erected at all times.

- CC. FIELD OFFICE AREA FOR DEPARTMENT: When indicated in the Proposal, the Contractor shall provide a housed working area of at least 100 square feet adjacent to the Contractor's office for the Department's use. This area will be used by the Engineer to perform tests and to store equipment. As a minimum, the field office shall include the following: standard sized office desk and chair, lighting, ventilation, window-type air conditioning rated at 5,000 BTU, door and window with locking hardware, electrical outlets, and working communications facilities (a cellular telephone is acceptable). The Department will pay for all long distance toll charges made by the Engineer.
- DD. QUANTITIES: All bids will be compared on the basis of quantities of work to be done as shown in the Proposal; the quantities shown in the Unit Price items are estimated, being given as a basis for comparison of bids. The Board reserves the right to increase or decrease the quantities given under the items or delete items entirely as may be required during the progress of the work.
- EE. OTHER HEALTH MEASURES: Forms of work site exposure or conditions which may be detrimental to the health or welfare of workers or of the general public shall be eliminated or reduced to safe levels as required by the DOH codes, standards, and regulations. Suitable first aid kits and a person qualified to render first aid, as specified in the DOH regulations, shall be provided at all times when work is scheduled.
- FF. HAWAII BUSINESS OR COMPLIANT NON-HAWAII BUSINESS REQUIREMENT: 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, as stipulated in §3-122-112 HAR.

GG. COMPLIANCE WITH §3-122-112 HAR:

As a condition for award of the contract and as proof of compliance with the requirements of 103D-310(c) HRS, the apparent low bidder shall furnish the required documents to the Department. If the valid required certificates are not submitted on a timely basis for award of a contract, a bidder otherwise responsive and responsible may not receive the award. Bidder is responsible to apply for and submit the following documents to the Department.

- A. **TAX CLEARANCE REQUIREMENTS (HRS Chapter 237):** Bidder shall obtain a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is valid for six months from the most recently approved stamp date on the certificate; the certificate must be valid on the date received by the Department.
- B. Department of Labor (DLIR) **“Certificate of Compliance”**. (HRS Chapter 383 - Unemployment Insurance, Chapter 386 - Workers’ Compensation, Chapter 392 - Temporary Disability Insurance, and 393 – Prepaid Health Care): Bidder shall obtain a certificate of compliance from the Hawaii State Department of Labor and Industrial relations (DLIR). The certificate is valid for six months from the date of issue; certificates must be valid on the date received by the Department.
- C. Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG) **“Certificate of Good Standing”**. Bidder shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six months from the date of issue; certificates must be valid on the date received by the Department.

Alternately, instead of separately applying for these certificates at the various state agencies, bidder may choose to use the Hawaii Compliance Express (HCE), which allows businesses to register online through a simple wizard interface at <http://vendors.ehawaii.gov> to acquire a “Certificate of Vendor Compliance” indicating the bidder’s status is compliant with the requirements of §103D-310(c), HRS, and shall be accepted for contracting and final payment purposes. Bidders that elect to use the new HCE services will be required to pay an annual fee of \$12.00 to the Hawaii Information Consortium, LLC (HIC). Bidders choosing not to participate in the HCE program will be required to provide the paper certificates as instructed in the previous paragraphs.

PROPOSAL

FOR

DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION  
State of Hawaii

JOB NO. J40CO30A  
KALAUHA 'IHA 'I FISHPOND (LUCAS SPRING)  
DEMOLITION PACKAGE  
Niu Valley, Oahu, Hawaii

\_\_\_\_\_, 2016

Chief Engineer  
Engineering Division  
Department of Land and Natural Resources  
State of Hawaii  
Honolulu, Hawaii

Dear Sir:

The undersigned, having carefully examined the local conditions and all available records and information covering conditions which may affect the cost of the work to be performed, and having carefully examined the Plans and Specifications, and other contract documents, hereby proposes to furnish and pay for all materials, tools, equipment, labor and other incidental work necessary to complete, in place, The Kalauha' iha' i Fishpond (Lucas Spring), Demolition Package, as required or called for in this Proposal, all according to the true intent and meaning of the Notice to Bidders, Information and Instructions to Bidders, Proposal, Detailed Specifications, Interim General Conditions, Plans, and any and all addenda for:

JOB NO. J40CO30A  
KALAUHA 'IHA 'I FISHPOND (LUCAS SPRING)  
DEMOLITION PACKAGE  
Niu Valley, Oahu, Hawaii

on file in the office of the Engineering Division for the TOTAL BASE BID (Items 1 to 2) of:

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)

and will fully complete all work under this contract within 180 consecutive calendar days from the date of written notice to proceed, including date of said order, said total sum being itemized on the following pages.

## PROPOSAL

Item No.	Quantity	Unit	Description	Unit Price	Total
<b><u>BASE BID</u></b>					
1.		LS	Demolition and removal of 5841 Kalaniana'ole Highway and incidental structures, in accordance with the plans and specifications, in place, complete.		\$ _____
2.		LS	Demolition and removal of 5839 Kalaniana'ole Highway and incidental structures, in accordance with the plans and specifications, in place, complete.		\$ _____
<b>Total Base Bid (Items 1-2)</b>					\$ _____

In accordance with Act 175, SLH 2009, the Hawaii products preference is applicable to this solicitation. Bidders offering a Hawaii product ("HP") shall identify the HP in the table below.

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 the completed form no later than the deadline specified in the procurement notice and solicitation. The responsibility for certification and qualification shall rest upon the person requesting the preference. One form shall be completed and submitted for each product. Form SPO-38 is available at <http://hawaii.gov/spo/>

For the purpose of selecting the low bid when a solicitation contains both HP and non-HP, the price offered for a HP item shall be decreased by subtracting 10% for the class I or 15% for the class II HP item(s) offered. 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.

In the event of any change that materially alters the bidder's ability to supply the Hawaii product(s), the bidder shall immediately notify the procurement officer in writing and the parties shall enter into discussions for the purpose of revising the contract or terminating the contract for convenience.

Item No.	Pre-Approved Hawaii Product Description & Manufacturer	Class (I or II)	Quantity	Unit Measure	Unit Price	Total Price
1.	<b>Aggregates:</b> Grace Pacific Corporation Hawaiian Cement Goodfellow Bros., Inc. West Oahu Aggregate Co. Inc. Delta Construction Corporation Ameron International Corporation Tileco, Inc. Sphere LLC	I				

Item No.	Pre-Approved Hawaii Product Description & Manufacturer	Class (I or II)	Quantity	Unit Measure	Unit Price	Total Price
2.	<b>Cement and Concrete:</b> Ameron International Corporation Pohaku Pa`a LLC dba HC&D LLC BOMAT Ltd. Jensen Enterprises Tileco, Inc. Walker Industries, Ltd. Island Ready Mix Concrete, Inc. GPRM Prestress, LLC Aloha Precast, Inc. Hawaiian Cement Walker Hawaii Precast Ramtek Fabrication Co., Inc. Hawaii Concrete Products, Inc. Hawaii Precast, Inc.	I				
3.	<b>Compost Filter:</b> Certified Erosion Control Hawaii LLC EnviroTech BioSolutions Hawaii, Inc.	I				
4.	<b>Signs – Traffic, Regulatory, and Construction:</b> Safety Systems and Signs Hawaii, Inc. GP Roadway Solutions, Inc.	I				
4.	<b>Soil Amendments, Mulch, Compost:</b> Kauai Nursery & Landscaping, Inc. Island Topsoil LLC EKO Systems Inc. Molokai Seed Co.	I				

RECYCLED PRODUCTS PREFERENCE

This project allows a 10% price preference for recycled products in accordance with HRS 103D-1005. Please indicate your selection of recycled or non-recycled product by indicating its cost FOB jobsite unloaded in the schedule below, including applicable General Excise & Use Taxes.

<u>DESCRIPTION</u>	<u>RECYCLED PRODUCT COST</u>	<u>NONRECYCLED PRODUCT COST</u>
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____

The bidder requesting a recycled product preference shall also complete and submit the form “CERTIFICATION OF RECYCLED CONTENT” as shown in the Interim General Conditions and provide all supporting information with this proposal. Additional information may be requested to qualify a product.

The following definitions are applicable to the CERTIFICATION OF RECYCLED CONTENT form:

"Post-consumer recovered material" means any product used by a consumer, including a business that purchases the material, that has served its intended end use, and that has been separated or diverted from the solid waste stream for the purpose of use, reuse, or recycling.

"Product" includes materials, manufactures, supplies, merchandise, goods, wares, and foodstuffs.

"Recovered material" means waste material and by-products that have been separated, diverted, or removed from the solid waste stream after a manufacturing process for the purpose of use, reuse, or recycling. Recovered material does not include those materials and by-products that are generated and normally reused on-site or within original manufacturing processes (such as mill broke, in the case of paper products).

"Recycled content" means the percentage of a product composed of recovered material, or post-consumer recovered material, or both.

"Recycled product" means a product containing recovered material, or post-consumer recovered material, or both.

The bidder agrees that preference for recycled products shall be taken into consideration to determine the low bidder in accordance with said Section and the rules promulgated, however, the award of contract will be in the amount of the bid offered exclusive any preference.

CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS PROHIBITED

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.

### CONDITION OF AWARD

It is understood that the award of the contract will be made on the basis of the lowest responsible Total Base Bid (Items 1 to 2) selected by the Board of Land and Natural Resources. Write the total of bid items 1 to 2 on page P-1.

In the event the low bid is below the available funds certified by the appropriate fiscal officer, the head of the purchasing agency responsible for the procurement in question is authorized to award Additives to the lowest bidder.

It is understood and agreed that the Board of Land and Natural Resources reserves the right to reject any and/or all bids and waive any defects when, in the Board's opinion, such rejection or waiver will be for the best interest of the State of Hawaii.

In the event all bids exceed available funds certified by the appropriate fiscal officer, the head of the purchasing agency responsible for the procurement in question is authorized in situations where time or economic considerations preclude resolicitation of work of a reduced scope to negotiate an adjustment of the bid price, including changes in the bid requirements, with the low responsible and responsive bidder, in order to bring the bid within the amount of available funds. It is understood and agreed upon that the head of the purchasing agency may delete a portion or all of any item(s) in the proposal at the stated unit or lump sum price as necessary to stay within the available funding. The bidder is responsible to make an earnest effort to represent the actual cost of each item, including all materials, labor, equipment, overhead and profit in their bid proposal to preclude claims of anticipated profit or loss of profit because of an unbalanced bid proposal.

It is also understood that if a mutually agreeable cost for the reduced scope of work necessitated by a lack of available funds cannot be agreed upon between the bidder and the head of the purchasing agency within 14 calendar days after the bid opening, then the bid may be rejected in the best interest of the purchasing agency, and the head of the purchasing agency may negotiate in progressive order (lowest to highest) with the next lowest responsible and responsive bidder.

It is also understood and agreed that the award of the contract shall be conditioned upon funds being made available for this project and further upon the right of the Board of Land and Natural Resources to hold all bids received for a period of sixty (60) days from the date of the opening thereof, unless otherwise required by law, during which time no bid may be withdrawn.

It is also understood that Notice to Proceed may be delayed up to one (1) year after the bid opening date, and that no additional compensation will be provided for any claim for escalation or delay for issuance of Notice to Proceed on or before that date.

It is also understood and agreed that the quantities given herewith are approximate only and are subject to increase or decrease, and that the undersigned will perform all quantities of work as either increased or decreased, in accordance with the provisions of the Contract Specifications.

It is also understood and agreed that the estimated quantities shown for the items for which a UNIT PRICE is asked in this Proposal are only for the purpose of comparing on a uniform basis, bids offered for the work under this contract, and the undersigned agrees that he is satisfied with and will at no time, dispute said estimated quantities as a means of claims for anticipated profit or loss of profit, because of a difference between the quantities of the various classes of work done or the materials and equipment installed, and the said estimated quantities. On UNIT PRICE bids, payment will be made only for the actual number of units incorporated into the finished project at the contract UNIT PRICE.

After the proposals are opened and read, the figures will be extended and/or totaled in accordance with the bid prices of the acceptable proposals and the totals will be compared. In the comparison of bids, words written in the proposal shall govern over figures and unit prices will govern over totals. Until the award of the contract, however, the right will be reserved to reject any and all proposals and to waive any defects or technicalities as may be deemed best for the interest of the State.

It is also understood and agreed that liquidated damages in the amount of One Hundred Fifty and No/100 (\$150.00) for each and every calendar day in excess thereof prior to completion of the contract shall be withheld from payments due to the Contractor.

It is also understood and agreed that if this bid is accepted, the successful bidder must enter into and execute a contract with the Board of Land and Natural Resources and furnish a Performance and Payment Bond, as required by law. These bonds shall conform to provisions of Section 103D-324 and 325, Hawaii Revised Statutes and any law applicable hereto.

It is also understood and agreed that the successful bidder will provide all necessary labor, materials, tools, equipment, and other incidentals necessary to do all the work and furnish all the materials specified in the contract in the manner and time herein prescribed, and according to the requirements of the Engineer as therein set forth.

It is understood that by submitting this proposal, the undersigned is declaring that his firm has not been assisted or represented on this matter by an individual who has, in a State capacity, been involved in the subject matter of this contract in the past two years.

It is understood that by submitting this proposal in accordance with HAR 3-122-192, the undersigned is declaring that the price submitted is independently arrived without collusion.

It is also understood that by submitting this proposal, a Certification for Safety and Health Programs for bids in excess of \$100,000 (in accordance with HRS 396-18), the undersigned certifies that his organization will have a written safety and health plan for this project that will be available and implemented by the Notice to Proceed date of this project. Details of the requirements of this plan may be obtained from the Department of Labor and Industrial Relations, Occupational, Safety and Health Division (HIOSH).

It is further understood and agreed that the successful bidder shall comply with paragraph 3.1.a "SUBCONTRACTING" of the General Provisions which requires that the contractor shall perform with his own organization and with the assistance of workmen under his immediate superintendence, work of a value not less than twenty percent (20%) of the value of all work embraced in the Contract, except that certain contract items of work, if specifically referred to in the special provisions, will be exempted from said twenty percent requirement.

Compliance with §103-310 HRS. As a condition of award all bidders shall comply with all laws governing entities doing business in the State, including Chapter 237 HRS (general excise tax); Chapter 383 HRS (employment security – unemployment insurance); Chapter 386 HRS (workers compensation); Chapter 392 HRS (temporary disability insurance); and Chapter 393 HRS (pre-paid health care), and shall produce all documents to the State (DLNR, Engineering Division) required to demonstrate compliance with these subsections. Any bidder making a false affirmation or certification under this subsection shall be suspended and may be debarred from further offerings or awards pursuant to §103D-702 HRS.

**RECEIPT OF ADDENDA**

The bidder also acknowledges receipt of any and all addenda issued by the Engineering Division, by recording the date of receipt of the respective addenda in the space provided below:

<u>Addendum</u>	<u>Date Received</u>	<u>Addendum</u>	<u>Date Received</u>
No. 1	_____	No. 5	_____
No. 2	_____	No. 6	_____
No. 3	_____	No. 7	_____
No. 4	_____	No. 8	_____

It is understood that failure to receive any such addendum shall not relieve the Contractor from any obligation under this Proposal as submitted.

It is also understood and agreed that if this Proposal is accepted and the undersigned should fail or neglect to contract as aforesaid, the Board may determine that the bidder has abandoned the Contract, and thereupon, forfeiture of the security accompanying his proposal shall operate and the same shall become the property of the Board.

JOINT CONTRACTORS OR SUBCONTRACTORS  
TO BE ENGAGED ON THIS PROJECT

The Bidder agrees that the following is a complete listing of all joint contractors or subcontractors covered under Chapter 444, Hawaii Revised Statutes (HRS), who will be engaged by the Bidder on this project to perform the required work indicated pursuant to Section 103D-302, HRS. It is the sole responsibility of the contractor to review the requirements of this Project and determine the appropriate licenses that are required to complete the Project. The Bidder certifies that the completed listing of joint contractors or subcontractors fulfills the requirements for the project and the Bidder, together with the listed subcontractors or joint contractors have all the specialty contractor's licenses to complete the work, except as provided for in HRS §103D-302(b). Failure of the Bidder to comply with this requirement may be just cause for rejection of the bid.

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

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.

In completing the Joint Contractors or Subcontractors List, describe the specialty contractor’s nature and scope of work to be performed for this project and provide the complete firm name of the joint contractor or subcontractor in the respective columns. If the Bidder is a general contractor and providing the work of the required specialty contractor, fill in the Bidder’s (general contractor’s) name and nature and scope of work to be performed on this project.

List only one joint contractor or subcontractor per required specialty contractor’s classification, unless within the same specialty, the work of each joint contractor or subcontractor can be described so that there is no overlap in work descriptions.

If a contractor’s license is required by law for the performance of the work which is called for in this bid, the bidder and all subcontractors must have the required license before the submission of the bidder’s proposal in the case of a non-federal aid project, and for federal-aid projects, the bidder must have the required license prior to the award of the project and all subcontractors prior to the start of the subcontracted work.

<b>COMPLETE FIRM NAME OF JOINT CONTRACTOR OR SUBCONTRACTOR</b>	<b>NATURE AND SCOPE OF WORK TO BE PERFORMED</b>

Enclosed herewith is a:

- 1. Surety Bond (\*1) )
- 2. Legal Tender (\*2) )
- 3. Cashier's Check (\*3) )
- 4. Certificate of Deposit (\*3) ) in the
- 5. Certified Check (\*3) ) amount
- 6. Official Check (\*3) ) of
- 7. Share Certificate (\*3) )
- 8. Teller's Check (\*3) )
- 9. Treasurer's Check (\*3) )

(Cross Out Those Not Applicable)

---

Dollars (\$ \_\_\_\_\_)

as required by law.

Respectfully submitted,

---

Name of Company, Joint Venture  
or Partnership

---

Contractor's License No.

By \_\_\_\_\_  
Signature (\*4)

Title \_\_\_\_\_

Print Name \_\_\_\_\_

Date \_\_\_\_\_

Address \_\_\_\_\_

Telephone No. \_\_\_\_\_

E-Mail Address \_\_\_\_\_

NOTES:

1. Surety bond underwritten by a company licensed to issue bonds in this State;
2. Legal tender; or
3. 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.
4. Please attach to this page evidence of the authority of this officer to submit bids on behalf of the Company and also the names and residence addresses of all officers of the Company.
5. Fill in all blank spaces with information asked for or bid may be invalidated. PROPOSAL MUST BE INTACT, MISSING PAGES MAY INVALIDATE YOUR BID.

**End of Proposal**

## SPECIAL PROVISIONS

Amend INTERIM GENERAL CONDITIONS, dated October 1994, as follows:

### Section 2 – Proposal Requirements and Conditions

1. **AMEND** Section 2.1 Qualification of Bidder with the following:

Written Notice of Intent to Bid or Offer: A written Notice of Intent to Bid is not required for the Solicitation.

Standard Qualification Questionnaire: Bidders may be required to complete a standard qualifications questionnaire. When requested, the information shall be furnished within two working days or longer at the discretion of the Engineer. Failure to furnish the requested information within the time allowed may be grounds for a determination of non-responsibility, in accordance with HRS Section 103D-310 and HAR Section 3-122-108.

Hawaii Business or Compliant Non-Hawaii Business Requirement: Bidders 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, as stipulated in §3-122-112 HAR. A certified letter is not required prior to bid opening.

Compliance with §3-122-112 HAR: As a condition for award of the contract and as proof of compliance with the requirements of 103D-310(c) HRS, the apparent low bidder shall furnish the required documents to the Department. If the valid required certificates are not submitted on a timely basis for award of a contract, a bidder otherwise responsive and responsible may not receive the award. Bidder is responsible to apply for and submit the following documents to the Department.

- A. Tax Clearance (HRS Chapter 237): Bidder shall obtain a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is valid for six months from the most recently approved stamp date on the certificate; the certificate must be valid on the date received by the Department.
- B. Department of Labor (DLIR) “Certificate of Compliance”. (HRS Chapter 383 - Unemployment Insurance, Chapter 386 - Workers’ Compensation, Chapter 392 - Temporary Disability Insurance, and 393 – Prepaid Health Care): Bidder shall obtain a certificate of compliance from the Hawaii State Department of Labor and Industrial relations (DLIR). The certificate is valid for six months from the date of issue; certificates must be valid on the date received by the Department.
- C. Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG) “Certificate of Good Standing”. Bidder shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six months from the date of issue; certificates must be valid on the date received by the Department.

**Hawaii Compliance Express.** Alternately, instead of separately applying for these certificates at the various state agencies, bidder may choose to use the Hawaii Compliance Express (HCE), which allows businesses to register online through a simple wizard interface at <http://vendors.ehawaii.gov> to acquire a “Certificate of Vendor compliance” indicating that bidder’s status is compliant with requirements of §103D-310(c), HRS, shall be accepted for contracting and final payment purposes.

Bidders that elect to use the new HCE services will be required to pay an annual fee of \$15.00 to the

Hawaii Information Consortium, LLC (HIC). Bidders choosing not to participate in the HCE program will be required to provide the paper certificates as instructed in the previous paragraphs.

2. **ADD** Section 2.4a, Pre-Bid Conferences

Required Pre-bid Conferences: For construction and design-build projects with an estimated value of \$500,000 or more and solicited under the competitive sealed bid method (103D-302 HRS); and for construction and design-build projects with an estimated value of \$100,000 or more and solicited under the competitive sealed proposal method (103D-303 HRS); a pre-bid conference is required.

Other Pre-Bid Conferences: The Department may require a pre-bid conference for construction or design-build projects that are below the dollar threshold listed in above or when projects have special or unusual requirements.

Other Conditions: The Department may require the prospective Bidders to make a physical inspection of the project site and make attendance at the pre-bid conference a condition for submitting an offer.

Nothing stated at the pre-bid conference shall change the solicitation unless a change is made by written addendum.

3. **DELETE** Section 2.5, Addenda and Interpretations, in its entirety and replace with the following:

“Discrepancies, omissions, or doubts as to the meaning of drawings and specifications should be communicated using the question and answer section on the HiePRO solicitation for interpretation and must be received in the time frame set in the HiePRO solicitation. Any interpretation, if made and any supplemental instructions will be in the form of written addenda to the plans and specifications and made available prior to the offer due date. It shall be the prospective bidder’s sole responsibility to verify and obtain any said addenda. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.”

**Section 3 – Award and Execution of Contract**

1. **AMEND** Section 3.3, Award of Contract, by deleting “sixty (60)” and replacing with “ninety (90)” in the first paragraph.

2. **AMEND** Section 3.3, Award of Contract, by adding the following after the first paragraph:

“If the contract is not awarded within the ninety (90) days, the Department may request the successful Bidder to extend the time for the acceptance of its bid. The Bidder may reject such a request without penalty; and in such case, the Department may at its sole discretion make a similar offer to the next lowest responsive and responsible bidder and so on until a bid is duly accepted or until the Department elects to stop making such requests.”

3. **AMEND** Section 3.9, Notice to Proceed, by deleting “180 days” and replacing with “one (1) year” in the last paragraph.

4. **ADD** Section 3.10, Protests:

**“3.10 PROTESTS**—Pursuant to Section 103D-701, Hawaii Revised Statutes, an actual or prospective offeror who is aggrieved in connection with the solicitation or award may submit a protest. Any protest

shall be submitting in writing to the Chairperson, Department of Land and Natural Resources, 1151 Punchbowl Street, Honolulu, Hawaii 96813, or designee as specified in the solicitation.

A protest shall be submitted in writing within five (5) working days after the aggrieved person knows or should have known the facts giving rise thereto; provided that a protest based upon the content of the solicitation shall be submitted in writing prior to the date set for receipt of offers. Further provided that a protest of an award or proposed award shall be submitted within five (5) working days after the posting of the award of the contract.

The notice of award, if any, resulting from this solicitation shall be posted on the Procurement System on the SPO website: <http://hawaii.gov/spo2/>.

### **Section 5 – Control of Work**

**AMEND** Section 5.8 Value Engineering Incentive by deleting “\$100,000” and replacing with “\$250,000” in the first paragraph.

### **Section 6 – Substitution of Materials and Equipment**

**ADD** the following to Section 6.3 Sub-paragraph b:

4. If the substitution meets all the requirements of the specifications and plans.

### **Section 7 – Prosecution and Progress**

1. **DELETE** Section 7.2d in its entirety and replace with the following:

“d. Insurance Requirements

1. Obligation of Contractor

The Contractor shall not commence any work until it obtains, at its own expense, all required insurance. Such insurance must have the approval of the Department as to limit, form and amount and must be maintained with a company authorized by law to issue such insurance in the State of Hawaii.

All insurance described herein will be maintained by the Contractor for the full period of the contract and in no event will be terminated or otherwise allowed to lapse prior to written certification of final acceptance of the work by the Department.

Certificate(s) of Insurance acceptable to the Department shall be filed with the Engineer prior to commencement of the work. These certificates shall contain a provision that coverages afforded under the policies will not be canceled or changed until at least thirty days written notice has been given to the Engineer by registered mail. The insurance policies shall name the State of Hawaii, its officers and employees as an additional insured and such coverage shall be noted on the Certificate. Should any policy be canceled before final acceptance of the work by the Department, and the Contractor fails to immediately procure replacement insurance as specified, the Department, 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.

Nothing contained in these insurance requirements is to be construed as limiting the extent of Contractor's responsibility for payment of damages resulting from its operations under this contract, including the Contractor's obligation to pay liquidated damages, nor shall it affect the Contractor's separate and independent duty to defend, indemnify and hold the Department harmless pursuant to other provisions of this contract. In no instance will the Department's exercise of an option to occupy and use completed portions of the work relieve the Contractor of its obligation to maintain the required insurance until the date of final acceptance of the work.

All insurance described herein shall cover the insured for all work to be performed under the contract, all work performed incidental thereto or directly or indirectly connected therewith, including traffic detour work or other work performed outside the work area, and all change order work.

The Contractor shall, from time to time, furnish the Engineer, when requested, satisfactory proof of coverage of each type of insurance required or a copy of the actual policies covering the work. Failure to comply with the Engineer's request may result in suspension of the work, and shall be sufficient grounds to withhold future payments due the Contractor and to terminate the contract for Contractor's default.

## 2. Types of Insurance

The Contractor shall purchase and maintain insurance described below which shall provide coverage against claims arising out of the Contractor's operations under the contract, whether such operations be by the Contractor itself or by the subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.

- (a) Worker's Compensation. The Contractor and all subcontractors shall obtain full worker's compensation insurance coverage for all persons whom they employ or may employ in carrying out the work under this contract. This insurance shall be in strict conformity with the requirements of the most current and applicable State of Hawaii Worker's Compensation Insurance laws in effect on the date of the execution of this contract and as modified during the duration of the contract.
- (b) Commercial General Liability Insurance and Automobile Insurance. Contractor's commercial general liability insurance and automobile liability insurance shall both be obtained in a combined, single limit of not less than \$1,000,000 per occurrence that shall include coverage for bodily injury, sickness, disease or death of any person, arising directly or indirectly out of, or in connection with, the performance of work under this contract.

The Contractor's property damage liability insurance shall provide for a single combined limit of not less than \$1,000,000 for all damages arising out of injury to or destruction of property of others including the Department's, arising directly or indirectly out of or in connection with the performance of the work under this contract including explosion or collapse.

The Contractor shall either:

- i. Require each of its subcontractors to procure and to maintain during the life of its subcontract, subcontractors' comprehensive general liability, automobile liability

and property damage liability insurance of the type and in the same amounts specified herein; or

- ii. Insure the activities of its subcontractors in its own policy.

The Contractor will be permitted, in cooperation with insurers, to maintain a self insured retention for up to 25% of the per occurrence combined single limits of the commercial general liability and the automobile liability policies. The existence of the self insured retention must be noted on the certificate of insurance coverage submitted to the Department or else it will be understood that the insurer is providing first dollar coverage for all claims. For all claims within the self-insured retention amount, the rights, duties and obligations between the Contractor and the Department shall be identical to that between a liability insurer and the Department, as an additional insured, as if there was no self-insured retention.

- (c) Builder's Risk Insurance. Unless included in the Specifications of this project, the Contractor shall not be required to provide builder's risk insurance. If required as noted in the Specifications, builder's risk insurance shall be provided during the progress of work and until final acceptance by the Department upon completion of the contract. It shall be "All Risk" (including but not limited to earthquake, windstorm and flood damage) completed value insurance coverage on all completed work and work in progress to the full replacement value thereof. Such insurance shall include the Department as additional name insured. The Contractor shall submit to the Engineer for its approval all items deemed to be uninsurable. The policy may provide for a deductible in an amount of up to 25% of the amount insured by the policy. With respect to all losses up to any deductible amount, the relationship between the Contractor and the Department shall be that of insurer and additional insured as if no deductible existed".

2. **DELETE** Section 7.16 in its entirety and replace with the following:

"RESPONSIBILITY FOR DAMAGE CLAIMS; INDEMNITY – The Contractor shall indemnify the State and the Department against all loss of or damage to the State's or the Department's existing property and facilities arising out of any act or omission committed in the performance of the work by the Contractor, any subcontractor or their employees and agents. Contractor shall defend, hold harmless and indemnify the Department and the State, their employees, officers and agents against all losses, claims, suits, liability and expense, including but not limited to attorneys' fees, arising out of injury to or death of persons (including employees of the State and the Department, the Contractor or any subcontractor) or damage to property resulting from or in connection with performance of the work and not caused solely by the negligence of the State or the Department, their agents, officers and employees. The State or the Department may participate in the defense of any claim or suit without relieving the Contractor of any obligation hereunder. The purchase of liability insurance shall not relieve the Contractor of the obligations described herein.

The Contractor agrees that it will not attempt to hold the State and its Departments and Agencies and their officers, representatives, employees or agents, liable or responsible for any losses or damages to third parties from the action of the elements, the nature of the work to be done under these specifications or from any unforeseen obstructions, acts of God, vandalism, fires or encumbrances which may be encountered in the prosecution of the work.

The Contractor shall pay all just claims for materials, supplies, tools, labor and other just claims against the Contractor or any subcontractor in connection with this contract and the surety bond will not be

released by final acceptance and payment by the Department unless all such claims are paid or released. The Department may, but is not obligated to, withhold or retain as much of the monies due or to become due the Contractor under this contract considered necessary by the Engineer to cover such just claims until satisfactory proof of payment or the establishment of a payment plan is presented.

The Contractor shall defend, indemnify and hold harmless the State and its Departments and Agencies and their officers, representatives, employees or agents from all suits, actions or claims of any character brought on account of any claims or amounts arising or recovered under the Worker's Compensation Laws or any other law, by-law, ordinance, order or decree.

### **Section 8 – Measurement and Payment**

1. **DELETE** Section 8.7a in its entirety and replace with the following:

- a. Tax Clearances from the State of Hawaii Department of Taxation and Internal Revenue Service, subject to section 103D-328, HRS, current within two months of issuance date indicating that all delinquent taxes levied or accrued under State Statutes against the contractor have been paid.

2. **ADD** Section 8.7d, Certificate of Compliance:

- d. A Certification from the Contractor affirming that the Contractor has, as applicable, remained in compliance with all laws as required by Section 103D-310, HRS, and Section 3-122-112, HAR. A contractor making a false affirmation shall be suspended and may be debarred pursuant to section 103D-702, HRS.

1. Certification of Compliance for Final Payment, State Procurement Office Form-22. Must be Signed Original.

3. **ADD** Section 8.7e, Hawaii Compliance Express:

- e. In lieu of submitting the tax clearances from Taxation and IRS, and SPO Form -22, the Contractor may choose to use the Hawaii Compliance Express as described on page SP-1 of this Special Provisions.

TECHNICAL SPECIFICATIONS

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## SECTION 01019 - GENERAL SPECIFICATIONS

### PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

Work shall consist of furnishing all labor, tools, materials and equipment necessary and required to construct in place complete all work as indicated on the drawings and as specified herein.

#### 1.2 DESCRIPTION OF WORK

#### 1.3 GENERAL

- A. Examination of Premises: The Contractor shall contact the Engineer and obtain permission before visiting the site.
- B. Right-of-Entry: The project site is located on private land owned by the Department of Land and Natural Resources (DLNR). The Contractor shall coordinate with Maunalua Fishpond Heritage Center, a non-profit entity, who has a right of entry for due diligence over the subject property.
- C. All lines and grades shall be established by a licensed surveyor, or licensed Civil Engineer, registered in the State of Hawaii. The Contractor shall submit evidence of current and valid registration.
- D. Notices: The Contractor shall notify the Engineer and DLNR at least three (3) working days before starting any work.
- E. Environmental Hazard: The Contractor shall comply with the requirements stated in SPECIFICATION SECTION 02810 - ENGINEERING CONTROL OF ASBESTOS-CONTAINING MATERIAL, SECTION 02820 – ENGINEERING CONTROL OF ARSENIC-CONTAINING MATERIAL, SECTION 02830 – LEAD-CONTAINING PAINT CONTROL MEASURES, and SECTION 02840 – REMOVAL OF PCB-CONTAINING LIGHT BALLASTS AND MERCURY-CONTAINING LAMPS.
- F. Permits and Regulations: The Contractor shall obtain and pay for all permits and licenses, give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified.
- G. Existing Utilities: The Contractor shall be responsible for the protection of existing surface and subsurface utilities and poles within and abutting the project site, trench excavations, borrow sites, and other work areas. Any utility that the Contractor encounters during the progress of the work, such as telephone poles, electric poles, water lines, sewer lines, electric lines, and drainage pipes, 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 Engineer and the affected utility company immediately of any damaged or disturbed utility.

In the event utilities which are not shown on the plans and specifications, not located and exposed on the job as it progressed or not pointed out to the Contractor in the field are damaged or disturbed by the Contractor, the Contractor shall not be held liable but shall notify the Engineer and the affected utility company.

H. Standard Specifications

1. The work embraced herein shall be done in accordance with:
  - a. "DLNR INTERIM GENERAL CONDITIONS" October 1994
  - b. "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", City and County of Honolulu, 1986;
  - c. "2005 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", Department Of Transportation, Highways Division.
2. The terms used hereinafter are as follows:
  - a. "GENERAL CONDITIONS" shall refer to the "DLNR INTERIM GENERAL CONDITIONS, October 1994"
  - b. "STANDARD SPECIFICATIONS" shall refer to the "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" of the State of Hawaii, 1986.
  - c. "2005 STANDARD SPECIFICATIONS" shall refer to the "2005 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION."
3. These DETAILED SPECIFICATIONS supplement and modify the STANDARD SPECIFICATIONS.

I. Conditions at Site

1. **EXISTING CONDITIONS:** Every person bidding upon the work is expected to visit the site and examine the conditions of same and satisfy himself as to the character and amount of work to be performed as indicated on the plans and called for by these specifications. No additional payment will be granted because of the lack of knowledge of such conditions.
2. **WATER AND ELECTRICITY:** The Contractor shall make all necessary arrangement and connections for temporary use of water and electricity for construction and shall pay all expenses.

- J. **Toilet Accommodations:** The Contractor shall be responsible for providing and maintaining his own toilet facilities for his use.

- K. Protection of Property: The Contractor shall continually maintain adequate protection of all its work from damage and shall protect all property, including but not limited to buildings, equipment, furniture, grounds, vegetation, material, utility systems located at and adjoining the job site. The Contractor shall repair, replace or pay the expense of repair of damages resulting from its operations.
- L. Safety: The Contractor shall carefully read and strictly comply with the requirements of the Hawaii Occupational Safety and Health Law, Chapter 396, Hawaii Revised Statutes, as amended, is applicable and made a part of the Contract.
- M. Clean Up Premises: The Contractor shall throughout the duration of the project keep all streets, sidewalks and driveways free from all debris produced from the project. The Contractor shall keep the project and surrounding area neat and free from dust nuisance. The Contractor shall clean up and remove from premises all debris accumulated from operations as necessary or as directed. See also Section 7.25 of the General Conditions.
- N. Completion of Work: Upon completion of the work, the Contractor shall remove all equipment, signs and unused materials provided for the work and shall restore the project site to a neat and clean condition
- O. Responsibility
1. 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. The Contractor shall be responsible for coordinating the work of all trades on the job.
  2. Should the Contractor discover any discrepancy in the plans or specifications, the Contractor shall immediately notify the Engineer before proceeding any further with the work, otherwise, the Contractor will be held responsible for any cost involved in correction of work placed due to such discrepancy.
- P. Cooperation With Other Contractors: The State reserves the right at any time to contract for or otherwise perform other or additional work within the contract zone limits of this Contract. The Contractor of this project shall, to the extent ordered by the State, conduct its work so as not to interfere with or hinder the progress or completion of the work performed by other contractors.
- Q. Division of the Work: The Divisions 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 all work specified within each Section.
- R. Drawings and Specifications
1. The Contractor shall not make alterations in the drawings and specifications. In the event the contractor discovers any errors or discrepancies, the Contractor shall immediately notify the Engineer in accordance with the General Conditions.
  2. 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.

3. Specifications and drawings are prepared in abbreviated form 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.

END OF SECTION

## SECTION 01090 - STANDARD REFERENCES

### PART 1 - GENERAL

Wherever used in the project, the following abbreviations will have the meanings listed:

<u>Abbreviation</u>	<u>Company</u>
AA	Aluminum Association Incorporated 818 Connecticut Avenue, N.W. Washington, D.C. 20006
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W., Suite 225 Washington, D.C. 20001
ACI	American Concrete Institute P.O. Box 19150 Detroit, MI
AEIC	Association of Edison Illuminating Companies 51 East 42nd Street New York, NY 10017
AFBMA	Anti-Friction Bearing Manufacturer's Association 60 East 42nd Street New York, NY 10017
AGA	American Gas Association 8501 East Pleasant Valley Road Cleveland, OH 44131
AGMA	American Gear Manufacturer's Association 1330 Massachusetts Avenue, N.W. Washington, D.C.
AISC	American Institute of Steel Construction 101 Park Avenue New York, NY 10017
AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, D.C. 20036
AITC	American Institute of Timber Construction 333 West Hampden Avenue Englewood, CO 80110

<u>Abbreviation</u>	<u>Company</u>
AMCA	Air Moving and Conditioning Association, Inc. 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute, Inc. 1430 Broadway New York, NY 10018
APA	American Plywood Association 1119 A Street Tacoma, WA 98401
API	American Petroleum Institute 1801 K Street N.W. Washington, DC 20006
ARI	Air-Conditioning and Refrigeration Institute 1814 North Fort Myer Drive Arlington, VA 22209
ASCE	American Society of Civil Engineers 345 East 47th Street New York, NY 10017
ASCII	American Standard Code for Information Interchange United States of America Standards Institute 1430 Broadway New York, NY 10018
ASE Code	American Standard Safety Code for Elevators, Dumbwaiter and Escalators American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers United Engineering Center 345 East 47th Street New York, NY 10017
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103

<u>Abbreviation</u>	<u>Company</u>
AWPA	American Wood Preservers Association 1625 Eye Street Washington, DC 20006
AWS	American Welding Society 2501 N.W. 7th Street Miami, FL 33125
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
CBM	Certified Ballast Manufacturers 2120 Keith Building Cleveland, OH 44115
CMAA	Crane Manufacturers Association of America, Inc. (Formerly called: Overhead Electrical Crane Institute - OECI) 1326 Freeport Road Pittsburgh, PA 15238
CRSI	Concrete Reinforcing Steel Institute 180 North La Salle Street Chicago, IL 60601
CSA	Canadian Standards Association 178 Rexdale Boulevard Rexdale, Ontario, M9W 1R3, Canada
DEMA	Diesel Engine Manufacturer's Association 122 East 42nd Street New York, NY 10017
DIS	Division of Industrial Safety California Department of Industrial Relations 2422 Arden Way Sacramento, CA 95825
EI	Edison Electric Institute 90 Park Avenue New York, NY 10016
EIA	Electronic Industries Association 2001 Eye Street N.W. Washington, DC 20006
EJMA	Expansion Joint Manufacturer's Association 331 Madison Avenue New York, NY 10017

<u>Abbreviation</u>	<u>Company</u>
ESO	Electrical Safety Orders, California Administrative Code, Title 8, Chap. 4, Subarticle 5 Office of Procurement, Publications Section P.O. Box 20191 8141 Elder Creek Road Sacramento, CA 95820
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch Washington Navy Yard, Bldg. 197 Washington, DC 20407
FEDSTDS	Federal Standards (see FEDSPECS)
FM	Factory Mutual Research 1151 Boston-Providence Turnpike Norwood, MA 02062
HEI	Heat Exchange Institute 122 East 42nd Street New York, NY 10017
HI	Hydraulic Institute 1230 Keith Building Cleveland, OH 44115
IAPMO	International Association of Plumbing and Mechanical Officials 5032 Alhambra Avenue Los Angeles, CA 90032
ICBO	International Conference of Building Officials 5360 South Workman Mill Road Whittier, CA 90601
ICEA	Insulated Cable Engineers Association P.O. Box P South Yarmouth, MA 02664
IEEE	Institute of Electrical and Electronics Engineers, Inc. 345 East 47th Street New York, NY 10017
IES	Illuminating Engineering Society C/O United Engineering Center 345 East 47th Street New York, NY 10017

<u>Abbreviation</u>	<u>Company</u>
ISA	Instrument Society of America 400 Stanwix Street Pittsburgh, PA 15222
JIC	Joint Industrial Council 7901 Westpark Drive McLean, VA 22101
MILSPEC	Military Specifications Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. 127 Park Street, N.E. Vienna, VA 22180
NAAMM	National Association of Architectural Metal Manufacturers 100 South Marion Street Oak Park, IL 60302
NACE	National Association of Corrosion Engineers P.O. Box 986 Katy, TX 77450
NEC	National Electric Code National Fire Protection Association 470 Atlantic Avenue Boston, MA 02210
NEMA	National Electrical Manufacturer's Association 155 East 44th Street New York, NY 10017
NESC	National Electric Safety Code American National Standards Institute 1430 Broadway New York, NY 10018
NFPA	National Forest Products Association (Formerly called: National Lumber Manufacturer's Association) 1619 Massachusetts Avenue, N.W. Washington, DC 20036
OSHA	Occupational Safety and Health Act U.S. Department of Labor San Francisco Regional Office 450 Golden Gate Avenue, Box 36017 San Francisco, CA 94102

<u>Abbreviation</u>	<u>Company</u>
PPIC	The Plumbing & Piping Industry Council, Inc. Suite 402 510 Shatto Place Los Angeles, CA 90020
SAE	Society of Automotive Engineers 2 Pennsylvania Street New York, NY 10001
SAMA	Scientific Apparatus Makers Association One Thomas Circle Washington, DC 20005
SBCC	Southern Building Code Congress 1116 Brown-Marx Building Birmingham, AL 35203
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. 8224 Old Courthouse Road Tysons Corner Vienna, VA 22180
SSPWC	Standard Specifications for Public Works Construction Building News, Inc. 3055 Overland Avenue Los Angeles, CA 90034
TEMA	Tubular Exchanger Manufacturer's Association 331 Madison Avenue New York, NY 10017
UBC	Uniform Building Code Published by ICBO
UL	Underwriters Laboratories Inc. 207 East Ohio Street Chicago, IL 60611
UMC	Uniform Mechanical Code Published by ICBO
UPC	Uniform Plumbing Code Published by IAPMO
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225

Abbreviation

Company

WWPA

Western Wood Products Association  
(Formerly called: West Coast Lumberman's Association - WCLA)  
Yeon Building  
Portland, CA 97204

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01100 - ARCHAEOLOGICAL PROTECTION

### PART 1 - GENERAL

- 1.1 This section covers the requirements for the protection and preservation of historical sites and values.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION

- 3.1 The Contractor shall protect the existing Kalauha'iha'i Fishpond water, bottom, rock walls, sidewalks, outlet ditch, and gate at all times. Demolition shall be done carefully and methodically to prevent damage to the fishpond water, bottom, rock walls, sidewalks, outlet ditch, and gate. In addition, the fishpond shall be protected from debris. Rubbish and debris shall not be allowed to fall into the fishpond. Equipment used shall be placed carefully so as not to place excess loading on the fishpond walls and outlet ditch. The Contractor shall be held completely responsible for any damage to the fishpond water, bottom, rock walls, sidewalks, outlet ditch, and gate during construction. The Contractor shall be responsible for any repairs required as a result of the construction operations.

### 3.2 PAYMENT

Payment for archaeological protection shall not be made separately but shall be considered incidental and included in the Lump Sum bid price.

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Submittals and shop drawings shall be as indicated in:
  - 1. 02810 – Engineering Control of Asbestos-Containing Material
  - 2. 02820 – Engineering Control of Arsenic-Containing Material
  - 3. 02830 – Lead-Containing Paint Control Measures
  - 4. 02840 – Removal of PCB-Containing Light Ballasts and Mercury-Containing Lamps
  - 5. Any others as called for in the plans, specifications, or by the Engineer.

1.2 BIDDER'S SPECIAL RESPONSIBILITY FOR COORDINATING CONTRACTUAL WORK AND SUBMITTALS:

- A. The Contractor is responsible for the coordination of all contractual work and submittals.
- B. The Contractor shall have a rubber stamp made up in the following format:

CONTRACTOR NAME

PROJECT: \_\_\_\_\_

\_\_\_\_\_

JOB NO: \_\_\_\_\_

THIS SUBMITTAL HAS BEEN CHECKED BY THIS GENERAL CONTRACTOR. IT IS CERTIFIED 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.

DATE RECEIVED \_\_\_\_\_

SPECIFICATION SECTION \_\_\_\_\_

SPECIFICATION PARAGRAPH \_\_\_\_\_

DRAWING NUMBER \_\_\_\_\_

SUBCONTRACTOR NAME \_\_\_\_\_

SUPPLIER NAME \_\_\_\_\_

MANUFACTURER NAME \_\_\_\_\_

CERTIFIED BY: \_\_\_\_\_

- C. This stamp, "filled in", should appear on the title sheet of each shop drawing, on a cover sheet of submittals in an 8-1/2" x 11" format, or on one face of a cardstock tag (min. 3" x 6") tied to each sample. The tag on the samples should state what the sample is so that, if the tag is accidentally separated from the sample, it can be matched up again. The back of this tag will be used by the Engineer for his receipt, review, and log stamp and for any comments that relate to the sample.
- D. All submittals for material, equipment, and shop drawings listed in the contract documents, shall be required and shall be reviewed by the Engineer, prior to any ordering of materials and equipment.
- E. Unless otherwise noted, the Contractor shall submit to the Engineer for his review eight copies of all shop drawings, and/or catalog cuts for fabricated items and manufactured items required for the construction. Drawings shall be submitted in sufficient time to allow the Engineer not less than seven (7) regular working days for examining the drawings.
- F. The drawing shall be accurate, distinct, and complete and shall contain all required information, including satisfactory identification of items, units and assemblies in relation to the contract drawings and specifications.
- G. Unless otherwise approved by the Engineer, shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp on the drawings or other approved means that the Contractor has checked the shop drawings and that the work or equipment shown is in accordance with contract requirements and has been checked for dimensions and relationship with work of all other trades involved. All deviations from the plans and specifications shall be listed. The practice of submitting incomplete or unchecked shop drawings for the Engineer to correct or finish will not be acceptable, and shop drawings which, in the opinion of the Engineer, clearly indicate that they have not been checked by the Contractor will be considered as not complying with the intent of the contract documents and will be returned to the Contractor for resubmission in the proper form.
- H. When the shop drawings have been reviewed by the Engineer, two sets of submittals will be returned to the Contractor appropriately stamped. If major changes or corrections are necessary, the drawing may be rejected and one set will be returned to the Contractor with such changes or corrections indicated, and the Contractor shall correct and resubmit eight copies of the drawings, unless otherwise directed by the Engineer. No changes shall be made by the Contractor to the resubmitted shop drawings other than those changes indicated by the Engineer. The resubmittal shall be so indicated on the shop drawing.
- I. The review of such drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for correctness of the dimensions, fabrication details, and space requirements or for deviations from the contract drawings and specifications, unless the Contractor has called attention to such deviations, in writing, by a letter accompanying the drawings and the Engineer approved the change or deviations, in writing, at the time of submission; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the shop drawings. When the Contractor does call such deviations to the attention of the Engineer, he shall state in his letter whether or not such deviations involve any deduction or extra cost adjustment.

- J. The approval of the above drawings, lists, prints, specifications, or other data shall in no way release the Contractor from his responsibility for the proper fulfillment of the requirements of this contract nor for fulfilling the purpose of the installation nor from his liability to replace the same should it prove defective or fail to meet the specified requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01400 - QUALITY REQUIREMENTS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Quality control and control of installation.
- B. Tolerances
- C. References.
- D. Examination.

#### 1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

#### 1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

#### 1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

- B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. When specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify existing site conditions are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Examine and verify specific conditions described in individual specification sections.

END OF SECTION

## SECTION 01567 - POLLUTION CONTROL

### PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

##### A. Rubbish Disposal

1. No burning of debris and/or waste materials shall be permitted on the project site.
2. No burying of debris and/or waste material except for materials which are specifically indicated elsewhere in these specifications as suitable for backfill shall be permitted on the project site.
3. All unusable debris and waste material shall be hauled away to an appropriate off-site dump area. During loading operations, debris and waste materials shall be watered down to allay dust.
4. No dry sweeping shall be permitted in cleaning rubbish and fines which can become airborne from floors or other paved areas. Vacuuming, wet mopping or wet or damp sweeping is permissible.
5. Enclosed chutes and/or containers shall be used for conveying debris from above to ground floor level.
6. Clean-up shall include the collection of all waste paper and wrapping materials, cans, bottles, construction waste materials and other objectionable materials, and removal as required. Frequency of clean-up shall coincide with rubbish producing events.

##### B. Dust

1. The Contractor shall 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 - Air Pollution Control.
2. The method of dust control and costs shall be the responsibility of the Contractor. Methods of dust control shall include the use of water, chemicals or asphalt over surfaces which may create airborne dust.
3. The Contractor shall be responsible for all damage claims in accordance with Section 7.16 - "Responsibility for Damage Claims" of the GENERAL CONDITIONS.

##### C. Noise

1. Noise shall be kept within acceptable levels at all times in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 46 - Community Noise Control for Oahu. The Contractor shall obtain and pay for the Community Noise Permit from the State Department of Health when the construction equipment or other devices emit noise at levels exceeding the allowable limits.

2. All internal combustion engine-powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels.
3. Starting-up of construction equipment meeting allowable noise limits shall not be done prior to 6:45 a.m. without prior approval of the Engineer. Equipment exceeding allowable noise levels shall not be started-up prior to 9:00 a.m.

D. Erosion/Sediment Control

Temporary berms, cut-off ditches and other provisions which may be required because of the Contractor's method of operations shall be installed at no cost to the State.

E. Others

1. Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being carried onto the pavement. Wastewater shall not be discharged into existing streams, waterways, or drainage systems such as gutters and catch basins unless treated to comply with the State Department of Health water pollution regulations.
2. Trucks hauling debris shall be covered as required by PUC Regulation. Trucks hauling fine materials shall be covered.
3. Except in an emergency, such as a mechanical breakdown, all vehicle fueling and maintenance shall be done in a designated area. A temporary berm shall be constructed around the area when runoff can cause a problem.

F. Suspension of Work

1. Violations of any of the above requirements or any other pollution control requirements which may be specified in the Technical Specifications herein shall be cause for suspension of the work creating such violation. No additional compensation shall be due the Contractor for remedial measures to correct the offense. Also, no extension of time will be granted for delays caused by such suspensions.
2. If no corrective action is taken by the Contractor within 72 hours after a suspension is ordered by the Engineer, the State reserves the right to take whatever action is necessary to correct the situation and to deduct all costs incurred by the State in taking such action from monies due the Contractor.
3. The Engineer may also suspend any operations which he feels are creating pollution problems although they may not be in violation of the above-mentioned requirements. In this instance, the work shall be done by force account as described in Subsection 4.2b - "Additional Work" of the GENERAL CONDITIONS and paid for in accordance with Subsection 8.4b - "Force - Account Work" therein. The count of elapsed working days to be charged against the contract in this situation shall be computed in accordance with Subsection 7.18 - "Contract Time" of the GENERAL CONDITIONS.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## DIVISION 2 - SITE WORK

### SECTION 02050 - DEMOLITION AND REMOVAL

#### PART 1 - GENERAL

##### 1.1 WORK SPECIFIED

- A. Accomplish all demolition, removal, and related work indicated on or required by the drawings, and as specified herein.
- B. Work shall include, but is not limited to the demolition, removal and disposal of existing buildings and incidental structures; hazardous material removal and disposal; capping/plugging of existing aboveground utilities; and related work.
- C. Particular care shall be taken to remove work without disturbance to the Kalauha'iha'i fishpond and its related structures.

##### 1.2 GENERAL REQUIREMENTS

- A. It shall be the responsibility of the Contractor to examine the project site and determine for himself the existing conditions.
- B. Obvious conditions which exist on the site shall be accepted as part of the work, even though they may not be clearly indicated on the drawings and/or described herein, or may vary therefrom.
- C. All debris of any kind accumulated from the work of this section shall be disposed of off the site.
- D. Burning of any debris on-site will not be permitted.
- E. Permits, Notice, Etc.
  - 1. The Contractor shall procure and pay for all necessary permits of certificate that may be required in connection with this work.
  - 2. The Contract shall serve proper notice and consult with the Engineer regarding any temporary disconnections of electrical or other utility lines in the area which may interfere with the removal work, and all such lines where necessary shall be properly disconnected before commencing with the work.
- F. Protection: Throughout the work, protection shall be provided for all roads, walks, property, etc., scheduled to remain. Protection of Kalauhaihai Fishpond and structures are of particular importance. Safe working conditions shall be maintained at all times for all personnel, and temporary lights and barricades shall be provided and maintained.
- G. Comply with requirements of Section 02810 – Engineering Control of Asbestos-Containing Material, Section 02820 – Engineering Control of Arsenic-Containing Material, Section 02830 – Lead-Containing Paint Control Measures, and Section 02840 – Removal of PCB-Containing Light Ballasts and Mercury-Containing Lamps of the Specifications.

#### PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

### 3.1 DEMOLITION AND REMOVAL

- A. Cutting: All concrete, when required, shall be cut with a carborundum saw prior to removal, with water applied to control dusting.
- 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 damage thereto.
- C. Water facilities shall be available and in operating condition at all times. All dust, shall be suppressed by a fog spray or other approved method.
- D. Demolish, remove, and dispose of existing buildings and incidental structures, including hazardous material removal and disposal, capping/plugging of existing aboveground utilities, and related work, as indicated.

### 3.2 DUST CONTROL

The amount of dust resulting from demolition shall be controlled to prevent the spread of dust and to avoid creation of a nuisance in the surrounding area. Use of water will not be permitted when it will result in, or create, a hazardous condition such as flooding or pollution.

### 3.3 CONTRACT ZONE LIMIT

The Contract Zone Limit shall be the limit of grading or work outside the Zone Limits necessary to complete the project shall be included.

### 3.4 BARRICADE

Erect temporary barricade as required and/or as shown on the plans, to prevent people from entering into project area to the extent as approved by the Engineer. Such barricade shall not be less than 6'-0" in height. The extent of barricade may be adjusted as necessary with the approval of the Engineer. This work shall be accomplished at no extra cost to the Owner.

### 3.5 CLEAN-UP

Debris and rubbish shall be removed from the site daily. Debris and rubbish shall not be allowed to accumulate in the building or on site. Debris shall be removed and transported in a manner that will prevent spillage on streets or adjacent areas.

END OF SECTION

## SECTION 02810 – ENGINEERING CONTROL OF ASBESTOS-CONTAINING MATERIAL

### PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

- A. The work shall include the handling, treatment, encapsulation, removal, demolition, storage, transportation, and disposal procedures of asbestos containing material/presumed asbestos containing material (ACM/PACM) and waste, and incidental work, as required, in conjunction with the demolition of buildings and existing infrastructure. Refer also to Section 02050 - Demolition and Removal.
- B. The Contractor acknowledges that he alone is responsible for the asbestos work and for enforcing personnel protective requirements, and that this specification provides only a minimum acceptable standards. The Contractor shall comply with all applicable Federal, State and local regulations regarding asbestos.
- C. The Contractor shall coordinate all work with the General Contractor and the Engineer.
- D. Sampling confirmed (or presumed to contain) asbestos is present in the following materials:
1. Building with 5839 Kalanianaʻole Highway Address
    - 9-inch x 9-inch light gray floor tile in the Living Room;
    - black under-sink coating of Kitchen sink;
    - gypsum board wall system throughout the house;
    - mastic under 9-inch x 9-inch light blue and dark blue floor tiles in the second floor Bathrooms;
    - off-white skim coat / joint compound in the shower ceramic tile trim in both second floor Bathrooms; and
    - tar/mastic around vent protrusions through the roof.
  2. Building with 5841 Kalanianaʻole Highway Address
    - gypsum board wall system on the second floor of the house;
    - tan mastic on the 9-inch by 9-inch light yellow tile in the Kitchen;
    - black under-sink coating of Kitchen sink;
    - beige skim coat / joint compound in the shower ceramic tile trim; and
    - tar/mastic around the vent protrusions through the roof.

Refer to the "Asbestos and Lead Paint Sampling Report, Demolish Structures on TMK 1-3-7-02:018 and 077, 5839 and 5841 Kalaniana'ole Highway, Kalauha'iha'i Fishpond (Lucas Spring), Kuliouou, Oahu, Hawaii" dated April 2016 and appended at the end of the specifications. All quantities listed are estimates. Contractor shall verify all quantities, locations and accessibility.

## 1.2 APPLICABLE STANDARDS AND GUIDELINES

All work under this contract, and any other trade work conducted with the project, shall be done in strict accordance with all applicable federal, state, and local regulations, standards, and codes governing asbestos handling, treatment, encapsulation, removal, demolition, transportation, and disposal of asbestos, as required. The most recent edition of any relevant document shall be in effect. Where conflict or any inconsistency among requirements or with this specification exists, the more stringent requirements shall apply. All regulations shall govern these specifications, except that any more stringent specification or any specification providing greater protection against asbestos exposure, injury, loss, or liability shall control to the extent permitted by regulation. Any question regarding conflict or inconsistency between specifications and/or regulations should be referred to the Engineer. Ignorance of the above requirements or of any applicable State and local regulations resulting in additional cost to the Contractor shall not be paid by the Owner.

Specific Statutory and Regulatory Requirements include, but are not limited to the following:

1. PL 99-519, Toxic Substances Control Act, Title II, Asbestos Hazard Emergency Response Act (AHERA)
2. 40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart A (General Provisions) and Subpart M (National Asbestos Standards)
3. 40 CFR Part 763 Appendix A to Subpart E, Interim Transmission Microscopy Analytical Methods - Mandatory and Non-mandatory – and mandatory Section to Determine Completion of Response Actions, October 30, 1987
4. 40 CFR Part 763, Asbestos Model Accreditation Plan [59 CFR 5236] (February 3, 1994)
5. 40 CFR Part 172, Transportation, Hazardous Materials Regulations
6. Occupational Safety and Health Administration (OSHA) 29 CFR 1926.1101, Asbestos
7. Chapter 12-145, 12-145.1, HIOSH Construction Standards, Asbestos
8. Chapter 12-206, HIOSH Health Standards, Asbestos
9. Chapter 16-77, Subchapter 19, DCCA Asbestos Contractors
10. Hawaii Revised Statutes, Sections 321-11(26), 321-13(a)(I) and 321-15
11. 29 CFR 1910.134, General Industry Standard for Respiratory Protection, OSHA, DOL
12. 29 CFR 1910.2, Access to Employee Exposure and Medical Records, OSHA, DOL

13. 29 CFR 1910.1200, Hazard Communication, OSHA, DOL
14. Guidance for Controlling Asbestos-Containing Materials in Buildings, (Purple Book), EPA
15. 29 CFR 1910.145, Specifications for Accident Prevention, Signs, and Tags, OSHA, DOL
16. American National Standards Institute, Inc. (ANSI) Z88.2-92 Practice for Respiratory Protection
17. Hawaii Administrative Rules (HAR) 11-501, Asbestos Requirements
18. HAR 11-503, Fees for Asbestos Removal and Certifications
19. HAR 11-504, Asbestos Abatement Certification Program

### 1.3. DEFINITIONS

1. Abatement: Procedure to control fiber release from asbestos-containing building materials.
2. Air Monitoring: The process of measuring the fiber content of a specific, known, volume of air in a stated period of time. For this project, the most current version of National Institute for Occupational Safety and Health (NIOSH) 7400 shall be used for asbestos air monitoring.
3. Amended Water: Water to which a surfactant has been added to reduce water surface tension and thereby provide a more rapid penetration.
4. Asbestos: Naturally-occurring silicate mineral with long, thin fibrous crystals. Properties include insulating, flexible, average tensile strength, and resistance to fire, heat, and electrical and chemical damage.
5. Authorized Visitor: The Engineer, his representatives, air monitoring personnel, or a representative of any regulatory or other agency having jurisdiction over the project.
6. Certified Industrial Hygienist: Person certified by the American Board of Industrial Hygiene. Person educated, trained, and certified in recognizing and evaluating work place hazards and stress (in this instance, asbestos abatement and related work), and expert in providing methods and means of removing or correcting such hazards and stresses within the work environment.
7. Competent Person: An employee specially trained in an EPA AHERA Supervisor training course, who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate them. The duties of the competent person are defined in HIOSH 12-145.1 (29 CFR 1926.1101 (o)).
8. Contractor: Individual and/or legal entity and its subcontractors and employees of the contractor and subcontractor awarded the contract.

9. Control Area: An area where unwanted toxic or harmful substances exist.
10. Excursion Limit (EL): The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in Appendix A to 29 CFR 1926.1101, or by an equivalent method.
11. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area without dismantling.
12. High Efficiency Particulate Air (HEPA) Filter: A High Efficiency Particulate Air filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 micron in length.
13. High Efficiency Particulate Air (HEPA) Vacuum Equipment: Vacuuming equipment that utilizes a HEPA filter.
14. Holding Area: A secure area used for the storage of double-bagged ACM/PACM before removal from the project site to an approved disposal site.
15. Engineer: Owner's representative for this project for work that pertains to ACM/PACM only.
16. Monitoring Specialist: Person under the supervision of the Contractor-hired Qualified Consultant who is trained in health and safety requirements for asbestos exposure and air monitoring.
17. Permissible Exposure Limit (PEL): Maximum amount or concentration of a chemical that a worker may be exposed to under OSHA regulations. The PEL for asbestos is 0.1 fiber per cubic centimeter, as determined from an 8-hour time weighted average (TWA).
18. Personal Monitoring: Contractor's sampling of asbestos in air concentrations within the breathing zone of an employee to determine the 8-hour TWA. The samples shall be representative of the employee's work tasks. The breathing zone shall be considered an area within 12 inches of the nose or mouth of the employee.
19. Qualified Consultant: Independent third-party, not an employee of the Contractor or on the Contractor's payroll, who is hired by the Contractor and who is educated and trained in recognizing and evaluating work place hazards and providing guidance on the methods and means of removing or correcting such hazards within the work environment. For this contract, the work place hazards are work related to ACM/PACM removal and demolition.
20. Regulated Area or Work Area: An area established by the Contractor to demarcate areas where ACM/PACM removal from buildings is conducted, ACM/PACM removal (designated as Class I, II, or III asbestos work in 29 CFR 1926.1101) is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit. Requirements for regulated areas are set out in paragraph (e) of 29 CFR 1926.1101.

21. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
22. Time Weighted Average (TWA): Average exposure to a contaminant or condition to which workers may be exposed without adverse effect over a period such as in an 8-hour day or 40-hour week.

#### 1.4. SUBMITTALS

Submit in accordance with Section 01300 - Submittals prior to starting work for the asbestos disturbance work:

1. Notice: Not fewer than 10 working days before commencement of asbestos work, send "Notification of Demolition and Renovation" in accordance with 40 CFR Part 61.145 of Subpart M, of the proposed asbestos abatement work with copies to the Engineer and to the State of Hawaii Department of Health (DOH) Indoor and Radiological Health, Asbestos Section, Honolulu, Hawaii.
2. Work Plan: The Contractor shall submit for approval a site-specific Work Plan thoroughly describing in detail all work procedures and precautions to be taken, and illustrating locations for equipment to be used during the asbestos removal work. The plan must be written and signed by a State of Hawaii DOH-Certified Asbestos Project Designer. The plan shall include:
  - a. Work Methods and Procedures:
    - i. Sequence of work and performance schedule, in coordination with other trades. The detailed schedule shall include actual start and completion dates for each phase of the asbestos work and shall be prepared using bar graph method or Critical Path Method (CPM) showing project activities from beginning to completion and identifying any critical interfaces such as product delivery, coordination of various work items and with other trades, etc. The schedule shall be formulated on day/week basis. The schedule shall be updated weekly and 8 copies submitted to the Engineer.
    - ii. Work area preparation and setup, including the asbestos work control area, staging areas, entrances and exits to the work area, location of decontamination units, locations of ambient air sampling pumps, location of waste storage area, etc.
    - iii. Sampling and documentation of existing conditions prior to construction.
    - iv. Asbestos handling, treatment, encapsulation, removal, transportation, and disposal, as required.
    - v. Materials, equipment, and tools, including personal protective equipment, respirators, and cartridges/filters.
    - vi. Air monitoring.
    - vii. Decontamination procedures.

- viii. Cleanup and clearance.
- ix. Waste transportation and disposal.
- b. Documentation (Certificates for all workers on the site should be submitted prior to asbestos work. No one is allowed in the controlled areas or allowed to handle wastes until these certificates are supplied.):
  - i. Contractor Qualifications: Current Contractor License (C-19) from the State Department of Commerce and Consumer Affairs (DCCA) and asbestos entity registration from the State of Hawaii DOH.
  - ii. NESHAP Compliance: Compliance with the requirements of EPA's NESHAP regulation is required for this project.
  - iii. Insurance: Proof of Workman's Compensation and General Liability Insurance, which covers lead, asbestos, and pollution.
  - iv. Asbestos Training: Documentation of experience, assigned responsibilities during the project, and asbestos removal training, based on 29 CFR 1926.1101, HIOSH 12-145 and 12-145.1, and current EPA regulatory requirements.
  - v. Respiratory Protection: Written program and current documentation of training and fit-testing for all personnel who will enter the work area wearing negative-pressure respirators.
  - vi. Medical Examination: Current clearance of comprehensive medical examination from a physician, including current Certificate of Respiratory Exam (pulmonary testing) and the ability to wear a respirator.
  - vii. Qualified Consultant Qualifications: Name, address, telephone number, and certifications.
  - viii. Testing Laboratory Qualifications: Name, address, telephone number, and certifications, including EPA National Voluntary Laboratory Accreditation Program (NVLAP) or the American Industrial Hygiene Association (AIHA).
  - ix. Proposed Disposal Landfill Waste Acceptance: Name, address, telephone number, and type of waste accepted.
  - x. Waste Disposal/Shipment Record: Submit copies of all the waste disposal landfill's asbestos waste shipment records, trip tickets, and disposal receipts for all asbestos-containing waste materials removed from the work area.
  - xi. Emergency Response and Evacuation Plan: Written program and training.

- xii. **Rental Equipment:** When rental equipment is used in asbestos work 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 Engineer.
  
  - c. **Manufacturer's Data:** Manufacturer's specifications, installation instructions and field test procedures for each material and all equipment related to asbestos handling and include other data as may be required to show compliance with these specifications and proposed uses, to include, but not limited to the following:
    - i. Personal protective equipment (e.g., clothing, etc.).
    - ii. Respirators and Cartridges/Filters: NIOSH approvals.
    - iii. HEPA Vacuums and Dust Collection Systems: Conform to ANSI Z9.2-2006, *Fundamentals Governing the Design and Operation of Local Exhaust Systems*.
    - iv. Surfactant and Chemical Agents: including all laboratory data, mixing and application instructions.
    - v. Tapes and Adhesives: including all laboratory data.
    - vi. Specialized tools
  
  - d. **Respiratory Protection Program:** Written program meeting the requirements of 29 CFR 1910.134(b)(d)(e).
  
  - e. **Emergency Response and Evacuation Plan:** To include consideration of fire explosion; toxic atmospheres; electrical hazards; slips, trips, and falls; confined spaces; and heat-related injury. In non-life threatening situations, the injured or incapacitated employee shall decontaminate following normal procedures, with assistance from co-workers if necessary, before exiting the work area to obtain proper medical treatment. In life threatening situations, worker decontamination shall take least priority after measures to stabilize the injured worker, remove the injured worker from the work area, and secure proper medical treatment.
3. **Samples:** Submit samples of the following items for approval prior to ordering materials:
- a. **Plastic Sheeting:** Three 8-1/2" x 11" pieces of each thickness and type with labels indicating actual mil thickness.
  - b. **Warning Labels and Signs:** Eight (8) copies of examples of all required signage.
  - c. **Protective Clothing:** One sample of each item which will be returned to the Contractor.

## PART 2 - PRODUCTS

The Contractor shall ensure that all materials and equipment used for this project are asbestos-free. Provide or fabricate suitable tools and equipment for the asbestos work procedures.

- A. Plastic Sheeting: Minimum thickness is 6-mil polyethylene film.
- B. Plastic Bags: Minimum thickness 6-mil polyethylene film labeled as specified hereinafter.
- C. 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; red or NATO orange tape, minimum 2 inches wide for exit arrows; and double faced foam tapes, by Nashua, 3-M, Arno, or approved equal.
- D. Adhesives: Adhesives shall be capable of sealing lapped sheets of polyethylene together or to finished or unfinished surfaces of dissimilar materials. Adhesives shall adhere under both dry and wet conditions. Use 3-M tapes #76, #77, or approved equal.
- E. Surfactant (Wetting Agent): 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, and shall be mixed with water to provide a concentration of one ounce, or more as needed, of surfactant to 5 gallons of water. (An equivalent surfactant shall be understood to mean material with a surface tension of 29 dynes/cm as tested in its properly mixed concentration, using ASTM method D 1331-56 (R 1980), "Surface and Interfacial Tension of Solutions of Surface-Active Agents.")
- F. Warning Labels and Signs: As required by OSHA regulations 29 CFR 1926.1101 and HIOSH 12-145.1. Labels for asbestos debris must also meet the requirements of HIOSH 12-145.1. The generator's name and address must be attached or included in bagged or wrapped asbestos debris.
- G. Other Materials: Provide all other materials, such as, 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.
- H. Personnel Protection Equipment: The Contractor shall have all the required sets of coveralls required for this project on island prior to the start of work. There will be no time extension for the unavailability of coveralls or related equipment.
  - 1. The Contractor acknowledges he alone is responsible for instruction and for enforcing personnel protection requirements and that these specifications provide only a minimum acceptable standard.
  - 2. Provide workers with personally issued and marked respiratory equipment approved by NIOSH and accepted by OSHA and HIOSH. All work related to the removal, wrapping, and bagging of ACM/PACM shall be performed in NIOSH-approved half-face respirators equipped with HEPA cartridges.

3. Workers loading and unloading asbestos debris at the project site and landfill shall wear NIOSH-approved respirators that provide adequate respiratory protection.
  4. No bearded or unshaven person(s) shall be allowed on site to perform asbestos work.
  5. Provide workers with sufficient sets of disposable protective full body clothing consisting of material impenetrable by asbestos fibers and of the proper size for each individual to accommodate movement without tearing. Such clothing shall consist of full body coveralls, footwear, gloves and headgear. Provide hard hats as required by applicable safety regulations. Disposable clothing shall not be allowed to accumulate and shall be disposed of as asbestos-contaminated waste. Protective clothing shall be worn by all personnel within the work area from the start of the removal work until the work area has received its final clearance.
  6. No visitors shall be allowed in work areas, except as authorized by the Engineer. Provide authorized visitors with suitable disposable protective full body clothing consisting of asbestos-impenetrable material of the proper size to accommodate movement without tearing. Such clothing shall consist of full body coveralls, shoes with shoe covers, gloves, and headgear, including hard hats and insulated rubber boots when required. The Contractor shall include in his bid the expense of a total of 2 changes of clothing per day for each day of asbestos work for visitor's use. The quantity shall accumulate and may be used at any time during asbestos work at the discretion of the Engineer.
  7. Additional safety equipment (e.g., hardhats meeting the requirements of ANSI Z89.1-1981, eye protection meeting the requirements of ANSI Z87.1-1979, safety shoe covering meeting the requirements of ANSI Z41.1-1967, disposable PVC gloves), shall be provided to all workers and authorized visitors as needed.
- I. Water Sprayer: Airless or a pressure sprayer for amended water application as applicable.

### PART 3 - EXECUTION

#### A. Potential Asbestos Hazard

1. The disturbance or dislocation of asbestos-containing materials may cause asbestos-containing dust to be released into the atmosphere, thereby creating a potential health hazard to the workers and the general public. Apprise all workers, supervisory personnel, subcontractors, consultants, authorized visitors, occupants, and neighbors who will be at or near the job site of the seriousness of the hazard and of proper work and protective procedures, which must be followed.
2. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants who may encounter, disturb, or otherwise function in the immediate vicinity of any identified asbestos-containing materials, take appropriate, continuous, possible safeguards, precautions, and protective measures as necessary to protect all workers and the general public from the

potential hazard of exposure to respirable airborne asbestos fibers. Such measures shall include the procedures and methods described in the regulations of applicable federal, state, and local agencies. All possible safeguards, precautions, and protective measures shall be utilized to prevent exposure of any individual to asbestos fibers.

3. If any previously-untested building components are suspected to contain asbestos and located in areas impacted by the work, the Contractor shall notify the Engineer who will have the option of ordering a minimum of three (3) bulk samples and as many as seven (7) bulk samples (depending on the quantity of the suspect material) to be obtained at the Contractor's expense and delivered to a laboratory accredited under the National Institute of Standards and Technology (NIST) "National Voluntary Laboratory Accreditation Program (NVLAP)" and analyzed by PLM at no additional cost to the Government. Any additional components identified as ACM that have been approved by the Engineer for removal shall be removed by the Contractor and shall be paid for by an equitable adjustment to the contract price. Sampling activities undertaken to determine the presence of additional ACM shall be conducted by personnel who have successfully completed the EPA Model Accreditation Plan (MAP) "Building Inspector" training course required by 40 CFR 763, Subpart E, Appendix C.

B. Description of Work

1. Furnish all labor, materials, and equipment necessary to complete the safe and proper separating, handling, treatment, encapsulation, removal, cleanup, transportation, and disposal of ACM/PACM and associated debris prior to demolition, in compliance with all applicable laws and regulations concerning asbestos, including all incidental and pertinent operations.
2. The scope of work involves the demolition of buildings and infrastructure as indicated on the drawings. Refer also to Section 02050 – Demolition and Removal.

C. Work Area Preparation

1. Notice and Protection of Occupants: Post caution signs in and around the work area to comply with 29 CFR 1926.1101, HIOSH regulation 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 the reader to take the necessary protective measures to avoid exposure.
2. Safeguarding of Property: Take all cautions necessary to ensure there is no asbestos contamination of areas not included in the work area. The Contractor shall take whatever steps may be necessary to safeguard his work and also the property of the Owner and other individuals in the vicinity of his work area during the execution of this Contract. He shall be responsible for and make good on any and all damages caused by his or his employees' negligence. No structure will be loaded such that the weight of the load will endanger the structure.
3. Site Security: The Contractor shall be solely responsible for security of the work area and in proximity of Contractor's equipment and materials. Entry into the

regulated area during disturbance of ACM/PACM is restricted to authorized, trained, and protected personnel. These may include the Contractor's employees, employees of subcontractors, the Engineer and his representatives, State and local inspectors, and any other designated individuals. A list of authorized personnel shall be established prior to job start.

4. Entry Log shall be maintained of all personnel other than the Contractor's employees and agents who enter the work area while asbestos work is in progress until after final clearance is received. A sample form is provided in this Section. The log shall contain the following information as a minimum and certified copies shall be submitted to the Engineer weekly:

- a. Date of visit
- b. Visitor's name, employer, business address, and telephone number
- c. Time of entry and exit from work area
- d. Purpose of visit
- e. Type of protective clothing and respirator worn

5. Product Handling: Deliver materials to the site in original packages, 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 Engineer. 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 asbestos work is completed.

D. Removal of ACM/PACM and Waste: During asbestos abatement work, acceptable industry standard dust control methods shall be used to control dust such as, set-up and erection of barriers; erection of decontamination units (if use); and establishment of a "Regulated Area" for the isolation of the work area from the rest of the container yard, buildings, and surrounding areas. Existing domestic water service to the work area may be used during construction; the location of tie-in shall be approved by the Engineer. Clean and adequately wet ACM/PACM in place with amended water during removal to control dust.

E. Air Monitoring: The air monitoring requirements conforming to all applicable Federal, State, and local regulations are incorporated into this Section.

1. The Contractor shall obtain the services of an independent air monitoring firm and shall pay for all sampling and analytical services called for in this Section. All work performed by said air monitoring and testing firm shall be under the supervision of a Certified Industrial Hygienist (CIH). Personnel performing air monitoring must have taken and successfully passed the NIOSH 582 course. The testing laboratory must submit a certified letter of proficiency in AIHA/NIOSH PAT program, and the analytical method prescribed by 29 CFR 1926.1101 Appendix A of the OSHA regulations, the most current NIOSH 7400 method, or

approved substitute per OSHA revisions 29 June 1995 (Federal Register, Vol. 60, No. 125).

2. Throughout the entire removal and cleaning operations, air monitoring shall be conducted to ensure that the Contractor is in compliance. The purpose of the independent air monitoring firm's work shall be to clear the work place after final cleaning of the work area, and to detect faults in the work area such as:
    - a. **Monitoring Prior to Actual Removal:** The Contractor shall provide area monitoring and establish the background fiber level one day prior to the masking and sealing operations. A minimum of three samples shall be taken.
    - b. **Monitoring during Asbestos Removal:** The Contractor shall provide personal and area monitoring to establish the TWA during disturbance of asbestos. Thereafter, providing the same type of work is being performed and the results do not exceed the PEL, the Contractor shall provide area monitoring as directed by the Contractor's CIH. If monitoring inside or outside the asbestos work area shows that airborne asbestos fiber concentrations exceed background fiber levels, stop all work, notify the Engineer immediately, correct the condition(s) causing the increase and get the Engineer's approval prior to restarting the work.
  3. **Monitoring Results:** Air sample analyses shall be completed and results reviewed by the industrial hygienist within 24 to 36 hours after sample acquisition. The Engineer shall however have the right to request monitoring results within any reasonable time period. The industrial hygienist shall notify the Contractor and the Engineer immediately of any exposures to asbestos fibers in excess of the PEL. The testing laboratory shall submit all certified monitoring results to the Engineer within one work day.
  4. **Asbestos Fiber Concentrations in the Work Area:** The maximum permissible exposure to airborne concentrations of asbestos fibers within the controlled work area when under respirator shall be in accordance with HIOSH 12-145.1. The Contractor shall ensure that no one is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1.0 f/cc) as averaged over a sampling period of 30 minutes. The work shall stop whenever these limits are exceeded and the Contractor shall remedy the condition prior to commencing the work. The expense resulting from the delays shall be the Contractor's responsibility and shall not be paid by the Owner.
- F. **Cleanup and Clearance:** Cleaning shall include the pre-cleaning, wet wiping, and HEPA vacuuming of affected surfaces.
1. Should the contractor fail to commence work to clean up and make the work area asbestos free within one working day after the clean-up thereof has been requested by the Engineer, and thereafter to expeditiously complete the said clean-up, the Engineer may without further notice and without termination of contract, do the clean-up and deduct the cost thereof from the contract price.

2. Equipment Cleaning: All contaminated equipment and tools used for removal work shall be cleaned on-site by wet wiping.
3. Visual Clearance:
  - a. The Qualified Consultant shall visually inspect the affected surfaces for residual and accumulated dust before the eventual removal of the asbestos control area.
  - b. If the Qualified Consultant requests recleaning due to visual dust, the process shall be repeated until the clearance is obtained. The Contractor shall not remove the asbestos regulated area or roped-off perimeter and warning signs prior to the Engineer's receipt of the Qualified Consultant's asbestos clearance certification. Any additional clearance inspection initiated by the Contractor or required due to failure of the first clearance inspection, shall be at the Contractor's expense.
4. Final Cleanup: Remove asbestos work signage. Signage applicable to job site safety and the performance of the remaining portions of the work shall remain as applicable. Completely remove all protective covering used to protect the work area. Collect asbestos fragments, then bag and dispose of as asbestos waste.

G. Handling, Encapsulation, Removal, Transportation, and Disposal of ACM/PACM Waste

1. Dispose of the removed ACM/PACM, and used protective clothing as asbestos-contaminated waste.
2. As the work progresses and waste is generated, the Contractor shall transport to the authorized pre-designated disposal site all waste generated periodically based on on-site storage capacity or at the end of the project, in accordance with EPA regulations, as approved by the Engineer.
3. ACM/PACM and contaminated material shall be adequately wetted and double wrapped in 6 mil thick polyethylene or double-bagged (6 mil thick plastic bag) with OSHA label prescribed by the 29 CFR 1926.1101 (k)(8)(iii). The label shall state,

"DANGER  
CONTAINS ASBESTOS FIBERS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
DO NOT BREATHE DUST  
AVOID CREATING DUST"

The outside of all containers shall be clean before leaving the work area. A label with the name of the waste generator and location from which the waste was generated shall be clearly indicated on the outside of the wrap or bag per the November 20, 1990 NESHAP Revision, Final Rule, Waste Disposal Section describing marking, labeling, and offsite disposal requirements. Shipment records shall be maintained using forms described in this latest NESHAP Revision.

4. Vehicles used for transporting waste to the disposal sites shall bear warning signs and markings as described in the November 20, 1990 NESHAP Revision, Final Rule, Waste Disposal Section and have a completely enclosed, lockable storage compartment. Storage compartments shall be plastic and sealed with a minimum of one layer of 6 mil polyethylene sheeting on the sides and top and two layers of 6 mil polyethylene on the floor (bed). If allowed by HIOSH, waste materials, except those with sharp edges, properly double-bagged, may be transported to the disposal site without being placed in drums, if the transporting vehicle is prepared as specified above, subject to more stringent requirements by HIOSH. The compartments shall be thoroughly wet-cleaned and/or HEPA-vacuumed, following the disposal of each load at the disposal sites at an approved location with electrical power as required. At the conclusion of the asbestos work, or before transport vehicles are used for other purposes, the polyethylene sheeting shall be properly removed and disposed of as contaminated waste. After this has been accomplished, compartments shall once again be wet-cleaned and HEPA-vacuumed in order to eliminate all debris.
5. Workers unloading bags at the disposal sites shall be dressed in full body protective clothing and dual cartridge respirators with HEPA filters.
6. Waste disposal waste shipment record shall be properly completed to assure custody and disposal of all ACM/PACM and asbestos-contaminated waste at approved disposal sites. The waste disposal landfill Asbestos forms shall be kept on file as directed by the Engineer with copies submitted to the Engineer the next working day after each trip.

NOTE: PRIOR TO BID, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT THE LANDFILL USED FOR DISPOSAL OF ASBESTOS-CONTAINING OR ASBESTOS-CONTAMINATED WASTE IS APPROVED FOR THAT PURPOSE. IF NOT APPROVED, THE CONTRACTOR SHALL DETERMINE AN ALTERNATE PROPER WASTE DISPOSAL METHOD.

7. Bagged and/or wrapped waste must be placed, not dropped, at the site of burial. Dumping of bags from the containers or truck will not be allowed. However, if it is acceptable to the landfill, if the bags are torn, the entire container may be buried.
8. The Contractor shall pay a waste disposal charge for the use of any landfills. All expenses for landfills shall be the complete responsibility of the Contractor. The Contractor shall give 24-hour advance notice of all deliveries to the landfill(s). Delivery time shall be as directed by the landfill operator.

#### PART 4 MEASUREMENT AND PAYMENT

Payment for removal and disposal of ACM/PACM and wastes shall be included as part of the Lump Sum bid price for the project.

Final payment will not be made until copies of all landfill asbestos waste shipment/disposal records, trip tickets and disposal receipts have been furnished to the Engineer.



ASBESTOS DISPOSAL FORM  
(sample)

Date: \_\_\_\_\_

Owner or Operator of Landfill \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

Name of Landfill \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

Hauler \_\_\_\_\_

Approximate Volume of Asbestos Received \_\_\_\_\_

Type of Container(s) Used \_\_\_\_\_

Asbestos Container labeled? \_\_\_\_\_ YES \_\_\_\_\_ NO

I certify that the above statements are true and that the landfill has been approved for the disposal of asbestos. The delivered material will be covered within 6 inches (15 cm.) of non-asbestos material within 24 hours.

\_\_\_\_\_  
Landfill Owner-Operator

END OF SECTION

## SECTION 02820 – ENGINEERING CONTROL OF ARSENIC-CONTAINING MATERIAL

### PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

- A. The work shall include the handling, treatment, removal, storage, transportation, and disposal procedures of arsenic-containing (canec) ceiling panels and waste, and incidental work, as required, in conjunction with the demolition work. Refer also to Section 02050 – Demolition and Removal.
- B. The Contractor acknowledges that he alone is responsible for the arsenic work and for enforcing personnel protective requirements, and that this specification provides only a minimum acceptable standards. The Contractor shall comply with all Federal, State, and local regulations regarding arsenic.
- C. The Contractor shall coordinate all work with the General Contractor and the Engineer.
- D. Sampling confirmed arsenic is present in the following materials:
  - 1. Friable canec ceiling panels in good condition in the 5839 Kalaniana'ole Highway residence (about 1,900 square feet [sf]).
  - 2. Friable canec ceiling panels in good to poor condition in the 5841 Kalaniana'ole Highway garage and residence (about 2,290 sf).
  - 3. Refer to the "Asbestos and Lead Paint Sampling Report, Demolish Structures on TMK 1-3-7-02:018 and 077, 5839 and 5841 Kalaniana'ole Highway, Kalauha'iha'i Fishpond, Kuliouou, Oahu, Hawaii" dated April 2016 and appended at the end of the specifications. All quantities listed are estimates. Contractor shall verify all quantities, locations and accessibility.

#### 1.2 APPLICABLE STANDARDS AND GUIDELINES

All work under this contract, and any other trade work conducted with the project, shall be done in strict accordance with all applicable Federal, State, and local regulations, standards, and codes governing arsenic handling, treatment, removal, demolition, transportation, and disposal of arsenic, as required. The most recent edition of any relevant document shall be in effect. Where conflict or any inconsistency among requirements or with this specification exists, the more stringent requirements shall apply. All regulations shall govern these specifications, except that any more stringent specification or any specification providing greater protection against arsenic exposure, injury, loss, or liability shall control to the extent permitted by regulation. Any question regarding conflict or inconsistency between specifications and/or regulations should be referred to the Engineer. Ignorance of the above requirements or of any applicable State and local regulations resulting in additional cost to the Contractor shall not be paid by the Owner.

Specific Statutory and Regulatory Requirements include, but are not limited to the following:

- 1. Hawaii Administrative Rules Title 11 Department of Health, Chapter 261 Hazardous Waste Management: Identification and Listing of Hazardous Waste.

2. Hawaii Administrative Rules Title 12 Department of Labor and Industrial Relations, Subtitle 8 Division of Occupational Safety and Health, Part 8 Health Standards, Chapter 202 Toxic Materials and Harmful Physical Agents, Chapter 12-202-31.1 Inorganic Arsenic.
3. Occupational Safety and Health Administration (OSHA) 29 CFR 1926.1118, Inorganic Arsenic

### 1.3 DEFINITIONS

1. Abatement: Procedure to control release from arsenic-containing building materials.
2. Air Monitoring: The process of measuring the content of a specific, known, volume of air in a stated period of time.
3. Amended Water: Water to which a surfactant has been added to reduce water surface tension and thereby provide a more rapid penetration.
4. Arsenic: Metalloid poisonous element that is commonly metallic steel gray, crystalline, and brittle.
5. Authorized Visitor: The Engineer, his representatives, air monitoring personnel, or a representative of any regulatory or other agency having jurisdiction over the project.
6. Canec: Canec is the common name for a fiberboard building material that was made from sugar cane bagasse, the residual fiber that remains after the juice has been extracted from the sugar cane. Canec was treated with inorganic arsenic compounds as an anti-termite agent.
7. Certified Industrial Hygienist: Person certified by the American Board of Industrial Hygiene. Person educated, trained, and certified in recognizing and evaluating work place hazards and stress (in this instance, arsenic abatement and related work), and expert in providing methods and means of removing or correcting such hazards and stresses within the work environment.
8. Contractor: Individual and/or legal entity and its subcontractors and employees of the contractor and subcontractor awarded the contract.
9. Control Area: An area where unwanted toxic or harmful substances exist.
10. Engineer: State representative for this project for work that pertains to arsenic waste only.
11. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area without dismantling.
12. High Efficiency Particulate Air (HEPA) Filter: A High Efficiency Particulate Air filter capable of trapping and retaining 99.97% of particles greater than 0.3 micron in length.
13. High Efficiency Particulate Air (HEPA) Vacuum Equipment: Vacuuming equipment that utilizes a HEPA filter.

14. Holding Area: A secure area used for the storage of double-bagged waste before removal from the project site to an approved disposal site.
15. Monitoring Specialist: Person under the supervision of the Contractor-hired Qualified Consultant who is trained in health and safety requirements for arsenic exposure and air monitoring.
16. Permissible Exposure Limit (PEL): Employee exposure averaged over an 8-hour period, without regard to the use of respirators, to a particular airborne concentration. HIOSH requirements become effective at this level. Arsenic: 0.01 milligrams per cubic meter of air averaged over any eight (8) hour period.
17. Personal Monitoring: Contractor's sampling of arsenic in air concentrations within the breathing zone of an employee to determine the 8-hour TWA. The samples shall be representative of the employee's work tasks. The breathing zone shall be considered an area within 12 inches of the nose or mouth of the employee.
18. Qualified Consultant: Independent third-party, not an employee of the Contractor or on the Contractor's payroll, who is hired by the Contractor and who is educated and trained in recognizing and evaluating work place hazards and providing guidance on the methods and means of removing or correcting such hazards within the work environment. For this contract, the work place hazards are work related to arsenic-containing (canec) ceiling panel removal and demolition.
19. Work Area: An area established by the Contractor to demarcate areas where arsenic (canec) removal from buildings is conducted, arsenic (canec) removal is conducted, and any adjoining area where debris and waste from such arsenic work accumulate; and a work area within which airborne concentrations of arsenic exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.
20. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
21. Time Weighted Average (TWA): Average exposure to a contaminant or condition to which workers may be exposed without adverse effect over a period such as in an 8-hour day or 40-hour week.

#### 1.4 SUBMITTALS

- A. Submit prior to starting work for the arsenic disturbance work. Arsenic (canec) removal work shall be done in conjunction with asbestos-containing material (ACM) removal work (see Section 02820 - Engineering Control of Asbestos-Containing Materials).
- B. Arsenic Training: Documentation of experience, assigned responsibilities during the project, and arsenic removal training.

#### PART 2 - PRODUCTS

Arsenic (canec) removal work shall be done in conjunction with asbestos-containing material (ACM) removal work (see Section 02820 - Engineering Control of Asbestos-Containing Materials).

## PART 3 - EXECUTION

### 3.1 POTENTIAL ARSENIC HAZARD

- A. The disturbance or dislocation of arsenic-containing materials may cause arsenic-containing dust to be released into the atmosphere, thereby creating a potential health hazard to the workers and the general public. Apprise all workers, supervisory personnel, subcontractors, consultants, authorized visitors, occupants, and neighbors who will be at or near the job site of the seriousness of the hazard and of proper work and protective procedures, which must be followed.
- B. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants who may encounter, disturb, or otherwise function in the immediate vicinity of any identified arsenic-containing materials, take appropriate, continuous, possible safeguards, precautions, and protective measures as necessary to protect all workers and the general public from the potential hazard of exposure to respirable airborne arsenic. Such measures shall include the procedures and methods described in the regulations of applicable Federal, State, and local agencies. All possible safeguards, precautions, and protective measures shall be utilized to prevent exposure of any individual to arsenic.

### 3.2 DESCRIPTION OF WORK

- A. Furnish all labor, materials, and equipment necessary to complete the safe and proper separating, handling, treatment, removal, cleanup, transportation, and disposal of arsenic-containing (canec) and associated debris prior to demolition, in compliance with all applicable laws and regulations concerning arsenic, including all incidental and pertinent operations.
- B. The overall scope of work involves the demolition of two two-story residences and incidental structures, as indicated on the drawings. Refer also to Section 02050 – Demolition and Removal.
- C. Arsenic (canec) removal work shall be done in conjunction with asbestos-containing material (ACM) removal work (see Section 02820 - Engineering Control of Asbestos-Containing Materials).

### 3.3 AIR MONITORING

The air monitoring requirements conforming to all applicable Federal, State, and local regulations are incorporated into this Section.

- 1. The Contractor shall obtain the services of an independent air monitoring firm and shall pay for all sampling and analytical services called for in this Section. All work performed by said air monitoring and testing firm shall be under the supervision of a Certified Industrial Hygienist (CIH).
- 2. Throughout the entire removal and cleaning operations, air monitoring shall be conducted to ensure that the Contractor is in compliance. The purpose of the independent air monitoring firm's work will be to clear the work place after final cleaning of the work area, and to detect faults in the work area such as:

- a. **Monitoring Prior to Actual Removal:** The Contractor will provide area monitoring and establish the background arsenic level one day prior to the masking and sealing operations. A minimum of three samples will be taken.
  - b. **Monitoring during Arsenic Removal:** The Contractor will provide personal and area monitoring to establish the TWA during disturbance of arsenic. Thereafter, providing the same type of work is being performed and the results do not exceed the PEL, the Contractor will provide area monitoring as directed by the Contractor's CIH. If monitoring inside or outside the arsenic work area shows that airborne arsenic concentrations exceed background arsenic levels, stop all work, notify the Engineer immediately, correct the condition(s) causing the increase and get the Engineer's approval prior to restarting the work.
1. **Monitoring Results:** Air sample analyses shall be completed and results reviewed by the industrial hygienist within 24 to 36 hours after sample acquisition. Engineer shall however have the right to request monitoring results within any reasonable time period. The industrial hygienist shall notify the Contractor and the Engineer immediately of any exposures to arsenic in excess of the PEL. The testing laboratory shall submit all certified monitoring results to the Engineer within one work day.
  3. **Arsenic Concentrations in the Work Area:** The Contractor shall ensure that no one is exposed to an airborne concentration of arsenic in excess of the PEL. The work shall stop whenever these limits are exceeded and the Contractor shall remedy the condition prior to commencing the work. The expense resulting from the delays shall be the Contractor's responsibility and shall not be paid by the Owner.
- 3.4 **HANDLING, REMOVAL, TRANSPORTATION, AND DISPOSAL OF ARSENIC (CANEC) WASTE**
2. Arsenic (canec) handling, removal, and transportation work shall be done in conjunction with asbestos-containing material (ACM) removal work (see Section 02820 - Engineering Control of Asbestos-Containing Materials). Work will be done within a containment structure with negative air and thorough clean-up after handling of canec.
  3. Canec building materials are exempt from State laws requiring a hazardous waste determination to be made prior to disposal. As a result of this exemption, testing canec for arsenic content or TCLP characteristics is not required by the State for disposal. The exemption applies whenever canec building materials are segregated from other building materials, packaged in poly liners, and disposed of separately. The permitted landfill should be notified prior to disposal of canec materials so the canec can be appropriately segregated or handled in a manner to prevent landfill employees from being exposed during their operations.

#### PART 4 MEASUREMENT AND PAYMENT

Payment for removal and disposal of arsenic (canec) wastes shall be included as part of the Lump Sum bid price for the project.

Final payment will not be made until copies of all landfill arsenic waste shipment/disposal records, trip tickets and disposal receipts have been furnished to the Engineer.

END OF SECTION

## SECTION 02830 – LEAD-CONTAINING PAINT CONTROL MEASURES

### PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

- A. The work shall include the handling, treatment, encapsulation, removal, demolition, transportation, and disposal procedures of lead-containing paints, lead-based paints, and painted materials located at the project site in conjunction with the demolition of buildings and infrastructure. Refer also to Section 02050 – Demolition and Removal. The Contractor may use chemical strippers, HEPA vacuum shrouded tools, or manual scraping, or other techniques to remove lead-containing paint, if all work is performed in accordance with all applicable requirements for worker protection and environmental protection.
- B. The Contractor acknowledges that he alone is responsible for the lead paint control work and for enforcing personnel protective requirements, and that this specification provides only a minimum acceptable standards. The Contractor shall comply with all requirements of 29 CFR 1926.62, HIOSH 12-148.1, and all applicable Environmental Protection Agency (EPA) regulations regarding lead-containing paints and painted materials.
- C. The Contractor shall coordinate all work with the General Contractor and the Engineer.
- D. Sampling confirmed that lead paint is present at the project site. Refer to the "Asbestos and Lead Paint Sampling Report, Demolish Structures on TMK 1-3-7-02:018 and 077, 5839 and 5841 Kalaniana'ole Highway, Kalauha'iha'i Fishpond (Lucas Spring), Kuliouou, Oahu, Hawaii" dated April 2016 and appended at the end of the specifications.

#### 1.2 APPLICABLE STANDARDS AND GUIDELINES

All work under this contract, and any other trade work conducted with the project, shall be done in strict accordance with all applicable federal, state, and local regulations, standards, and codes governing lead paint handling, treatment, removal, demolition, transportation, and disposal of lead-containing paints and painted materials, as required. The most recent edition of any relevant document shall be in effect. Other specific Statutory and Regulatory Requirements include, but are not limited to the following:

1. Title 29 Code of Federal Regulations (CFR) Section 1926.62 Lead Exposure in Construction; Interim Final Rule.
2. Department of Labor and Industrial Relations, Department of Occupational Safety and Health: State of Hawaii (HIOSH), Occupational Safety and Health Standards; Title 12, Subtitle 8, Chapter 148.1 (also known as Chapter 12-148.1, Hawaii Administrative Rules (HAR), Lead Exposure in Construction).
3. Title 29 CFR Part 1910.134 Respiratory Protection.
4. Title 40 CFR Parts 249 - 262 Resource Conservation and Recovery Act (RCRA).
5. Title 49 CFR Parts 171-179 DOT Hazardous Materials Transportation.

### 1.3 DEFINITIONS

1. Action Level (AL): Employee exposure averaged over an 8-hour period, without regard to the use of respirators, to a particular airborne concentration. OSHA requirements become effective at this level. The AL for lead is 30 micrograms per cubic meter of air.
2. Air Monitoring: Process of measuring the content of a specific, known volume of air in a stated period of time. For this project, National Institute for Occupational Safety and Health (NIOSH) Method 7082 shall be used for lead air monitoring.
3. Authorized Visitor: The Engineer, Qualified Consultant, their representatives, air monitoring personnel, or a representative of any regulatory or other agency having jurisdiction over the project.
4. Contractor: Individual and/or legal entity and its subcontractors and employees of the contractor and subcontractor awarded the contract
5. Control Area: An area where unwanted toxic or harmful substances exist.
6. High Efficiency Particulate Air (HEPA) Filter: Filter capable of trapping and retaining 99.97% of particulates greater than 0.3 micron in diameter.
7. Engineer: Owner's representative for this project for work that pertains to lead-containing materials only.
8. Lead: Metallic lead, all inorganic lead compounds, and inorganic lead soaps. Excluded are all other organic lead compounds.
9. Lead-Based Paint: A paint or other surface coating containing lead equal to or in excess of 1.0 milligram per square centimeter of painted surface or 0.5 percent by weight.
10. Lead-Containing Paint: A paint or other surface coating containing measurable quantities of lead.
11. Monitoring Specialist: Person under the supervision of the Contractor-hired Qualified Consultant who is trained in health and safety requirements for lead exposure and air monitoring. The Monitoring Specialist should have at least two (2) years of experience on similar lead projects, having experience in the sampling for employee and ambient air, and monitoring for compliance with applicable regulations and work plans.
12. Permissible Exposure Limit (PEL): Maximum amount or concentration of a chemical that a worker may be exposed to under OSHA regulations. The PEL for lead is 50 micrograms per cubic meter over an 8-hour time weighted average.
13. Personal Monitoring: Contractor's sampling of lead in air concentrations within the breathing zone of an employee to determine the 8-hour time weighted average. The samples shall be representative of the employee's work tasks. The breathing zone shall be considered an area within 12 inches of the nose or mouth of the employee.
14. Qualified Consultant: Independent third-party, not an employee of the Contractor or on the Contractor's payroll, who is hired by the Contractor and who is educated and trained

in recognizing and evaluating work place hazards and providing guidance on the methods and means of removing or correcting such hazards within the work environment. For this contract, the work place hazards are work related to lead-containing material removal and demolition. The Qualified Consultant should have at least five (5) years of experience on similar projects, having experience with managing wastes and hazardous wastes for construction and demolition projects, and being familiar with the applicable regulations pertaining to these activities.

15. Time Weighted Average (TWA): Average exposure to a contaminant or condition to which workers may be exposed without adverse effect over a period such as in an 8-hour day or 40-hour week.

#### 1.4 SUBMITTALS

Submit in accordance with Section 01300 - Submittals prior to starting work for the asbestos disturbance work:

1. Work Plan: The Contractor shall submit in accordance with Submittal Procedures prior to starting work a project work plan for the lead paint disturbance work, to include:
  - a. Work Methods and Procedures:
    - i. Sequence of work and performance schedule, in coordination with other trades.
    - ii. Work area preparation and setup, including the lead work control area, staging areas, entrances and exits to the work area, location of decontamination units, locations of ambient air sampling pumps, location of waste storage area, etc.
    - iii. Lead paint handling, treatment, removal, transportation, and disposal, as required.
    - iv. Materials, equipment, and tools, including personal protective equipment, respirators, and cartridges/filters.
    - v. Air monitoring.
    - vi. Decontamination procedures.
    - vii. Cleanup and visual clearance.
    - viii. Toxicity Characteristic Leaching Procedure (TCLP) sampling and analysis.
    - ix. Waste transportation and disposal.
  - b. Documentation (Certificates for all workers on the site should be submitted prior to lead work. No one is allowed in the controlled areas or allowed to handle wastes until these certificates are supplied.):

- i. Insurance: Proof of Workman's Compensation and General Liability Insurance, which covers lead, asbestos, and pollution.
  - ii. Lead Training: Documentation of experience, assigned responsibilities during the project, and lead removal training, based on 29 CFR 1926.62, HIOSH 12-148.1, and current EPA regulatory requirements. In addition, each worker in the lead control area should have site-specific awareness training to inform them of the hazards of the site, the work plan provisions, and the means of protecting themselves.
  - iii. Respiratory Protection: Written program and current documentation of training and fit-testing for all personnel who will enter the work area wearing negative-pressure respirators.
  - iv. Medical Examination: Current clearance of comprehensive medical examination, including blood lead monitoring, ZPP testing, and the ability to wear a respirator.
  - v. Qualified Consultant Qualifications: Name, address, telephone number, and certifications.
  - vi. Testing Laboratory Qualifications: Name, address, telephone number, and certifications, including EPA National Lead Laboratory Accreditation Program (NLLAP) by either the American Association for Laboratory Accreditation (A2LA) or the American Industrial Hygiene Association (AIHA), and the Environmental Lead Proficiency Analytical Testing (ELPAT) Program.
  - vii. Proposed Disposal Landfill Waste Acceptance: Name, address, telephone number, and type of waste accepted.
  - viii. Emergency Response and Evacuation Plan: Written program and training.
- c. Manufacturer's Data: Specifications, installation instructions, and field test procedures for each material and all equipment related to lead work, to include, but not limited to the following:
- i. Personal protective equipment (e.g., clothing, etc.).
  - ii. Respirators and Cartridges/Filters: NIOSH approvals.
  - iii. Specialized tools, dust collection, vacuum systems, chemical agents, as applicable.
- d. Respiratory Protection Program: Written program meeting the requirements of 29 CFR 1910.134(b)(d)(e).
- e. Emergency Response and Evacuation Plan: To include consideration of fire explosion; toxic atmospheres; electrical hazards; slips, trips, and falls; confined spaces; and heat-related injury. In non-life threatening situations, the injured or

incapacitated employee shall decontaminate following normal procedures, with assistance from co-workers if necessary, before exiting the work area to obtain proper medical treatment. In life threatening situations, worker decontamination shall take least priority after measures to stabilize the injured worker, remove the injured worker from the work area, and secure proper medical treatment.

2. Final Clearance Report: The Contractor shall submit after completing work in accordance with Submittal Procedures a project final clearance report for the lead paint disturbance work, to include:
  - a. Statement signed by the Contractor that all lead disturbance and disposal was completed in compliance with federal, state, and local regulations, this specification, and the approved Work Plan.
  - b. Contractor license number, work duration, respiratory protection and decontamination procedures employed, employee exposure and ambient air sample results, and results of the current Proficiency Analytical Testing (PAT) Program results for the laboratory conducting the air analysis.
  - c. Visual clearance certification received from the Qualified Consultant.
  - d. EPA waste generator number, material removed, total quantity of waste, and TCLP lead reports. All Hazardous Waste (HW) disposal-related documentation (e.g., Uniform Hazardous Waste Manifests, waste profile sheets, etc.) should be provided to the Engineer for review prior to any HW leaving the project site.
  - e. Waste shipping and disposal manifests of all waste material signed and accepted by the waste disposal facility, to include names and addresses of the Contractor, the Transporter, the Facility, and information on the type and number of waste containers.
  - f. Visitor/Worker Entry Log: The daily log of all personnel who enter the work area while lead disturbance operations are in progress and until final clearance is received. The log shall include, as a minimum: date of visit/worker entry; Visitor/Worker's name, employer, business address, and telephone number; time of entry and exit from work area; purpose of visit; type of protective clothing and respirator worn; and certificate of release signed and filed with the contractor.

## PART 2 - PRODUCTS

- A. Respirators and Cartridges/Filters: Use appropriate respirators and cartridges/filters, which meet all requirements of OSHA 29 CFR 1926.62 and HIOSH 12-148.1.
- B. Personal Protective Clothing: Use appropriate personal protective clothing (disposable coveralls/suits, boots, gloves, eye protection, etc.) as required by OSHA 29 CFR 1926.62 and HIOSH 12-148.1.
- C. Paint Removal Materials: Use appropriate tools, containment systems, chemical agents, vacuum systems, and environmental protection materials to fully collect and contain all lead-containing residues from the area during handling of paint coatings.

## PART 3 - EXECUTION

### 3.1 POTENTIAL LEAD HAZARD

- A. The disturbance or dislocation of lead-containing materials may cause lead-containing dust to be released into the atmosphere, thereby creating a potential health hazard to the workers and the general public. Apprise all workers, supervisory personnel, subcontractors, consultants, authorized visitors, occupants, and neighbors who will be at or near the job site of the seriousness of the hazard and of proper work and protective procedures, which must be followed.
- B. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants who may encounter, disturb, or otherwise function in the immediate vicinity of any identified lead-containing materials, take appropriate continuous measures as necessary to protect all workers and the general public from the potential hazard of exposure to respirable airborne lead dust. Such measures shall include the procedures and methods described in the regulations of applicable federal, state, and local agencies. All possible safeguards, precautions, and protective measures shall be utilized to prevent exposure of any individual to lead particulates

### 3.2 DESCRIPTION OF WORK

- A. Furnish all labor, materials, and equipment necessary to complete the safe and proper handling, treatment, removal, cleanup, transportation, and disposal of lead-containing paints and painted materials and associated debris in compliance with all applicable laws and regulations concerning lead, including all incidental and pertinent operations.
- B. In general, the SOW for this project will include demolition of buildings and infrastructure. Details of demolition work are indicated on the plans. Sampling confirmed that lead paint is present on existing surfaces at the project site (refer to "Asbestos and Lead Paint Sampling Report, Demolish Structures on TMK 1-3-7-02:018 and 077, 5839 and 5841 Kalaniana'ole Highway, Kalauha'oha'i Fishpond (Lucas Spring), Kuliouou, Oahu, Hawaii" dated April 2016 prepared by Element Environmental, LLC). All paint coatings containing hazardous metals shall be removed prior to torch cutting or welding.

### 3.3 WORK AREA PREPARATION

- A. Notice and Protection of Occupants: Inform occupants of the lead disturbance work. Protect occupants, spaces, and surrounding area from possible contamination.
- B. Lead Work: During lead disturbance work, acceptable industry standard dust control methods shall be used to control dust such as, providing dust screens; using negative pressure enclosures; remove paint using manual methods, or chemical strippers; and using HEPA vacuum shrouded tools, as applicable. Seal any penetrations to the affected work area with 6-mil polyethylene plastic sheeting and duct tape, if necessary. Separate the work area from non-work areas using two layers of 6-mil poly sheeting, if necessary. Completely contain and control all paint debris from leaving the work area.
- C. Daily Cleanup: High Efficiency Particulate Air (HEPA) vacuum and wet clean surfaces and surrounding ground within the work area daily. Do not allow lead-painted/coated

debris, paint chips, and dust to accumulate. Restrict 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.

### 3.4 AIR MONITORING

- A. Personal: The Contractor shall be responsible for his employees' personnel protection, personal air monitoring, and required certifications. Contractor shall collect daily personal air samples on at least 25% of the personnel performing removal work with the most exposure for a minimum of the first three days of work.
- B. Ambient: The Qualified Consultant will develop the sampling locations and frequencies. The exact location of these sites shall be determined by the Contractor, consist of three locations (one upwind and two downwind of the work area), and be performed for 8-hours during of the actual disturbance of the lead-containing material. The EPA standard for ambient air is 0.15 ug/m<sup>3</sup>. EPA Method Appendix B Part 50, or any equivalent method that meets this DL, may be used.
- C. Monitoring may be discontinued if the analytical laboratory results of three consecutive days of monitoring representative of each of the operations involving potential lead exposure (e.g., abrasive blasting, scraping, manual demolition, paint removal, etc.) return negative, and the procedures resulting in this negative determination are sufficiently maintained for the duration of the project.

### 3.5 CLEANUP AND CLEARANCE

- A. Waste Segregation: During the course of the work, the Contractor shall separate non-hazardous waste material (e.g., plastic sheeting, disposable tools, disposable protective suits, etc.) from potentially hazardous waste material (e.g., lead paint chips, debris, trash, etc.). The lead-containing waste must be placed in UN-approved (49 CFR 178) and appropriately labeled containers. The containers with lead-containing waste shall be removed from the immediate work area and shall be stored onsite for TCLP testing.
- B. Final Cleanup: When the lead work has been completed, the area will be cleaned of all visible lead paint contamination by vacuuming with a HEPA-filtered vacuum cleaner followed by wet mopping, where applicable.
- C. Visual Clearance:
  - 1. The Qualified Consultant shall visually inspect the affected surfaces for residual lead paint chips and accumulated dust before the eventual removal of the lead control area.
  - 2. If the Qualified Consultant requests recleaning due to visual dust or residual paint chips, the process will be repeated until the clearance is obtained. The Contractor shall not remove the lead control area or roped-off perimeter and warning signs prior to the Engineer's receipt of the Qualified Consultant's lead clearance certification. Any additional clearance inspection initiated by the Contractor or required due to failure of the first clearance inspection, shall be at the Contractor's expense.

F. Toxicity Characteristic Leaching Procedure (TCLP) Sampling and Analysis for waste disposal.

1. The Contractor shall be responsible for collecting representative samples of different waste streams and analyzing the samples for eight RCRA metals by TCLP analysis. The TCLP test result must be compared to the EPA limits (40 CFR 261.24), to determine if the demolition debris can be disposed of at a local landfill and/or metal recycling company approved for such purposes.
2. The Contractor shall be responsible for obtaining waste disposal approval from the landfill.

G. Waste Transportation and Disposal

1. Hazardous Waste: If any wastes are found to be classified as a hazardous waste, the owner will be notified within 24 hours and all hazardous wastes labeled, stored, and secured in accordance with applicable regulations.

Local waste landfill facilities do not accept RCRA hazardous waste. All hazardous waste must be disposed of at an EPA-approved U.S. mainland RCRA hazardous waste disposal facility. All hazardous waste must be removed from the project site within 90 days of the waste being created for disposal.

2. Non-hazardous Waste: Non-hazardous lead waste and debris may be disposed of at the local waste landfill facility that is State-approved to accept such waste.
  - a. Notify Non-hazardous Waste Landfill Operator: The Contractor shall advise the Non-hazardous Waste landfill operator, at least 24 hours prior to transportation, of the material to be delivered.
  - b. Provide the Non-hazardous Waste Landfill Operator with applicable TCLP results, which indicate that the waste material is non-hazardous.
  - c. If the TCLP results indicate that the wastes are hazardous waste, the Contractor, within three (3) days, shall securely store, label, and handle the materials in accordance with EPA regulations for hazardous waste. The Qualified Consultant shall ensure that the hazardous waste regulations are being followed for these wastes.

#### PART 4 - MEASUREMENT AND PAYMENT

Payment for removal and disposal of lead paint, debris, and wastes shall be included as part of the Lump Sum bid price for the Project.

Final payment will not be made until copies of all landfill asbestos waste shipment/disposal records, trip tickets and disposal receipts have been furnished to the Engineer.

END OF SECTION

SECTION 02840 – REMOVAL OF PCB-CONTAINING LIGHT BALLASTS AND MERCURY-CONTAINING LAMPS

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. The removal of PCB-containing light ballasts and mercury-containing lamps work shall consist of the removal, handling, storage, transportation, and disposal procedures of polychlorinated biphenyl (PCB)-containing light ballasts (that do not have a "No PCBs" label) and mercury-containing fluorescent light tubes and bulbs from the building to be demolished, as required. Refer also to Section 02050 Demolition and Removal.
- B. The Contractor acknowledges that he alone is responsible for the PCB/mercury work and for enforcing personal protective equipment (PPE) requirements, and that this Specification provides only minimum acceptable standards. The Contractor shall comply with all applicable Federal, State, and local regulations regarding PCB/mercury.
- C. Prior to start of work, Contractor shall confirm that utilities serving each area of removal are shut off, disconnected/de-energized, and sealed.
- D. All materials and equipment removed shall become the property of the Contractor and shall be removed from the site.

1.2 DEFINITIONS

- A. Contractor: Individual and/or legal entity and its subcontractors and employees of the contractor and subcontractor awarded the contract
- B. Mercury: Mercury as used in this Specification shall mean the same as mercury, mercury article, mercury article container, mercury equipment, mercury-containing, mercury item, or mercury-containing lamp.
- C. Permissible Exposure Limit (PEL) for PCBs: Maximum amount or concentration of a chemical that a worker may be exposed to under Occupational Safety and Health Administration (OSHA) regulations. The PEL for PCB is 1.0 milligram per cubic meter of air ( $\text{mg}/\text{m}^3$ ) for PCBs containing 42% chlorine and  $0.5 \text{ mg}/\text{m}^3$  for PCBs containing 54% chlorine, as determined from an 8-hour time weighted average.
- D. PEL for Mercury: Maximum amount or concentration of a chemical that a worker may be exposed to under OSHA regulations. The PEL for Mercury is 1 mg per  $10 \text{ m}^3$  of air ceiling value.
- E. PCBs: PCBs, as used in this Specification, shall mean the same as PCBs, PCB article, PCB article container, PCB equipment, PCB item, PCB ballast, and PCB-contaminated electrical equipment, as defined in 40 Code of Federal Regulation (CFR) 761, Section 3, Definitions.

- F. Time Weighted Average (TWA): Average exposure to a contaminant or condition to which workers may be exposed without adverse effect over a period such as in an 8-hour day or 40-hour week.

### 1.3 SUBMITTALS

Submit the following in accordance with Section 01300 Submittals prior to starting this work:

- A. Work Plan: The Contractor shall submit, prior to starting work, a project work plan for the PCB/mercury work, to include:
1. Work Methods and Procedures:
    - a. Materials, equipment, and tools, including PPE.
    - b. Location of waste storage area.
    - c. Ballast and tube removal, handling, and storage.
    - d. Waste transportation and disposal.
  2. Documentation:
    - a. Certifications: Name and qualifications of each contractor that will be removing, handling, storing, transporting, and/or disposing of the PCB/mercury waste. Include the facility location and a 24-hour point of contact. Furnish two copies of U.S. EPA, State, and local PCB/mercury waste applications and U.S. EPA Identification numbers.
    - b. Training: Documentation of experience and training and assigned responsibilities during the project. Topics shall include the hazards of PCBs and mercury, safety and health precautions, the use and requirements for PPE, and other applicable hazard control techniques and procedures.
    - c. Proposed Disposal Landfill Facility Waste Acceptance: Name, address, telephone number, and type of waste accepted.
  3. Final Clearance Report: After completing the work, the Contractor shall submit, in accordance with Submittal Procedures, a Project final clearance report for the PCB/mercury work, to include:
    - a. Statement of Completion: Statement signed by the Contractor that all PCB-containing light ballast and mercury-containing fluorescent light bulb and tube removal and disposal was completed in compliance with Federal, State, and local regulations, this Specification, and the approved Work Plan.
    - b. Certifications: Contractor license number, work duration, and certificate of disposal.

- c. **Certificate of Disposal:** Chain-of-custody form containing the names and addresses of the disposal facilities, the Contractor, U.S. EPA waste generator identification number, transporter, and the landfill operator; waste shipping and disposal manifests of all waste material signed and accepted by the waste disposal facility, and information on the type and number of waste containers; and a statement certifying the disposal of and method used, as defined in 40 CFR 761, Section 3.

## PART 2 – PRODUCTS

- A. **Personal Protective Clothing:** Use appropriate PPE clothing to protect personnel exposed to PCBs or mercury.
- B. **Warning Signs and Labels:** Provide and affix labels to waste containers of PCB/mercury, scrap, waste, or debris. The labels shall be of sufficient size to be clearly legible, and display the following: "CAUTION: Contains PCBs (Polychlorinated Biphenyls)" or "CAUTION: Contains Mercury," respectively. Signs and labels shall comply with the requirements of 29 CFR 1910.145 and 40 CFR 761, Subpart C for PCBs and 40 CFR 273 for mercury.

## PART 3 – EXECUTION

- A. **Potential PCB/Mercury Hazard**
  - 1. The disturbance of PCB/mercury-containing materials may cause PCB/mercury to be released into the atmosphere, thereby creating a potential health hazard to the workers and the general public.
  - 2. Take appropriate continuous measures as necessary to protect all workers and the general public from the potential hazard of exposure. Such measures shall include the procedures and methods described in the regulations of applicable Federal, State, and local agencies. All possible safeguards, precautions, and protective measures shall be utilized to prevent exposure of any individual.
- B. **PCB/Mercury Removal Work**
  - 1. Remove fluorescent light ballasts in whole. If the light fixture ballast is leaking and it is not possible or feasible to clean the light fixture, dispose of entire fixture as PCB-contaminated material.
  - 2. Prohibit breaking of fluorescent light tubes.
- C. **Temporary On-Site Storage:**
  - 1. Store non-liquid PCB/mercury mixtures, articles, or equipment in U.S. DOT-approved containers, on a spill containment pallet.
  - 2. Label the container with the following: "Solid (or Liquid) Waste Polychlorinated Biphenyls and Mercury", the PCB/mercury Caution Label, and the date the item was placed in storage and the name of the Engineer.

3. Adequately cover to prevent rainwater from reaching the stored PCBs/mercury.

D. Waste Transportation and Disposal

1. Transport waste resulting from removal operations from the site for disposal in accordance with all applicable Federal, State, and local regulations as specified in the approved Work Plan.
  - a. Hazardous Waste: Local waste landfill facilities do not accept Resource Conservation and Recovery Act (RCRA) hazardous waste. All hazardous waste must be removed from the site within 90 days of the waste being created for disposal by an U.S. EPA-certified Transporter and disposed of at an U.S. EPA-approved U.S. mainland RCRA hazardous waste disposal facility.
  - b. Toxic Substances Control (TSC) Waste: Local waste landfill facilities do not accept waste identified in the Toxic Substances Control Act (TSCA). All TSC waste must be removed from the site within 90 days of the waste being created for disposal by a U.S. EPA-certified transporter, and disposed of at a TSCA-approved U.S. mainland disposal facility.

PART 4 MEASUREMENT AND PAYMENT

Payment for removal and disposal of PCBs/mercury wastes shall be included as part of the Lump Sum bid price for the project.

Final payment shall not be made until copies of all landfill waste shipment/disposal records, trip tickets and disposal receipts have been furnished to the Engineer.

END OF SECTION