

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION  
1151 Punchbowl Street, Room 221  
Honolulu, Hawaii 96813

**ADDENDUM NO. 1**

TO

JOB NO. G25CH17A  
UPOLU WELL DEVELOPMENT  
0.5 MG RESERVOIR AND TRANSMISSION MAIN  
North Kohala, Island of Hawaii, Hawaii

02/01/23

This addendum as issued shall become part of the Contract Documents for the subject project. The bid documents, plans, and specifications shall be amended as follows:

**GENERAL INFORMATION**

1. A Pre-Offer Conference was held on January 26, 2023, at 10 A.M. through Microsoft Teams. The Pre-Offer Conference Agenda and attendance sheet are attached.
2. The HIEPRO solicitation Question Due Date and Time shall be changed to 02/06/2023, 4 P.M.
3. The HIEPRO solicitation Answer Publish Date and Time shall be changed to 02/09/2023, 4 P.M.

**PROPOSAL**

REPLACE the proposal in its entirety with the attached revised proposal of which is available for download on the HIEPRO website.

**SPECIFICATION**

1. The Information and Instruction to Bidders shall be replaced with the attached Information and Instructions to Bidders.
2. The following specification sections shall be added to the specifications and are attached to this addendum:
  - The Special Provisions Section (SP-1 to SP-8).
  - Section 13210 – Steel Bolted Tank.

### **CONSTRUCTION PLANS**

1. The follow plan sheets shall be deleted and replaced with the same numbered addendum plan sheets:
  - Sheet S-1, Reservoir General Notes
  - Sheet S-12, Interior Ladder, Access and Observation Hatch Details
2. New plan sheets S-17 to S-20 for Additive Alternative No. 1 shall be added to the construction plans.
3. These revised construction plans are available for download in the HIePRO solicitation.

### **QUESTIONS AND CLARIFICATIONS**

1. Do substitution requests need to be submitted before the bid opening date?  
*Answer: No, substitution request shall be submitted after the award.*
2. Bid item 30, “8”x8”x8” Tee, Butt Fusion”, on proposal page P-5 unit of measurement is linear foot. Should it be each?  
*Answer: Yes, the unit for this bid item should be “Each”. The bid item has been edited in the attached revised proposal.*
3. Bid item 31, “8” Gate Valve & Box, in place complete”, on proposal page P-5 unit of measurement is linear foot. Should it be each?  
*Answer: Yes, the unit for this bid item should be “Each”. The bid item has been edited in the attached revised proposal.*

Engineering Division



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Carty S. Chang  
Chief Engineer

State of Hawaii  
Department of Land and Natural Resources  
Engineering Division

HlePRO B23001352  
Job No. G25CH17A  
Upolu Well Development, 0.5 MG Reservoir and Transmission Main,  
North Kohala, Hawaii Island, Hawaii

Date: January 26, 2023, 10:00 A.M.  
Location: Microsoft Teams

#### PRE-OFFER CONFERENCE AGENDA

1. The project is located off Upolu Airport Road, Tax Map Key (3) 5-5-006:002, and the State Well ID number is 8-7451-002.
2. The project site is on Department of Agriculture (DOA) property and the property is currently being leased to a dairy farming company. Contractor shall obtain a Right of Entry agreement and coordinate their construction schedule with the DOA for access.
3. The Soil Investigation Report dated August 30, 2022, by Hirata & Associates, Inc. is available for information and download from the HlePRO solicitation.
4. The Well Completion Report obtained from the Commission on Water Resource Management is available for information and download from the HlePRO solicitation.
5. Bidding:
  - Last day for questions submitted in HlePRO is February 1, 2023 at 4 P.M.
  - Answers posted on HlePRO on February 7, 2023 at 4 P.M. and an addendum will also be posted on HlePRO with the answers.
  - Offer Due Date is February 16, 2023 at 2:00 PM on HlePRO.
6. Questions/Clarifications? Please submit your questions/clarifications on HlePRO or email to Brandon Kim at [brandon.j.kim@hawaii.gov](mailto:brandon.j.kim@hawaii.gov). An addendum will be issued with official responses to the questions/clarifications.

**SIGN-IN SHEET**  
**PRE-BID CONFERENCE**

Job Number: G25CH17A      Date: January 26, 2023      Time: 10:00 a.m.      Location: Microsoft Teams  
Job Title: Upolu Well Development, 0.5 MG Reservoir and Transmission Main, North Kohala, Hawaii Island, Hawaii

	NAME	AGENCY/COMPANY	PHONE NO.	FAX NO.	EMAIL ADDRESS
1	Brandon Kim	DLNR-Engineering Division	(808) 587-0248	(808) 587-0283	brandon.j.kim@hawaii.gov
2	Gayson Ching	DLNR-Engineering Division	(808) 587-0232	(808) 587-0283	gayson.y.ching@hawaii.gov
3	Scott Kunioka	Akinaka & Associates, Ltd.	(808) 836-1900	(808) 836-8852	sak@akinaka.com
4	Austin Inouye	Akinaka & Associates, Ltd.	(808) 836-1900	(808) 836-8852	aki@akinaka.com
5	Yanis Nora	Nan Inc.	(808) 842-4929	(808) 841-8281	ynora@nanhawaii.com
6	Sam Peng Ho	Jas. W. Golver	(808) 591-8977	(808) 591-9174	SamH@gloverltd.com
7	Sean O'Kelly	Global Specialty Contractors	(808) 551-5565		seano@globalspecialty.net
8	Sebastian Conway-Phillips	Phillips Tank & Structures	(808) 809-4201		sebastian.conwayphillips@phillipstank.com
9	Keola Talaroc	Alpha Inc.	(808) 873-3883		keolat@alphahawaii.com
10	Jim Floss	Goodfellow Bros.	(808) 887-6511		Jimf@goodfellowbros.com
11					
12					
13					
14					

P R O P O S A L

FOR

DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION  
State of Hawaii

JOB NO. G25CH17A  
UPOLU WELL DEVELOPMENT  
0.5 MG RESERVOIR AND TRANSMISSION MAIN  
North Kohala, Island of Hawaii, Hawaii

\_\_\_\_\_, 2023

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 install a new pump and piping for the existing Upolu Well, construct a new 0.5 MG water storage tank, install influent and effluent watermains, construct an access road and install perimeter fencing, 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. G25CH17A  
UPOLU WELL DEVELOPMENT  
0.5 MG RESERVOIR AND TRANSMISSION MAIN  
North Kohala, Island of Hawaii, Hawaii

on file in the office of the Engineering Division for the TOTAL BASE BID (Items 1 to 94) of:

\_\_\_\_\_  
Dollars (\$ \_\_\_\_\_)  
and will fully complete all work under this contract within 365 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.

**JOB NO. G25CH17A**  
**UPOLU WELL DEVELOPMENT, 0.5 MG RESERVOIR, AND TRANSMISSION LINE**  
**North Kohala, Island of Hawaii, Hawaii**

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
<b><u>GENERAL</u></b>					
1	L.S.		NPDES Permit Compliance. For Contractor specific data such as contractor information and project contcts, site specific BMP's and Notice of Intent, etc., for construction phase.		
2	L.S.		Site BMP measures for water pollution and erosion and sediment control during construction phase of project, including installation, maintenance, and removal at end of project		
3	L.S.		Preparation, maintenance and updating of As-Built/Record Drawings for duration of project and final submittal and contractor certification of drawings to Department of Land and Natural Resources at end of project.		
4	L.S.		Project Sign, in place complete		
5	Allowance		Field Office		\$10,000.00
<b>Subtotal for GENERAL (Items 1 to 5)</b>					
<b><u>EARTHWORK, ROADWAY, AND SITE WORK</u></b>					
6	L.S.		Clearing and grubbing		
7	L.S.		Mass site, roadway excavation and embankment inclusive of removal and disposal of excess material to the elevations shown on plan Excavation = 2,590 Cu. Yd. Embankment = 205 Cu. Yd.		
8	49	S.Y.	4" gravel fill over geotextile fabric, grade A #3 course, conforming to ASTM size 5, inclusive of compaction, in place complete		
9	1,645	S.Y.	2" thick asphaltic concrete pavement (Mix No. 3) inclusive of surface preperation, in place complete		
10	1,645	S.Y.	6" thick base course for A.C. Pavement inclusive of compaction, in place complete		
11	1,522	L.F.	6' High chain link fence and appurtenances, including "No Trespassing" signs (5) in place complete		

**JOB NO. G25CH17A**  
**UPOLU WELL DEVELOPMENT, 0.5 MG RESERVOIR, AND TRANSMISSION LINE**  
**North Kohala, Island of Hawaii, Hawaii**

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
12	2	EA	6' High double-swing gate and appurtenances, including "No Trespassing", sign in place complete		
13	542	L.F.	Demolish and remove existing cattle fence		
14	2	EA	"Non-Potable Water Do Not Drink" sign and post, in place complete.		
15	13	EA	Pipe Barrier, including excavation, concrete footing, and all related work, in place complete		
16	L.S.		Furnish and install 8-inch well drain line outlet, including excavation, headwall, apron, cutoff wall, wing walls, backfill and related work, in place complete.		
17	37	S.Y.	Rock rip rap, including excavation, mortar, cut-off walls, weep holes, geotextile fabric, backfill and all related work, in place complete.		
18	350	L.F.	4' wide reinforced concrete swale inclusive of excavation and incidental work, in place complete		
19	94	L.F.	8" cement-lined ductile iron pipe, Cl. 52 (Washout & Overflow Lines), including trench excavation, backfill and cushion material and connection to seepage pits, in place complete		
20	1	EA	8" Gate valve and valve box (for Tank Washout Line), in place complete		
21	1	EA	8" Tideflex check valve (for Tank Washout Line), in place complete		
22	1	EA	6" Flap valve (for Well Drain Line), in place complete		
23	L.S.		Perforated Pipe Ring Drain, including but not limited to the following: 267 L.F. 6" HDPE perforated pipe 1 - 6" ABS Tee 2 - COTG 1 - 6" Flap Valve, or S.S. Screen and necessary fittings and accessories, inclusive of excavation aggregate backfill, filter fabric, connections to seepage pits, and necessary related work, in place complete		

**JOB NO. G25CH17A**  
**UPOLU WELL DEVELOPMENT, 0.5 MG RESERVOIR, AND TRANSMISSION LINE**  
**North Kohala, Island of Hawaii, Hawaii**

<b>ITEM NO.</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>DESCRIPTION</b>	<b>UNIT PRICE</b>	<b>TOTAL</b>
24	1	EA	Seepage pit, including but not limited to: excavation, backfill, grating, geotextile fabric, reinforced concrete cover with galvanized metal grate and seat, 8'-0" diameter reinforced concrete ring liners, and all appurtenances and incidental work, in place complete		
25	L.S.		20' wide gravel driveway for access pasture area, inclusive of excavation, backfill, tie-in of existing cattle fence, in place complete		
26	L.S.		Temporary Cattle Fence along limits of project, inclusive of installation of posts and barbed wires, excavation, tie-in to existing cattle fence, and any incidental work to ensure adjacent pasture area is secure		
<b>Subtotal for EARTHWORK, ROADWAY AND SITE WORK (Items 6 to 26)</b>					
<b><u>WATER SYSTEM PIPING AND APPURTENANCES</u></b>					
27	L.S.		Furnish and install one pumping unit including pump, motor, pump piping, valves, wellhead, well column and tubing, instrumentation, testing, painting and appurtenances, in accordance with the plans and specifications, in place complete.		
28	L.S.		Furnish and install new compressed air system (well level) and discharge pressure system, gauge board indicators and gauges, transmitter, tubing, valves, fittings, accessories, testing, painting and appurtenances, in accordance with the plans and specifications, in place complete.		
29	L.S.		Furnish and install underground copper air line in PVC conduit from well to gauge board, including trenching and appurtenances, in accordance with the plans and specifications, in place complete.		
30	L.S.		Furnish and install flow meter system including gauge board indicator and gauge, tubing, valves, fittings, accessories, testing, painting and appurtenances, in accordance with the plans and specifications, in place complete.		
31	L.S.		Furnish and install Stilling Well with float switch and pressure transducer, and necessary appurtenances, in place complete.		



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**North Kohala, Island of Hawaii, Hawaii**

<b>ITEM NO.</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>DESCRIPTION</b>	<b>UNIT PRICE</b>	<b>TOTAL</b>
32	393	L.F.	8" HDPE WL-A pipe and fittings, including trench excavation, pipe cushion, backfill, in place complete		
33	2	EA	8"x8"x8" Tee, Butt Fusion, in place complete		
34	4	EA	8" Gate Valve & Box, in place complete		
35	1	EA	8" 1/8 Bend, Butt Fusion, in place complete		
36	2	EA	8"x6" Reducer, Butt Fusion, in place complete		
37	1246	L.F.	6" HDPE WL-B pipe and fittings, including trench excavation, pipe cushion, backfill, in place complete		
38	541	L.F.	6" HDPE WL-C pipe and fittings, including trench excavation, pipe cushion, backfill, in place complete		
39	4	EA	8" Gate Valve & Box, in place complete		
40	2	EA	6" Gate Valve Cover and Cap, in place complete		
41	1	EA	1" Air Relief Valve Unit and Box, in place complete		
42	2	C.Y.	CY, DWS 2,500 concrete for reaction blocks, test blocks, concrete beams, slabs, inclusive of necessary structural struts, straps, rods, reinforcing steel and appurtenances, with Geotextile Fabric for abrasion resistance, in place complete.		
43	L.S.		Contingency for WL-B and WL-C additional bends, fittings, and appurtenances, as necessary, in place complete		\$ 20,000.00
<b>Subtotal for WATER SYSTEM PIPING AND APPURTENANCES (Items 27 to 43)</b>					
<b><u>ELECTRICAL WORK</u></b>					
44	600	L.F.	Trenching & backfill		
45	250	L.F.	4"C, PVC Schedule 40		
46	100	L.F.	3"C, PVC Schedule 40		
47	150	L.F.	2"C, PVC Schedule 40		
48	80	L.F.	1.5"C, PVC Schedule 40		

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<b>ITEM NO.</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>DESCRIPTION</b>	<b>UNIT PRICE</b>	<b>TOTAL</b>
49	1000	L.F.	1"C, PVC Schedule 40	_____	_____
50	800	L.F.	Electrical conductor 300KCMIL, RHW	_____	_____
51	200	L.F.	Electrical conductor #4/0, RHW	_____	_____
52	2000	L.F.	Electrical conductor #12, RHW	_____	_____
53	1	EA	Switchboard	_____	_____
54	1	EA	Switchboard enclosure	_____	_____
55	1	EA	Motor control center	_____	_____
56	1	EA	Motor control center enclosure	_____	_____
57	1	EA	3P400A enclosed circuit breaker, NEMA 3R	_____	_____
58	3	EA	8"L X 6"W X 6"D junction box, NEMA4XSS	_____	_____
59	1	EA	Handhole	_____	_____
60	20	C.Y.	Concrete	_____	_____
61	1	EA	Service receptacle, weather proof	_____	_____
62	9	EA	Equipment connection	_____	_____
63	1	EA	SCADA system	_____	_____
64	1	EA	Miscellaneous and testing	_____	_____
<b>Subtotal for ELECTRICAL WORK (Items 44 to 64)</b>					_____
<b><u>CONVENTIONALLY REINFORCED CONCRETE RESERVOIR</u></b>					
65	100	C.Y.	Floor Slab- 6" Thick Aggregate Base	_____	_____
66	5410	S.F.	Floor Slab- 30 mil PVC & 6 mil Poly Sheeting	_____	_____
67	72	C.Y.	Floor Slab- 6" Reinforced Concrete Slab	_____	_____
68	60	L.F.	Pipe Jackets-Ef/Influent, Washout, Overflow Pipes	_____	_____
69	160	L.F.	Floor Slab- Waterstop @ Slab Joint	_____	_____
70	240	L.F.	Floor Slab- Wall Base Joint	_____	_____
71	L.S.		Foundation - Probe and Grout	_____	_____

**JOB NO. G25CH17A**  
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**North Kohala, Island of Hawaii, Hawaii**

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
72	83	C.Y.	Foundation - Wall Footing		
73	34	C.Y.	Foundation - Column Pad Footing		
74	60	EA	Foundation - Seismic Cables		
75	238	C.Y.	Walls - 14" Reinforced Concrete Walls		
76	17	C.Y.	Columns - 18" Diameter Columns		
77	120	EA	Walls - Roof Dowels to Wall		
78	240	L.F.	Walls - Horiz. Wall Joint		
79	L.S.		Walls - Overflow Pipe Coating & Supports		
80	5500	S.F.	Walls - Exterior Painting		
81	136	C.Y.	Roof - 9" Reinforced Concrete Roof Slab		
82	15	C.Y.	Roof - Column Drop Panels		
83	80	L.F.	Roof - Waterstop @ Slab Joint		
84	4900	S.F.	Roof - Fluid Applied Roofing System		
85	1	EA	Roof - Roof Opening (4'x6') w/ Access Hatch		
86	1	EA	Roof - Observation Hatch (2' x 2')		
87	1	EA	Roof - Aluminum Roof Ventilator		
88	40	L.F.	Roof - Galvanized Steel Guardrail		
89	2	EA	Roof - S.S. Safety Anchors		
90	27	L.F.	Ladders - Galv Steel Exterior Ladder + Rails		
91	26	L.F.	Ladders - S.S. Interior Ladder + Extension		
92	L.S.		Water Level Indicator and Supports		
93	L.S.		Disinfection of Interior @ Leak Test		
<b>Subtotal for CONVENTIONALLY REINFORCED CONCRETE RESERVOIR (Items 65 to 93)</b>					
94	L.S.		Mobilization and demobilization (not to exceed 10% of the Subtotal Base Bid, Items 1 to 93)		

**JOB NO. G25CH17A**  
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**North Kohala, Island of Hawaii, Hawaii**

<b>ITEM</b>					
<b>NO.</b>	<b>QUANTITY</b>	<b>UNIT</b>	<b>DESCRIPTION</b>	<b>UNIT PRICE</b>	<b>TOTAL</b>

**TOTAL BASE BID (Items 1 to 94)** \_\_\_\_\_

**ADDITIVE ALTERNATIVE NO. 1**

95	L.S.		0.5 MG Bolted Steel Tank & Accessories	_____	_____
96	100	C.Y.	Floor Slab- 6" Thick Aggregate Base	_____	_____
97	4170	S.F.	Floor Slab- 30 mil PVC & 6 mil Poly Sheeting	_____	_____
98	45	C.Y.	Floor Slab- 6" Reinforced Concrete Slab	_____	_____
99	70	L.F.	Floor Slab- Floor Joint & Waterstop	_____	_____
100	100	L.F.	Pipe Jackets-Ef/Influent, Washout, Overflow Pipes	_____	_____
101	L.S.		Probing & Grouting for Foundation	_____	_____
102	100	C.Y.	Tank Footing & Center Column Pad Footing	_____	_____
103	6	C.Y.	Column Pad Footings	_____	_____

**Total for ADDITIVE ALTERNATIVE NO. 1 (Items 95 to 103)** \_\_\_\_\_

## **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.

## **APPRENTICESHIP AGREEMENT PREFERENCE**

1. If applicable to this project, any bidder seeking the preference must be a party to an apprenticeship agreement registered with the State Department of Labor and Industrial Relations (DLIR) at the time the bid is submitted for each apprenticeable trade the bidder will employ to construct the project. “Employ” means the employment of a person in an employer-employee relationship.
  - a. The apprenticeship agreement shall be registered with the DLIR and conform to the requirements of Hawaii Revised Statutes Chapter 372.
  - b. Subcontractors do not have to be a party to an apprenticeship agreement for the bidder to obtain preference.
  - c. The bidder is not required to have apprentices in its employ at the time the bid is submitted to qualify for the preference.
2. A bidder seeking the preference must state the apprenticeable trade the bidder will employ for each trade to be employed to perform the work by submitting a completed signed original Certification Form 1 verifying participation in an apprenticeship program registered with DLIR. “Apprenticeable trade” shall have the same meaning as “apprenticeable occupation” pursuant to Hawaii Administrative Rules (HAR) §12-30-5.
  - a. The *Certification Form 1* shall be authorized by an apprenticeship sponsor listed on the DLIR list of registered apprenticeship programs. “Sponsor” means an operator of an apprenticeship program and in whose name the program is approved and registered with the DLIR pursuant to HAR §12-30-1.
  - b. The authorization shall be an original signature by an authorized official of the apprenticeship sponsor.
  - c. The completed signed original Certification Form 1 for each trade must be submitted with the bid. Previous certifications shall not apply.
  - d. When filling out the *Certification Form 1*, the name of Apprenticeable Trade and Apprenticeship Sponsor must be the same as recorded in the List of Construction Trades in Registered Apprenticeship Programs that is posted on the DLIR website. “Registered apprenticeship program” means a construction trade program approved by the DLIR pursuant to HAR §12-301 and §12-30-4.
  - e. The *Certificate Form 1* and the List of Construction Trades in Registered Apprenticeship Programs is available on the DLIR website at: <http://hawaii.gov/labor/wdd>.
3. Upon receiving the *Certification Form 1*, the Procurement Officer will verify that the apprenticeship program is on the List of Construction Trades in Registered Apprenticeship Programs and that the form is signed by an authorized official of the Apprenticeship Program Sponsor. If the programs and signature are not confirmed by the DLIR, the bidder will not qualify for the preference.
4. If the bidder is certified to participate in an apprenticeship program for each trade which will be employed by the bidder for the project, a preference will be applied to decrease the bidder’s bid

amount by five percent (5%) for evaluation purposes.

5. Should the bidder qualify for other preferences, all applicable preferences shall be applied to the bid price.

**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 94), **or the Total Adjusted Bid as explained in Section K of the Information and Instructions to Bidders of Addendum No. 1**, selected by the Board of Land and Natural Resources. Write the total of bid items 1 to 94 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. The award of Additives may be in any order or combination such that the Base Bid plus Additives do not exceed the available funds.

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 **two hundred seventy-four (274) 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 **five hundred forty-eight (548) calendar days** 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 HIEPRO bid due date and time, 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 Five Hundred and 00/100 dollars (\$500.00) 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.

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

**JOINT CONTRACTORS OR SUBCONTRACTORS LIST FOR THE ADDITIVE  
ALTERNATIVE NO. 1**

Bidder agrees that for projects with additives alternative(s), the Bidder, joint contractor or subcontractor listed in the completed “Joint Contractors or Subcontractors List for the Additive Alternative No. 1” will perform work for the respective additive alternative.

**Additive Alternative No. 1**

<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**

# 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. EVALUATION OF BIDS AND METHOD OF AWARD:
1. **If the lowest responsive bidder's Total Base Bid (Items 1 to 94) is at or lower than the project budget amount, then that bidder will be awarded the project at their Total Base Bid amount.**
  2. **If the Total Base Bid for all responsive bidders are over the project budget, then the bid proposals will be evaluated by deleting the "Conventionally Reinforced Concrete Reservoir" items (Items 65 to 93) from the Total Base Bid and the Additive Alternative No. 1 items (Items 95 to 103) will be added to the remaining Total Base Bid items (Items 1 to 64 and 94), which shall be referred to as the Total Adjusted Bid. The responsive bidder with the lowest Total Adjusted Bid (Base Bid Items 1 to 64 and 94, plus Additive Alternative No. 1 Items 95 to 103) will be awarded the project.**
  3. **In the event the Total Adjusted Base Bid of all bidders exceeds the project budget, the State reserves the right to make an award to the responsive bidder with the lowest Total Adjusted Base Bid if additional funds are available or by reducing the scope of work through negotiation.**
- L. 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.
- M. 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.

- N. 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.

- O. 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.

- P. 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.

- Q. 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.

- R. 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.

- S. 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.

- T. 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 Phase 1 and the other phases of the project.

- U. 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.

- V. 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.
- W. 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.
- X. 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.
- Y. 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.
- Z. 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
- AA. 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.

BB. TOILET FACILITIES: All toilet facilities constructed or provided 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. Any costs for temporary toilet facilities shall be incidental to the project and be paid for by the contractor.

CC. 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.

DD. 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.

EE. 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.

FF. 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.

GG. 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.

HH. 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.

## **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 “two hundred seventy-four (274)” 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 two hundred seventy-four (274) 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 replacing the last paragraph with the following:

In the event the Notice to Proceed is not issued within five hundred forty-eight (548) calendar days after the date of bid opening, the Contractor may submit a claim for increased labor and materials costs (but not overhead costs). The claim shall be for labor and material costs incurred after 548 days and the full duration of the contract time allowed for the performance of the work (Total Base Bid or Total Adjusted Base Bid) have elapsed. Such claims shall be accompanied with the necessary documentation to justify the claim. No payments will be made for escalation costs that are not fully justified as determined by the State.

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 HIEPRO website.

### **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. Proof of Insurance Coverage**

A Certificate of Insurance or other documentary evidence, to the satisfaction of the Engineer, that the Contractor has in place all insurance coverage required by the contract. The Certificate of Insurance shall contain wording which identifies the Project number and Project title for which the certificate of insurance is issued. Refer to the following for insurance requirements:

#### **1. Insurance Requirements**

- (a) Obligation of Contractor** - Contractor shall not commence any work until it obtains, at its own expense, all required herein 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 laws of the State to issue such insurance in the State of Hawaii. Coverage by a “Non-Admitted” carrier is permissible provided the carrier has a AM Best’s Rating of “A-VII” or better.
- (b)** 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.
- (c)** Certificate(s) of Insurance acceptable to the Department shall be filed with the Engineer prior to commencement of the work. Certificates shall identify if the insurance company is a “captive” insurance company or a “Non-Admitted” carrier to the State of Hawaii. The Best’s Rating must be stated for the “Non-Admitted” carrier. Certificates shall contain a provision that coverages afforded under the policies will not be canceled or changed until at least thirty (30) 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.
- (d)** 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.

- (e) All insurance described herein shall be primary and 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.
- (f) 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.
- (g) If the Contractor is self-insured, it shall furnish, upon the request and the satisfaction of the Engineer, any documentation to demonstrate the ability to self-insure itself. The Engineer, from time to time, can conduct an audit to determine the ability of the Contractor to be self-insured. Failure to comply with the Engineer's request will be considered a material breach of the contract, and at the discretion of the Engineer, may be sufficient grounds to terminate the contract, suspend any work or withhold future payments.
- (h) It is the responsibility of the Contractor to notify the Department of any changes to its insurance policies or if the Contractor receives a notice of cancellation of any of its insurance policies. The Contractor will immediately provide written notice to the Department should the insurance policies evidenced on its Certificate of Insurance form be cancelled, limited in scope, or not renewed upon expiration.

**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 worker's compensation insurance 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.** The Contractor shall obtain General Liability insurance with a limit of not less than \$1,000,000 per occurrence and \$2,000,000 aggregate. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." The required limit of insurance may be provided by a

single policy or with a combination of primary and excess policies.”

- (c) Comprehensive Automobile Liability. The Contractor shall obtain Auto Liability insurance covering all owned, non-owned and hired autos with a combined single Limit of not less than \$1,000,000 per accident for bodily injury and property damage. The insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." The required limit of insurance may be provided by a single policy or with a combination of primary and excess policies.

Furthermore, the Contractor's commercial general liability insurance and automobile liability insurance 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 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.

- (d) 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 insurance policy shall contain the following clauses: 1) "The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii."; and 2) "It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contributed with, insurance provided by this policy." The required limit of insurance may be provided by a single policy or with a combination of primary and excess policies.

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.

## SECTION 13210

### STEEL BOLTED TANK

#### PART 1 – GENERAL

##### 1.1 GENERAL REQUIREMENTS

A. Description. This item of work consists of furnishing of labor, tools, equipment, materials, quality control inspection, fabrication, material testing and all other incidentals required to design and construct a factory cut and punched flat panel, field bolted glass-coated steel potable water tank with an aluminum dome or steel plate roof and all appurtenances, as specified herein.

B. Tank Description.

1. The tank to be furnished is a bolted, flat panel glass-coated steel tank with a cast-in-place concrete floor and nominal inside diameter of 75 feet, a nominal water height of 20 feet. The tank shall have free-span aluminum dome roof utilizing a fully triangulated, all aluminum space truss with non-corrugated closure panels supported by the tank wall or a center column-supported steel panel roof. The tank shall have a nominal capacity of 500,000 gallons.
2. The Contractor shall provide a foundation design in accordance with the minimum requirements shown on the Drawings and specified, herein. The foundation design shall resist earthquake forces as specified, herein. The foundation shall be Type 6 - Concrete-bottom tanks with embedded steel base setting ring as defined in AWWA D103-19.

##### 1.2 REFERENCES (Reference documents shall be the latest edition of the publication unless otherwise indicated.)

A. International Conference of Building Officials (ICC)

1. International Building Code (IBC)

B. American Concrete Institute (ACI)

1. ACI 350-06 Environmental Engineering Concrete Structures

C. American Society for Testing Materials (ASTM)

1. ASTM A36 - Standard Specification for Carbon Structural Steel
2. ASTM A570 - Standard Specification for Hot-Rolled Carbon Steel Sheet And Strip, Structural Quality

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3. ASTM A992 - Standard Specification for Steel for Structural Shapes For Use in Building Framing
4. ASTM A1008 - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable (Replaces ASTM A607)
5. ASTM C920 - Standard Specification for Elastomeric Joint Sealants
6. ASTM F3125 - Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions
- 7.

D. American Water Works Association (AWWA)

1. ANSI/AWWA C651- 14 Standard for Disinfecting Water Mains.
2. ANSI/AWWA C652-19 Standard for Disinfection of Water Storage Facilities
3. ANSI/AWWA D103-19 Standard for Factory-Coated Bolted Steel Tanks for Water Storage.

E. American Institute of Steel Construction (AISC)

1. AISC Steel Construction Manual, 15<sup>th</sup> edition

F. National Sanitation Foundation (NSF)

1. NSF 61 - Drinking Water System Components – Health Effects

### 1.3 SUBMITTALS

A. Shop and Erection Drawings

1. Submit shop and erection drawings along with structural design calculations for the tank, stamped by a registered structural engineer licensed in the State of Hawaii. Drawings shall be complete with details of steel, pipe, and concrete work and with details assembling of all items required for complete installation.
2. Submit foundation drawings along with structural design calculations, stamped by a registered structural engineer licensed in the State of Hawaii. The foundation dimensions shall not be less than those provided in the Contract Drawings.
3. When approved, a PDF set of drawings and submittal information will be returned to the bidder. These drawings will govern the work detailed herein. The

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acceptance by the Engineer of these drawings shall be related only to the general conformity with the bidding drawings and specifications and shall not guarantee detail dimensions and quantities, which remain the bidder's responsibility.

- B. Details of reinforcement steel for fabrication and erection shall conform to ACI 318 and the requirements indicated. The shop bending diagrams shall show the actual lengths of bars, to the nearest inch, measured to the intersection of the extensions (tangents for bars of circular cross section) of the outside surface. The shop drawings shall include bar placement diagrams which clearly indicate the dimensions of each bar splice.
- C. Where mechanical couplers are required or permitted to be used to splice reinforcement steel, the Contractor shall submit manufacturer's literature including instructions and recommendations for installation for each type of coupler used; certified test reports which verify the load capacity of each type and size of coupler used; and shop drawings which show the location of each coupler with details of how they are to be installed in the formwork.
- D. If reinforcement steel is spliced by welding at any location, the Contractor shall submit mill test reports which shall include the information necessary to determine if the carbon equivalent is as specified in AWS D1.4. The Contractor shall submit a written welding procedure for each type of weld for each size of bar which is to be spliced by welding; a mere statement that AWS procedures will be followed will not be acceptable.
- E. Product Data
  - 1. Product data on tank materials, construction and accessories.
  - 2. Submit manufacturer's descriptive literature for tank, including accessories, components, and systems.
  - 3. Literature shall include detail specifications, available performance test data, and instruction for application and maintenance.
  - 4. Tank and roof color samples shall be at least 2 inches by 2 inches for approval.
- F. Test Reports
  - 1. Furnish manufacturer's mil test reports for plate materials.
  - 2. At conclusion of work, furnish a written report prepared by Contractor certifying that work was inspected in accordance with AWWA D103 Section 11. This report shall meet the requirements of Section 11 and cover hydrostatic test. Include in report a certification that construction conforms to approved drawings and specifications.

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- G. Certification: Submit a certificate signed by tank manufacturer's registered structural engineer providing the following information:
1. Description of structural design loading conditions used for design of entire tank including foundation.
  2. Description of structural design method and codes used in establishing allowable stresses and safety factors applied in the design.
  3. A statement verifying that the structural design has been checked by experienced engineers specializing in hydraulic structures.
  4. A statement that shop drawings have been checked by experienced engineers specializing in hydraulic structures.
- H. Certificate of Microbiological Test: As required under Section 303.10 "Testing and Disinfection" of the Water System Standards.
- I. Certification tank manufacturer qualifies as ISO-9001 and is subject to Factory Mutual fabrication facility inspections.
- J. Manufacturer's Installation Instructions: Indicate special procedures and installation instructions. Submit manufacturer's instructions for erection of tank.
- K. The tank manufacturer and installing contractor's standard published warranty shall be submitted for review.
- L. Standard Operation and Maintenance Manual of the tank to be provided, upon receipt of the Contractor of the approved shop drawings of the tank.

## 1.5 QUALIFICATIONS:

### A. Tank Manufacturer

1. Company shall specialize in the design and fabrication of bolted, factory applied glass-fused-to-steel water tanks.
2. All uncoiling, punching, and radius rolling shall be at one location.
3. The manufacturer shall have fabricated, at least, ten (10) tanks of comparable or larger capacity in the past 12 months. Provide a list of tanks completed, with the owner's contact persons and phone numbers.
4. The manufacturer shall employ a staff of full-time design engineers, own and operate its steel fabrication facilities and glass coat the tank in one location.
5. The tank manufacturer shall be ISO-9001 certified to assure product quality.

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6. The tank manufacturer shall participate in undergoing annual Factory Mutual inspections of their glass-coating, bolted steel tank fabrication facility and provide written proof of their participation in this quality assurance program.
7. The Owner's decision or judgment on the manufacturer's required experience will be final, conclusive and binding.
8. Tank suppliers wishing to pre-qualify shall submit the following to the Owner for consideration:
  - a. Typical structure and foundation drawings.
  - b. The list of tank materials, appurtenances and tank coating specifications.
  - c. List of ten (10) tanks presently in potable water service in Hawaii designed to AWWA D103 Standard, and operating properly, which the tank supplier has designed, fabricated and erected, of equal or greater size and character specified herein, at least three (3) of which were constructed in locations subject to the same seismic design requirements, and at least two (2) of which was constructed within the last four (4) years, including the name and telephone number of the Owner and Engineer. The tanks listed shall have been manufactured in the present production facility, not by a predecessor company in a different facility.
  - d. Resume of the job superintendent who shall be assigned to the project if awarded to this manufacturer.
  - e. The tank construction shall be certified and listed by the National Sanitation Foundation (NSF) to meet ANSI/NSF Additives Standard No. 61. Evidence that the certification has been granted shall be submitted with the bid document.
9. Only bids from tanks manufactured in the United States and who's manufacturer is pre-qualified will be considered for this bid.
10. The Engineer reserves the right to evaluate all bids based on long-term (30 year minimum) operation, coating and maintenance costs. Values to be used in this evaluation will be at the discretion of the Engineer, as detailed in this specification and bid tabulation form. The Engineer will add such costs, dependent upon the type of tank offered, to the bidder's price to determine the effective low bid for purposes of making the award.

B. Roof Dome Manufacturer

1. Company shall specialize in the design and fabrication of aluminum free-span dome roofs for a minimum of 10 years.

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2. The company shall offer a roof dome design that fits the steel tank in their published product material and is not required to be a special design.
  3. The manufacturer shall employ a full-time design engineering staff, own and operate its fabrication facilities.
- C. Tank and Dome Erector: Company specializing in performing work of this section with a minimum of ten (10) comparable diameter or larger tanks now in service in the State of Hawaii. Provide a list of glass-fused, bolted steel tanks completed and tank erector's field personnel with their qualifications to erect the work of this section. These lists shall be provided with bid.
- D. Installation Crew: The foreman and principal erectors of the tank and dome shall be factory-certified builders. The erector shall maintain the same foreman and crew from start to finish of work, unless the Director approves a change.
- E. The tank and dome Contractor shall have the experience and knowledge necessary to furnish and erect the highest quality of tank and dome possible. Under no circumstances shall an inexperienced Contractor be awarded the project. The contractor shall be fully responsible for the entire installation, including excavation, appurtenances, finishes and the final product.

#### 1.6 DESIGN CRITERIA

- A. The tank shall have a nominal diameter and sidewall height as shown on the drawings. Dimensions, elevations and location of penetrations and appurtenances shall be as located as shown on the Drawings and/or specified herein.
- B. Tank Design Standards
1. The materials, design, fabrication and erection of the bolted tank shall conform to AWWA Standard for "Factory-Coated Bolted Steel Tanks for Water Storage" – ANSI/AWWA D103, latest revision.
  2. The tank coating system shall conform solely to Section 12.4 of ANSI/AWWA D103. Latest revision. Note, baked-on epoxy painted or galvanized bolted tanks are not considered equal to the required glass-fused finish.
  3. The vitreous coating on the tank, bolt head encapsulation material, and joint sealant shall have been approved for listing under ANSI/AWWA Standard 61 for Indirect Additives. All materials furnished by the tank manufacturer shall be certified and listed by the National Sanitation Foundation (NSF) to meet ANSI/NSF Additive Standard No. 61. Certification of a coating type alone will not be sufficient to meet this requirement. Certification from a distributor, and not the tank manufacturer, will not be accepted.

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C. Design Loads

1. Dead load of the tank, water, foundation and tank accessories, and live load, shall be as specified in AWWA D103, latest revision. Design water depth shall be as specified herein. Specific gravity of tank contents shall be 1.0.
2. Roof Live Load: 20 psf uniformly distributed.
3. Wind Load: In accordance with AWWA D103. Latest revision, Base Wind Speed = 105 MPH.
4. Elevated Platform Live Load: 40 psf uniform, 500 pounds concentrated.
5. Seismic Load: Design shall be in accordance with Section 14 of AWWA D103-19 using the effective mass approach in accordance with Seismic loading provisions for project site or ACI 350.03-06.
  - a. Spectral Response Acceleration (5% Damping)
$$S_s = 1.286g$$
$$S_1 = 0.371g$$
  - b. Site Class – D
  - c. Design Spectral Response Acceleration
$$S_{DS} = 0.858g$$
$$S_{D1} = 0.450g$$
  - d. Importance Factor: 1.25
  - e. Response Modification Factor:
$$R_I = 2.0$$
$$R_C = 1.0$$

D. Tank and Dome Design

1. Allowable design stress of steel for the tank shall be based on the requirements of AISC. The design shall follow the appropriate design requirements of AWWA D103, latest revision.
2. Tank design shall be based on a bolted flat panel; i.e. no chimes, application.
3. Tank design shall be based on lap joint with pliable sealants. No roll gaskets shall be permitted.
4. Dome design shall be per AWWA D103, latest revision Section 16. Deflection shall consider two 250-lb loads concentrated on two separate 1 square foot areas of any single panel. The roof structure shall be self-supporting from the

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periphery structure; primary horizontal thrust shall be contained by an integral tension ring. Thermal expansion of the roof structure shall be considered in the roof structure design.

5. The roof design shall provide a watertight system under all design load and temperature conditions. All edges of the closure panels shall be covered, sealed and firmly clamped with batten bars in an interlocking manner to prevent slipping or disengagement under design load and temperature conditions.

E. Foundation

1. Foundation shall be designed for a maximum allowable (working stress) soil bearing pressure of 2,500 psf for dead loads and live loads, net and 3,333 psf net, for load combinations including wind or seismic loads.
2. Minimum depth of structural foundation bearing shall be 24-inches below the lowest adjacent grade.

1.7 TEST REPORTS

- A. The costs of all tests and reports shall be borne by the Contractor. Copies of the following tests shall be furnished:

1. Manufacturer's mil test reports for plate and dome framing materials.
2. At the conclusion of the work, a written report prepared by the Tank Erector certifying that the work was inspected in accordance with Section 11 of AWWA D103-19. This report shall meet the requirement of Section 11 and also cover the hydrostatic test.
3. Chlorine microbiological tests in accordance with this section.

1.8 PRE-INSTALLATION CONFERENCE

- A. Attendees shall to include Tank and Dome Manufacturer's representative, Installer, General Contractor, Owner's Representative, and representatives of other trades affected by work of this Section.
- B. The meeting shall take place prior to the start of the tank construction and address overall project coordination, special construction requirements and division points of responsibility for all parties.
- C. The General Contractor shall be responsible for taking minutes of the meeting and distributing a copy of the meeting summary to all attendees.

1.9 MATERIAL HANDLING:

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- A. Deliver, store and handle products with adequate protection against damage, and in accordance with manufacturer's instructions.
- B. Plates, members and miscellaneous parts shall be packaged for shipment in such a fashion to prevent abrasion.
- C. Handle and store water storage tank systems, components, and parts to prevent distortions or other damages that could affect their structural or mechanical integrity. Store items that are subject to deterioration by exposure to elements off the ground, in a well-drained location, protected from weather, and accessible for inspection and handling.
- D. Materials furnished for the water tank, which are found to be defective by the Manager, shall be rejected. All materials rejected must be removed from the project site immediately or within such time as allowed by the Manager and replaced with material of a quality acceptable to the Owner. Failure to reject any material or to require removal of any such rejected material shall not relieve the Contractor from responsibility as to the quality and character of material used or of any other obligations imposed upon him/her by the contract.

1.10 FIELD MEASUREMENTS:

- A. Verify that field measurements are as indicated on shop drawings and as instructed by manufacturer.
- B. Contractor is to notify Manager in writing of any discrepancies found that in his/her judgment will negatively impact the project.

1.11 COORDINATION: Coordinate work with work of others affected by work of this section.

1.12 SPECIAL WARRANTY:

- A. The tank manufacturer shall include a warranty for the tank materials and coating. As a minimum, this warranty shall provide assurance against defects in material or workmanship and corrosion of the glass-coated surface for the minimum specified period.
  - 1. The tank manufacturer shall warrant the liquid storage tank shall be free from defects in workmanship and materials, under normal and proper use, maintenance and operation, during the period expiring on the earlier of one (1) year after liquid is first introduced into the tank or 14 months after shipment from the factory.
  - 2. Additional Warranty: The tank manufacturer shall further warrant that the glass coated surfaces of the liquid storage tank will not corrode, under normal and proper use, maintenance and operation, during the period expiring on the earlier of 60 months after liquid is first introduced into the tank or 62 months

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after shipment from the factory. Provide warranty for the product zone, that portion of the tank below the normal high water elevation of the contained liquid, for additional 60 months since a manufacturer's cathodic protection system is specified.

3. The dome roof manufacturer shall provide a warrant for material defects and workmanship for a period of one (1) year after acceptance of the structure.

## PART 2 – MATERIALS

### 2.1 TANK MATERIALS

- A. Plates and Sheets: (Note all steel shall be smelted and produced in the United States)
  1. Plates and sheets used for the tank shell construction shall comply with the minimum standards of AWWA D 103, Section 4.4.
  2. Design requirements for mild strength steel shall be ASTM A570, Grade 30 with maximum allowable design tensile stress of 15,000 psi.
  3. Design requirements for high strength steel shall be ASTM A1008, Grade 50 with maximum allowable design tensile stress of 26,000 psi.
  4. The annealing effect created from the glass coated firing process shall be considered in determining the ultimate steel strength. The maximum design yield strength shall be 50,000 psi for calculations detailed in AWWA D103, Section 5.4 and 5.5.
  5. When multiple vertical bolt line sheets and plates of ASTM A1008, Grade 50 are used, the effective net section area shall not be taken as greater than 85% of the gross area.
    - a. Sheets and plates shall be manufactured such that holes are staggered in the vertical bolt lines and that no two adjoining holes are in-line horizontally, except at the center of the sheet or plate.
  6. Sheet edges of sidewalls shall be mechanically rounded and flame coated with stainless steel prior to glass coating. Glass coating of the sheet edges shall be similar to the flat panel surfaces such as "Edgecoat" by Engineered Storage Products Company.
  7. The roof panel material AA3003-H16 aluminum sheets for the aluminum dome panels shall as a minimum meet the requirements stated in Section 16 of AWWA D103-19.

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B. Rolled Structural Shapes

1. Material shall conform to minimum standards of ASTM A36 or A992. The shell sheets shall be fifty-five (55) inches high by nine feet long.
2. Rolled shapes for the frame gusset or dome frame struts shall be AA6061-T6 aluminum for the domed roof shall conform to Section 16.4 of AWWA D103 Standard.

C. Horizontal Wind Stiffeners

1. Design requirements for intermediate horizontal wind stiffeners shall be of the “web truss” design with extended tail to create multiple layers of stiffeners, permitting wind loads to distribute around the tank.
2. Web truss stiffeners shall be of steel with a hot dipped galvanized coating.
3. Rolled steel angle stiffeners are not permitted for intermediate stiffeners.

D. Bolt Fasteners

1. Bolts used in tank lap joints shall be ½” diameter – 13 UNC-2A rolled thread, and shall meet the minimum requirements of AWWA D103, Section 4.2.
2. Tank Bolt Material
  - a. SAE Grade 2
    - 1) Minimum Tensile Strength: 74,000 psi
    - 2) Minimum Proof Load: 55,000 psi
    - 3) Allowable Shear Stress: 18,164 psi (per AWWA D103)
  - b. SAE Grade 8/ASTM F3125 (A325) heat treated to:
    - 1) Minimum Tensile Strength: 150,000 psi
    - 2) Minimum Proof Load: 120,000 psi
    - 3) Allowable Shear Stress: 36,818 psi (per AWWA D103)
  - c. Bolt Finish: The bolt finish shall be zinc, mechanically deposited, a minimum of 2.0 mil thick under bolt head, on shank and threads.
  - d. Bolt Head Encapsulation

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- 1) High impact polyethylene copolymer encapsulation of entire bolt head up to the splines of the shank.
  - 2) Resin shall be stabilized with an ultraviolet light-resistant material such that the color shall appear black. The bolt head encapsulation shall be certified to meet the ANSI/NSF Standard 61 for indirect additives.
- 
- e. All bolts on the vertical tank wall shall be installed such that the head portion is located inside the tank, and the washer and nut are on the exterior.
  - f. All lap joint bolts shall be properly selected such that threaded portions will not be exposed in the “shear plane” between the tank sheets.
  - g. Bolt lengths shall be sized to achieve a neat and uniform appearance. Excessive thread length extending beyond the nut after torquing will not be permitted.
  - h. All lap joint bolts shall include a minimum of four (4) splines on the underside of the bolt head at the shank in order to resist rotation during torquing.
3. Roof Dome Fasteners: Fasteners shall be AA7075-T73 aluminum or austenitic series 300 stainless steel as required by the manufacturer’s design.

E. Sealants

1. All sealants shall be suitable for contact with potable water and shall be certified to meet ANSI/NSF Additives Standard 61 for indirect additives.
2. The lap sealants shall be one component, moisture cured, polyurethane compound.
3. Sealant shall be used to seal lap joints, bolt connections and edge fillets for sheet notches and starter sheets.
4. The lap sealant shall cure to a rubber-like consistency, have excellent adhesion to the mill steel coating, low shrinkage, and be suitable for interior and exterior use.
5. An acceptable product is System Sealer by Harvestore Products, Inc.

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6. Neoprene gaskets and tape type sealers shall not be permitted.
7. Roof Dome Sealer: Silicone conforming to Federal Specification TT-S-00230, such as 864, by Pecora.
8. Sealant for the tank concrete floor joint shall be a two-component polyurethane elastomeric sealant with a chemical cure and in conformance with ASTM C920, Type M, Class 25 in self-leveling or non-sag formula. An acceptable product is Sikaflex-2c NS.

F. Concrete Floor Coating:

1. A modified polyurethane, two component coating with minimum 80% solids and ANSI/NSF Standard 61 certification, such as Elasto-Shield, Series 264 by Tnemec.
2. Base Joint Filler: Non-shrink, trowel-grade modified amine epoxy with ANSI/NSF Standard 61 certification, compatible with coating, such as 63-1500 Filler and Surfacer by Tnemec

G. Gaskets

1. Tank gaskets shall conform to AWWA D103, Section 4.10.1. Rolled gaskets shall not be permitted.
2. Aluminum Dome Roof Gasket: Silicone conforming to Federal Specification ZZ-R-765, Class 2, Grade 50 such as SE-44/88, manufactured by General Electric.

2.2 TANK ACCESSORIES AND ASSEMBLIES: Tank accessories shall conform to applicable requirements of AWWA D103 and as hereinafter specified. additional requirements for accessories are as follows:

- A. Shell Manholes: AWWA D103, Section 7. Manways shall be minimum of 24 inches in diameter. The access door and tank shell reinforcing shall comply with AWWA D103, Section 7.1.

B. Pipe Connections

1. Number, type, locations, and size shall be as shown on drawings.
2. Above grade pipe connections shall be field located and sawcut (acetylene torch cutting or welding shall not be permitted) and utilize an interior and exterior flange assembly and the tank shell reinforcing shall comply with AWWA D103. Contractor shall install piping connections.
3. Steel Pipe: ASTM A53, standard, galvanized, Type S. Grade B, with

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flanged or welded joints.

4. Ductile Iron Pipe, Flanged Pipes and Fittings: Shall conform to applicable requirements of Water System Standards, Sections 302.12 and 302.15.
- C. Overflow Pipe Supports: Overflow for tank shall consist of a ductile iron pipe as shown in the Contract Drawings, adequately supported with type 316L stainless steel brackets and reinforced concrete jacketed Ductile Iron underground pipe.
- D. Exterior Tank Ladder: AWWA D103, Section 7.4. Side rails shall be fabricated aluminum 6061-T6 with spacing between side rails a minimum 16 inches. Rungs shall be 6061-T6 grooved square bars, spaced 12 inches apart on centers. Ladder shall be aluminum beginning at foundation and shall be provided with a Type 304 stainless steel or aluminum safety cage conforming to ANSI A14.3 and HIOSH, Chapter 72.
- E. Level Indicator: Shall be target board type with interior float. All components shall be aluminum or stainless steel. The target board shall read in feet.
- F. Roof Vent
1. A properly sized vent assembly in accordance with AWWA D103 shall be furnished and installed above the maximum water level of sufficient capacity so that at maximum possible rate of water fill or withdrawal, the resulting interior pressure or vacuum will not exceed 0.5" water column.
  2. The overflow pipe shall not be considered to be a tank vent.
  3. The vent shall be a manufactured item as shown in the construction plans, constructed of aluminum such that the hood can be unbolted and used as a secondary roof access.
  4. The vent shall be so designed in construction as to prevent the entrance of birds and/or animals by including an expanded aluminum screen (2 inch) opening. An insect screen of 23 to 25 stainless steel wire cloth shall be provided and designed to be replaceable should the screen become plugged.
- G. Roof Hatch
1. Roof hatch shall be 30" square and shall be located as shown on the construction plans.
  2. Roof hatch shall be aluminum, shall include a lockable hasp and be mounted on a curb with a gasket to prevent entry of rainwater.

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H. Safety Handrail

1. Handrail shall be a minimum of 1½” diameter, schedule 40 aluminum pipe.
2. The 2-rail handrail shall be in compliance with OSHA and HIOSH requirements.
3. Handrail shall include a 4” high toe plate at the base of the stanchions.

I. Roof Access

1. Roof service area shall be coated in a non-skid material to provide a safe walking surface for maintenance personnel.
2. Access from the exterior ladder to the roof shall include aluminum support members and checker plate gangway.

J. Aluminum Dome Shop Coating

1. Preparation: Exterior dome surfaces shall be thoroughly cleaned with solvent and rinsed with fresh water.
2. Dome shall receive fluorocarbon coating (Kynar 500 or approved equal) over manufacturer’s recommended primer. Finished coat and primer shall be baked at approximately 475 degrees F.
3. Color: Dome color shall match tank color. Color coupons shall be submitted for approval.

K. Identification Plate: A manufacturer’s nameplate shall list the tank serial number, tank diameter and height, and maximum design volume. The nameplate shall be affixed to the tank exterior sidewall at a location approximately five (5) feet above grade elevation in a position of unobstructed view.

L. Cathodic Protection

1. The cathodic protection system shall consist of sacrificial magnesium anodes and shall be designed by the tank manufacturer. The protection system shall conform to NACE Standard RP0169-2002, Section 6, subsection 6.2.2.1.
2. The tank manufacturer shall increase the warranty on their coating an additional 60 months.

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3. Electrical continuity between the tank sidewall panels shall be the responsibility of the tank manufacturer.
- 2.3 SHOP FABRICATION: Comply with AWWA D103, latest revision, Section 9.
- 2.4 STEEL GLASS COATING:
- A. Surface Preparation
    1. Following the decoiling and shearing process, sheets shall be steel blasted on both sides to the equivalent of SSPC-10. Sand blasting or chemical pickling of steel sheets is not acceptable.
    2. The surface anchor pattern shall be not less than 1.0 mil.
    3. These sheets shall be evenly oiled on both sides to protect them from corrosion during fabrication.
  - B. Cleaning
    1. After fabrication and prior to application of the coating system, all sheets shall be thoroughly cleaned by a caustic wash and hot rinse process followed immediately by hot air drying.
    2. Inspection of the sheets shall be made for traces of foreign matter or rust. Any sheets with such material shall be re-cleaned or grit-blasted to an acceptable level of quality.
  - C. Coating Process
    1. All sheets shall be primed with catalytic nickel oxide glass ground-coat on both sides, and then air-dried per Section 12.4.2.1 of AWWA D103.
    2. An intermediate coat of glass frit shall be made to both sides of the sheets.
    3. The sheets shall then be fired at a minimum temperature of 1500 degrees F in strict accordance with the manufacturer's quality process control procedures, including firing time, furnace humidity, temperature control, etc.
    4. Fired sheets shall receive a final white color coat of titanium dioxide enhanced silica glass coating on the interior surface, then refired in the furnace.

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5. Dry film interior coating thickness shall be 12.0-16.0 mils. Dry film exterior coating thickness shall be 8.0-11.0 mils.
6. The Owner shall select the finished exterior color. The interior finish may be the manufacturer's standard color.

D. Inspection

1. All coated sheets shall be inspected for mil thickness (Mikrotest or equal).
2. All coated sheets shall be checked for color uniformity by electric colorimeter.
3. An electrical leak detection test shall be performed on the inside surface after fabrication of the sheet. Sheets with excessive electrical leakers shall be rejected so as to minimize field touch up.

E. Packaging

1. All sheets that pass manufacturer's Factory Inspection and Quality Control check shall be protected from damage prior to packing for shipment.
2. Heavy paper or plastic foam sheets shall be placed between each panel to eliminate sheet-to-sheet abrasion during shipment.
3. Individual stacks of panels will be wrapped in heavy mil black plastic and steel bands to special wood pallets built to the roll-radius of the tank panels. This procedure shall eliminate contact or movement of finished panels during shipment.
4. Shipment from the factory to the job site will be by truck, hauling the tank components exclusively. No common carrier, drop, or transfer shipments are acceptable.

2.5 EXAMINATION:

- A. Check work with related trade's shop drawings and make corrections when required.
- B. Verify that field conditions are acceptable and are ready to receive work.
- C. Beginning of installation by tank contractor signifies accepts of the existing conditions.

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Job No. G25CH17A  
Upolu Well Development

ADD No. 1



## PART 3 – EXECUTION

3.1 **INSTALLATION:** Install water tanks and accessories in accordance with manufacturer's instructions.

### 3.2 **FOUNDATION**

- A. The tank foundation is a part of this contract and shall be installed by the tank bidder.
- B. The tank foundation shall be designed by the manufacturer to safely sustain the structure and its live loads, however the size of the foundation and reinforcing specified in the drawings shall be considered a minimum.
- C. Tank foundation shall consist of reinforced concrete as shown in project drawings. Foundation shall be constructed in conformance with the applicable requirements of "Section 303.03 – Concrete Work", except as shown, specified herein of these specifications.
- D. Excavation of subgrade: The area of the tank, plus a 5-foot perimeter shall be undercut as part of the mass grading operations to a depth of at least two feet below the tank's finished subgrade elevation (the elevation at the bottom of the aggregate base). The exposed surface shall be track-rolled with at least 7 passes of a D-8 dozer, or larger, or proof-rolled with a least five passes of a heavy vibratory compactor such as a RayGo Rascal 400-A, imparting a minimum of 25,000 pounds of dynamic force to the subgrade soils, to densify the exposed material, see Soils Investigation Report prepared by Hirata and Associates, Inc. for more information.
- E. Install subgrade fill and aggregate course directly below floor slab in thickness indicated in geotechnical report. Compact both fills to a minimum of 95% relative density as determined by ASTM D1557.

### 3.3 **TANK ERECTION:**

- A. Erect bolted steel water storage tank in accordance with manufacturer's instructions and applicable requirements of AWWA D103 except as modified herein and in drawings. Field erection steel tank shall be in strict accordance with procedures outlined in manufacturer's erection manual. Exercise particular care in handling and bolting of tank plates and members to avoid abrasion. Applicable requirements set forth in the following designated sections thereof shall govern, unless otherwise specified or indicated.
- B. The construction of the tank floor requires the embedment of glass coated steel starter wall sheets, therefore the concrete tank floor shall be constructed by the tank supplier using manufacturer trained personnel regularly engaged in this type of tank construction.

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- C. Leveling of the starter ring shall be required with the maximum differential elevation around the ring shall not exceed one-eighth (1/8) inch, nor exceed one-sixteenth (1/16) inch within any ten (10) foot length.
- D. A leveling plate assembly consisting of two ¾-inch by 18" long anchor rods and a slotted plate (3 ½" x 11" x 3/8" thick) shall be used to secure the starter ring, prior to encasement in concrete. Installation of the starter ring on concrete blocks or bricks using shims for adjustment is not permitted.
- E. Two butyl rubber elastomer waterstop seals created specifically for this application shall be placed on the inside face of the starter ring below the concrete floor line. These materials shall be installed as specified by the tank manufacturer and as shown in the project drawings.
- F. For tank erection, use specialized erection jacks and building equipment developed and manufactured by the tank manufacturer.
- G. An electrical leak test shall be performed during erection using a 9-volt leak detection device. All electrical leak points detected on the inside surface shall be repaired in accordance with the manufacturer's published touch up procedure.
- H. Placement of sealant on each panel shall be inspected prior to placement of adjacent panels. However, the Engineer's inspection shall not relieve the Contractor from responsibility for providing a liquid-tight tank.
- I. Install base joint around inside perimeter of tank just prior to the installation of the floor coating. Shape joint material to provide a smooth transition from floor to wall. After joint material cures, grind off any imperfections to provide a smooth feathered profile. Coat joint material with coating bond breaker.
- J. Apply floor coating to minimum thickness of 50 mils no sooner than 28 days after finishing curing in accordance with manufacturer's recommendations.
- K. Provide ventilation using explosion-proof equipment, run for 72 hours after interior coating application. Provide adequate illumination using explosion-proof lights and equipment.
- L. Roof Erection
  - 1. The Contractor shall perform the work described herein with mechanics skilled and experienced in the fabrication and erection of aluminum dome roof structures or steel flat roof. All field work shall be directed by a

qualified supervisor who will remain on the job site until the dome /roof construction is completed.

2. Field re-fabrication of structural components or panels is not acceptable. Forcing of the structure to achieve fit-up is expressly forbidden and not acceptable. Any indication of improper fit-up of parts shall be immediately reported to the dome fabricator.
3. All sealant joints shall be tooled slightly concave after sealant is installed. Care shall be taken to keep sealant confined to the joint in a neat manner. Any sealant applied outside of the joint shall be removed so panels are free from misplaced sealant. All gasket material shall be continuous, splices are not permitted.

3.4 FIELD QUALITY CONTROL: Perform field inspection and testing in accordance with tank and dome manufacturer's instructions.

3.5 PIPING INSTALLATION: Where details of fabrication or installation are not shown on drawings, installation shall conform to "Section 302 - Water Mains and Appurtenances", and the Standard Specifications.

3.6 SEALSTRIPS/WATERSTOPS: Sealstrips/waterstops shall conform to details as shown in the shop drawings for tank shell embedment and wherever piping penetrates concrete floor. Sealstrips/waterstops shall be continuous and attached to starter panel or pipe. Material shall conform to tank manufacturer recommendations.

3.7 HYDROSTATIC AND DISINFECTION TESTING

A. Hydrostatic (Leakage) Test:

1. Following completion of erection and cleaning of the tank, the structure shall be tested for liquid tightness by filling tank to its overflow elevation.
2. Perform leakage test of tank in presence of Owner Representative. Hydrostatic test and disinfection may be performed at the same time, but if tank fails hydrostatic test, disinfection shall be performed again.
3. Leakage test for tank shall consist of filling tank to its overflow level and observing for visible leaks on exterior surfaces.
4. The erector shall correct any leaks revealed by this testing in accordance with the manufacturer's recommendations.
5. Owner will provide water for the initial leakage test including subsequent disinfection at no cost to contractor. If either test is required to be repeated, Water Company will charge the Contractor for the water at prevailing rate.

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6. Disposal of test water shall be the responsibility of the Owner.

B. Disinfection

1. Perform disinfection in presence of Owner Representative.
2. After tank sealant and coatings have cured for minimum of 2 weeks, disinfect tank and connecting lines before placing tank in operation.
3. Comply with chlorination method per AWWA C652 Method 3, except as modified herein:
  - a. Acceptable methods of chlorination per AWWA C652:
    - 1) Section 4.1.1
    - 2) Section 4.1.2 – Chemical feed pump only
    - 3) Section 4.3
    - 4) Section 4.2 is not acceptable
  - b. Grab samples for State of Hawaii required potable water analysis for bacteriological contamination. Measurements for microbiological test shall be performed by an independent laboratory approved by the Owner. Submit certification of test results for acceptance.
  - c. Acceptable forms of chlorine for disinfection shall be:
    - 1) Liquid chlorine as specified in AWWA C652.
    - 2) Sodium hypochlorite as specified in AWWA C652.
    - 3) Calcium hypochlorite (HTH) is not acceptable.

PART 4 – PAYMENT

If this tank option is provided, payment for STEEL TANK with ALUMINUM DOME will be made as a Lump Sum Bid for the bid item describing this work. Such payment shall represent full compensation for furnishing all materials, labor, tools, equipment and incidentals required to complete the work.

END OF SECTION

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