EAST BAY MUNICIPAL UTILITY DISTRICT

REQUEST FOR QUOTATION (RFQ) No. 2301
for
FIBERGLASS REINFORCED PLASTIC TANKS

Contact Person: John W. Grimes, Buyer II
Phone Number: 510-287-0316
E-mail Address: john.grimes@ebmud.com

For complete information regarding this project, see RFQ posted at https://www.ebmud.com/business-center/materials-and-supplies-bids/current-requests-quotation-rfqs/ or contact the EBMUD representative listed above. Please note that prospective bidders are responsible for reviewing this site during the RFQ process, for any published addenda regarding this RFQ.

Bids Due
by
1:30 p.m.
on
September 7, 2022

All bid submissions hand delivered or mailed (USPS, FedEx, UPS, etc.) to the address or PO Box noted below and must be received no later than 1:30 p.m. on the bid due date.

RESPONSE DELIVERED IN-PERSON, BY COURIER, OR PACKAGE DELIVERY SERVICE (UPS, FedEx, DHL, etc.)	RESPONSE DELIVERED BY MAIL (USPS) to:
EBMUD–Purchasing Division 375 Eleventh Street, First Floor Oakland, CA 94607	EBMUD–Purchasing Division P.O. Box 24055 Oakland, CA 94623

EAST BAY MUNICIPAL UTILITY DISTRICT

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ATTACHMENTS

I. STATEMENT OF WORK

A. SCOPE

It is the intent of these specifications, terms, and conditions to describe requirement to furnish and deliver, f.o.b. the District's Oakport Wet Weather Facility, 5597 Oakport Street, Oakland, CA 94621, three (3) fiberglass reinforced plastic (FRP) sodium hypochlorite storage tanks, as specified within**.**

East Bay Municipal Utility District (District) intends to award a contract to the lowest cost bidder(s) whose response meets the District's requirements.

The District intends to assign the contract that is awarded pursuant to this RFQ to a District construction contractor. By submitting an RFQ response the bidder acknowledges this intent and agrees to such an assignment on terms set forth in the attached Assignment Acceptance & Consent form, or other similar terms.

B. BIDDER QUALIFICATIONS

1. Bidder Minimum Qualifications (refer to PART 2 – MATERIALS / 2.1 MANUFACTURER on pages 8 and 9 of Specification Section 43 41 45 in EXHIBIT E in rear of this RFQ for details):

    a. Bidder's Manufacturer shall hold a valid ASME RTP-1 Certificate of Authorization at the time its Bid is submitted.

    b. Bidder Manufacturer's responsible productions personnel shall have at least 5 years' experience in the manufacture of tanks of similar size and construction.

    c. Manufacturer shall have at least 5 years' experience in design and fabrication of similar sodium hypochlorite storage tanks ad demonstrated by a list of at least five (5) successful installations.

    d. Bidder shall possess all permits, licenses, and professional credentials necessary to supply product and perform services as specified under this RFQ.

C. SPECIFICATIONS

See EXHIBIT E – TECHNICAL SPECIFICATIONS for product requirements/drawings:

SECTION 43 41 45 – FIBERGLASS REINFORCED PLASTIC TANKS
SECTION 01 33 00 – S UBMITTAL PROCEDURES
SECTION 01 43 09 – WIND DESIGN REQUIREMENTS
SECTION 01 43 11 – SEISMIC DESIGN REQUIREMENTS
SECTION 05 50 00 – METAL FABRICATIONS

SECTION 05 50 10 – ANCHOR SYSTEMS
SECTION 06 82 00 – GLASS FIBER REINFORCED PLASTIC
SECTION 43 06 40.05 – SCHEDULE OF LIQUID CHEMICAL PROPERTIES
OAKPORT WWF SOD. HYPO. FRP TANKS PRE-PURCHASES DOCS/DRAWINGS

D. FAILURE TO MEET SPECIFICATIONS

In the event any shipment or shipments of a Contractor's product do not meet the specification or delivery requirements, the District may reject the shipment or shipments and, at its option, may purchase this material from any supplier on the open market who can meet the District's specification requirements, or the District may demand immediate replacement by Contractor of the non-conforming product. Any costs over and above the original contract price will be charged back to the Contractor. In addition, Contractor shall bear the costs of removal and disposition for any delivery which fails to conform to the specifications.

II. CALENDAR OF EVENTS

EVENT	DATE/LOCATION
RFQ Issued	August 10, 2022
Deadline For Submission of Questions	August 18, 2022
Response Due	September 7, 2022, by 1:30 p.m. At this time, all bids will be opened publicly in the EBMUD Board Room at 375 Eleventh St., Oakland, CA 94607*
Anticipated Contract Start Date	October 25, 2022

Note: All dates are subject to change **by District**.
*Due to COVID-19, in-person bid inspection will be suspended. Following the opening a list of submitted pricing will be posted to:
https://www.ebmud.com/business-center/materials-and-supplies-bids/

Bidders are responsible for reviewing **https://www.ebmud.com/business-center/materials-and-supplies-bids/current-requests-quotation-rfqs/** for any published addenda. Hard copies of addenda will not be mailed out.

III. DISTRICT PROCEDURES, TERMS, AND CONDITIONS

A. RFQ ACCEPTANCE AND AWARD

1. RFQ responses will be evaluated to determine that they are responsive, responsible, and that they meet the specifications as stated in this RFQ.

2. The District reserves the right to award to a single or to multiple Contractors, dependent upon what provides the lowest overall cost to the District.

3. The District has the right to decline to award this contract or any part of it for any reason.

4. Any specifications, terms, or conditions, issued by the District, or those included in the bidder's submission, in relation to this RFQ, may be incorporated into any purchase order or contract that may be awarded as a result of this RFQ.

5. Award of contract. The District reserves the right to reject any or all proposals, to accept one part of a proposal and reject the other, unless the bidder stipulates to the contrary, and to waive minor technical defects and administrative errors, as the interest of the District may require. Award will be made, or proposals rejected by the District as soon as possible after bids have been opened.

B. BRAND NAMES, APPROVED EQUIVALENTS, DEVIATIONS, AND EXCEPTIONS

Any references to manufacturers, trade names, brand names, and/or catalog numbers are intended to be descriptive, but not restrictive, unless otherwise stated, and are intended to indicate the quality level desired. Bidders may offer an equivalent product that meets or exceeds the specifications.

The District reserves the right to be the sole judge of what shall be considered equal and/or acceptable and may require the bidder to provide additional information and/or samples. If the bidder does not specify otherwise, it is understood that the brand and/or product referenced in this RFQ will be supplied.

Taking exception to the RFQ, or failure on the part of the bidder to comply with all requirements and conditions of this RFQ, may subject the RFQ response to rejection. If no deviations are shown, the bidder will be required to furnish the material exactly as specified. The burden of proof of compliance with the specifications will be the responsibility of the bidder.

This RFQ is subject to acceptance only on the terms and conditions stated in this RFQ. Any additional or different terms and conditions proposed by the bidder are hereby rejected and shall be of no force or effect unless expressly assented to in writing by the District.

C. PRICING

1. All prices are to be F.O.B. destination. Any freight/delivery charges are to be included.

2. All prices quoted shall be in United States dollars.

3. Price quotes shall include any and all payment incentives available to the District.

4. Bidders are advised that in the evaluation of cost, if applicable, it will be assumed that the unit price quoted is correct in the case of a discrepancy between the unit price and extended price.

5. Award of contract. The District reserves the right to reject any or all proposals, to accept one part of a proposal and reject the other, unless the bidder stipulates to the contrary, and to waive minor technical defects and administrative errors, as the interest of the District may require. Award will be made, or proposals rejected by the District as soon as possible after bids have been opened.

D. PRICE ADJUSTMENTS

The District may consider price increase requests submitted by Contractor in determining compensation no more than once per every twelve months for the term of this Agreement. Any unavoidable price increase requests submitted by Contractor will require substantiation to the District that the price has changed since the time of bid award. Price increase requests may require additional documentation proof of the factors warranting the increase. Price decrease requests can be submitted at any time during the terms of this Agreement and extension periods. the seller is expected to manage costs associated with labor, overhead, and GS&A.

E. NOTICE OF INTENT TO AWARD AND PROTESTS

At the conclusion of the RFQ response evaluation process, all entities who submitted a bid package will be notified in writing by e-mail or USPS mail with the name of the Bidder being recommended for contract award. The document providing this notification is the Notice of Intent to Award.

Protests must be in writing and must be received no later than seven (7) workdays after the District issues the Notice of Intent to Award. The District will reject the protest as untimely if it is received after this specified time frame. Protests will be accepted from bidders or potential bidders only.

If the protest is mailed and not received by the District, the protesting party bears the burden of proof to submit evidence (e.g., certified mail receipt) that the protest was

sent in a timely manner so that it would be received by the District within the RFQ protest period.

Bid protests must contain a detailed and complete written statement describing the reason(s) for protest. The protest must include the name and/or number of the bid, the name of the firm protesting, and include a name, telephone number, email address and physical address of the protester. If a firm is representing the protester, they shall include their contact information in addition to that of the protesting firm.

Protests must be mailed, hand delivered, or emailed to the Manager of Purchasing, Mailstop 102, East Bay Municipal Utility District, 375 Eleventh Street, Oakland, CA 94607 or P.O. Box 24055, Oakland, California 94623. Facsimile and electronic mail protests must be followed by a mailed or hand delivered identical copy of the protest and must arrive within the seven workday time limit. Any bid protest filed with any other District office shall be forwarded immediately to the Manager of Purchasing.

If the protest is denied, the bid protester can appeal the determination to the requesting organization's Department Director. The appeal must be submitted to the Department Director no later than five workdays from the date which the protest determination was transmitted by the District, to the protesting party. The appeal shall focus on the points raised in the original protest, and no new points shall be raised in the appeal.

Such an appeal must be made in writing and must include all grounds for the appeal and copies of the original protest and the District's response. The bid protester must also send the Purchasing Division a copy of all materials sent to the Department Director. The Department Director will make a determination of the appeal and respond to the protester by certified mail in a timely manner. If the appeal is denied, the letter will include the date, time, and location of the Board of Directors meeting at which staff will make a recommendation for award and inform the protester it may request to address the Board of Directors at that meeting.

The District may transmit copies of the protest and any attached documentation to all other parties who may be affected by the outcome of the protest. The decision of the District as to the validity of any protest is final. This District's final decision will be transmitted to all affected parties in a timely manner.

F. METHOD OF ORDERING

1. Written POs may be issued upon approval of written itemized quotations received from the Contractor.

2. POs and payments for products and/or services will be issued only in the name of Contractor.

3. Any and all change orders shall be in writing and agreed upon, in advance, by Contractor and the District.

G. TERM / TERMINATION

1. The term of the contract, which may be awarded pursuant to this RFQ, will be approximately one (1) year.

2. This Agreement may be terminated for convenience by the District provided the Contractor is given written notice of not less than 30 calendar days. Upon such termination, the District shall pay the Contractor the amount owing for the products ordered and satisfactorily received by the District. This shall be the sole and exclusive remedy to which the Contractor is properly entitled in the event of termination by the District.

3. This Agreement may be terminated for cause at any time, provided that the District notifies Contractor of impending action.

H. WARRANTY

1. For any contract awarded pursuant to this RFQ, Contractor expressly warrants that all goods furnished will conform strictly with the specifications and requirements contained herein and with all approved submittals, samples and/or models and information contained or referenced therein, all affirmations of fact or promises, and will be new, of merchantable quality, free from defects in materials and workmanship, including but not limited to leaks, breaks, penetrations, imperfections, corrosion, deterioration, or other kinds of product deficiencies. Contractor expressly warrants that all goods to be furnished will be fit and sufficient for the purpose(s) intended. Contractor expressly warrants that all goods shall be delivered free from any security interest, lien, or encumbrance of any kind, and free from any claim of infringement, copyright or other intellectual property violation, or other violation of laws, statutes, regulations, ordinances, rules, treaties, import restrictions, embargoes or other legal requirements. Contractor guarantees all products and services against faulty or inadequate design, manufacture, negligent or improper transport, handling, assembly, installation or testing, and further guaranties that there shall be strict compliance with all manufacturer guidelines, recommendations, and requirements, and that Contractor guaranties that it will conform to all requirements necessary to keep all manufacturer warranties and guarantees in full force and effect. These warranties and guarantees are inclusive of all parts, labor, and equipment necessary to achieve strict conformance, and shall take precedence over any conflicting warranty or guarantee. These warranties and guaranties shall not be affected, limited, discharged, or waived by any examination, inspection, delivery, acceptance, payment, course of dealing, course of performance, usage of trade, or termination for any reason and to any

extent. In the absence of any conflicting language as to duration, which conflicting language will take precedence as being more specific, Contractor's aforesaid warranties and guarantees shall be in full force and effect for a period of one year from the date of acceptance by the District but shall continue in full force and effect following notice from District of any warranty or guarantee issue, until such issue has been fully resolved to the satisfaction of District.

I. INVOICING

1. Following the Districts acceptance of product(s) meeting all specified requirements, and/or the complete and satisfactory performance of services, the District will render payment within thirty (30) days of receipt of a correct invoice.

2. The District shall notify Contractor of any invoice adjustments required.

3. Invoices shall contain, at a minimum, District purchase order number, invoice number, remit to address, and itemized products and/or services description.

4. The District will pay Contractor in an amount not to exceed the total amount quoted in the RFQ response.

IV. RFQ RESPONSE SUBMITTAL INSTRUCTIONS AND INFORMATION

A. DISTRICT CONTACTS

All contact during the competitive process is to be through the contact listed on the first page of this RFQ. The following persons are to be contacted only for the purposes specified below.

TECHNICAL SPECIFICATIONS:
Attn: Karl Yakich, Associate Civil Engineer
EBMUD-Wastewater Engineering Division/Wastewater Department
E-Mail: karl.yakich@ebmud.com
PHONE: (510) 287-1645

CONTRACT EQUITY PROGRAM:
Attn: Contract Equity Office
PHONE: (510) 287-0114

AFTER AWARD:
Attn: Karl Yakich, Associate Civil Engineer
EBMUD- Wastewater Engineering Division/Wastewater Department
E-Mail: karl.yakich@ebmud.com
PHONE: (510) 287-1645

B. SUBMITTAL OF RFQ RESPONSE

1. Responses must be submitted in accordance with Exhibit A – RFQ Response Packet, including all additional documentation stated in the "Required Documentation and Submittals" section of Exhibit A.

2. Late and/or unsealed responses will not be accepted.

3. RFQ responses submitted via electronic transmissions will not be accepted. Electronic transmissions include faxed RFQ responses or those sent by electronic mail ("e-mail").

4. All RFQ responses must be SEALED and received by 1:30 p.m. on the due date specified in the Calendar of Events. Any RFQ response received after that time/date, or at a place other than the stated addresses, cannot be considered and will be returned to the bidder unopened. The EBMUD mailroom and Purchasing Division timestamp shall be considered the official timepiece for the purpose of establishing the actual receipt of RFQ responses.

5. RFQ responses are to be addressed/delivered as follows:

   Mailed (USPS):

   East Bay Municipal Utility District
   FIBERGLASS REINFORCED PLASTIC TANKS
   RFQ No. 2301
   EBMUD–Purchasing Division
   P.O. Box 24055
   Oakland, CA 94623

   Hand Delivered, delivered by courier or package delivery service (UPS, FedEx, DHL, etc.):

   East Bay Municipal Utility District
   FIBERGLASS REINFORCED PLASTIC TANKS
   RFQ No. 2301
   EBMUD–Purchasing Division
   375 Eleventh Street, First Floor
   Oakland, CA 94607

   Bidder's name, return address, and the RFQ number and title must also appear on the mailing package.

6. All costs required for the preparation and submission of an RFQ response shall be borne by the bidder.

7. California Government Code Section 4552: In submitting an RFQ response to a public purchasing body, the bidder offers and agrees that if the RFQ response is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2, commencing with Section 16700, of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the RFQ response. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder.

8. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Cal. Gov. Code, §12650 et seq.), the District will be entitled to civil remedies set forth in the California False Claim Act.

9. The RFQ response shall remain open to acceptance and is irrevocable for a period of one hundred eighty (180) days, unless otherwise specified in the RFQ documents.

10. It is understood that the District reserves the right to reject any or all RFQ responses.

11. RFQ responses, in whole or in part, are NOT to be marked confidential or proprietary. The District may refuse to consider any RFQ response or part thereof so marked. RFQ responses submitted in response to this RFQ may be subject to public disclosure. The District shall not be liable in any way for disclosure of any such records.

EXHIBIT A
RFQ RESPONSE PACKET
RFQ No. 2301 – FIBERGLASS REINFORCED PLASTIC TANKS

To: The EAST BAY MUNICIPAL UTILITY District ("District")

From: _____

(Official Name of Bidder)

RFQ RESPONSE PACKET GUIDELINES

- **BIDDERS ARE TO SUBMIT ONE (1) ORIGINAL HARDCOPY RFQ RESPONSE WITH ORIGINAL INK SIGNATURES AND ONE (1) COPY CONTAINING THE FOLLOWING IN THEIR ENTIRETY:**
  - **EXHIBIT A – RFQ RESPONSE PACKET**
    - **INCLUDING ALL REQUIRED DOCUMENTATION AS DESCRIBED IN "EXHIBIT A-REQUIRED DOCUMENTATION AND SUBMITTALS"**

- **ALL PRICES AND NOTATIONS MUST BE PRINTED IN INK OR TYPEWRITTEN; NO ERASURES ARE PERMITTED; ERRORS MAY BE CROSSED OUT AND CORRECTIONS PRINTED IN INK OR TYPEWRITTEN ADJACENT AND MUST BE INITIALED IN INK BY PERSON SIGNING THE RFQ RESPONSE.**

- **BIDDERS THAT DO NOT COMPLY WITH THE REQUIREMENTS, AND/OR SUBMIT AN INCOMPLETE RFQ RESPONSE MAY BE SUBJECT TO DISQUALIFICATION AND THEIR RFQ RESPONSE REJECTED IN TOTAL.**

- **IF BIDDERS ARE MAKING ANY CLARIFICATIONS AND/OR AMENDMENTS, OR TAKING EXCEPTION TO ANY PART OF THIS RFQ, THESE MUST BE SUBMITTED IN THE EXCEPTIONS, CLARIFICATIONS, AND AMENDMENTS SECTION OF THIS EXHIBIT A – RFQ RESPONSE PACKET. THE DISTRICT, AT ITS SOLE DISCRETION, MAY ACCEPT AMENDMENTS/EXCEPTIONS, OR MAY DEEM THEM TO BE UNACCEPTABLE, THEREBY RENDERING THE RFQ RESPONSE DISQUALIFIED.**

- **BIDDERS SHALL NOT MODIFY DISTRICT LANGUAGE IN ANY PART OF THIS RFQ OR ITS EXHIBITS, NOR SHALL THEY QUALIFY THEIR RFQ RESPONSE BY INSERTING THEIR OWN LANGUAGE OR FALSE CLAIMS IN THEIR RESPONSE. ANY EXCEPTIONS AND CLARIFICATIONS MUST BE PLACED IN THE "EXCEPTIONS/ CLARIFICATIONS" PAGE, NOT BURIED IN THE PROPOSAL ITSELF."**

BIDDER INFORMATION AND ACCEPTANCE

1. The undersigned declares that all RFQ documents, including, without limitation, the RFQ, Addenda, and Exhibits, have been read and that the terms, conditions, certifications, and requirements are agreed to.

2. The undersigned is authorized to offer, and agrees to furnish, the articles and services specified in accordance with the RFQ documents.

3. The undersigned acknowledges acceptance of all addenda related to this RFQ.

4. The undersigned hereby certifies to the District that all representations, certifications, and statements made by the bidder, as set forth in this RFQ Response Packet and attachments, are true and correct and are made under penalty of perjury pursuant to the laws of California.

5. The undersigned acknowledges that the bidder is, and will be, in good standing in the State of California, with all the necessary licenses, permits, certifications, approvals, and authorizations necessary to perform all obligations in connection with this RFQ and associated RFQ documents.

6. It is the responsibility of each bidder to be familiar with all of the specifications, terms, and conditions and, if applicable, the site condition. By the submission of an RFQ response, the bidder certifies that if awarded a contract it will make no claim against the District based upon ignorance of conditions or misunderstanding of the specifications.

7. Patent indemnity: Contractors who do business with the District shall hold the District, its Directors, officers, agents, and employees, harmless from liability of any nature or kind, including cost and expenses, for infringement or use of any patent, copyright, or other proprietary right, secret process, patented or unpatented invention, article, or appliance furnished or used in connection with the contract or purchase order.

8. Insurance certificates are not required at the time of submission. However, by signing Exhibit A – RFQ Response Packet, the bidder agrees to meet the minimum insurance requirements stated in the RFQ. This documentation must be provided to the District prior to execution of an agreement by the District and shall include an insurance certificate which meets the minimum insurance requirements, as stated in the RFQ.

9. The undersigned acknowledges that RFQ responses, in whole or in part, are NOT to be marked confidential or proprietary. The District may refuse to consider any RFQ response or part thereof so marked. RFQ responses submitted in response to this RFQ may be subject to public disclosure. The District shall not be liable in any way for disclosure of any such records.

10. The undersigned bidder hereby submits this RFQ response and binds itself on award to the District under this RFQ to execute in accordance with such award a contract and to furnish the bond or bonds and insurance required by the RFQ. The RFQ, subsequent Addenda, bidder's Response Packet, and any attachments, shall constitute the Contract, and all provisions thereof are hereby accepted.

11. The undersigned acknowledges ***ONE*** of the following (please check only one box):

☐ Bidder is not an SBE and is ineligible for any bid preference; **OR**

☐ Bidder is an SBE or DVBE as described in the Contract Equity Program (CEP) and Equal Employment Opportunity (EEO) Guidelines, is requesting a 7% bid preference, and has completed the CEP and EEO forms at the hyperlink contained in the CEP and EEO section of this Exhibit A.

For additional information on SBE bid preference, please refer to the Contract Equity Program and Equal Employment Opportunity Guidelines at the above referenced hyperlink.

Official Name of Bidder (exactly as it appears on Bidder's corporate seal and invoice): _____

Street Address Line 1: _____

Street Address Line 2: _____

City: _____ State: _____ Zip Code: _____

Webpage: _____

Type of Entity / Organizational Structure (check one):

☐ Corporation ☐ Joint Venture

☐ Limited Liability Partnership ☐ Partnership

☐ Limited Liability Corporation ☐ Non-Profit / Church

☐ Other: _____

Jurisdiction of Organization Structure: _____

Date of Organization Structure: _____

Federal Tax Identification Number: _____

Department of Industrial Relations (DIR) Registration Number: _____

Primary Contact Information:

Name / Title: _____

Telephone Number: _____ Fax Number: _____

E-mail Address: _____

Street Address Line 1: _____

City: _____ State: _____ Zip Code: _____

SIGNATURE: _____

Name and Title of Signer (printed): _____

Dated this _____ day of _____ 20_____

BIDDING SHEET

Cost shall be submitted on this Bid Form as is. The prices quoted shall not include Sales Tax or Use Tax; said tax, wherever applicable, will be paid by the District to the contractor, if licensed to collect, or otherwise directly to the State.

No alterations or changes of any kind to the Bid Form(s) are permitted. RFQ responses that do not comply may be subject to rejection in total. The cost quoted below shall be the cost the District will pay for the term of any contract that is a result of this RFQ process.

Quantities listed herein are annual estimates based on past usage and are not to be construed as a commitment. No minimum or maximum is guaranteed or implied.

Description	**Unit of Measure**	**Estimated Quantity**	**Unit Cost**	**Extended Cost**
Fiberglass reinforced plastic (FRP) sodium hypochlorite storage tanks, as specified within.	each	3	**$**	**$**
			TOTAL AMOUNT BID	**$**

REQUIRED DOCUMENTATION AND SUBMITTALS

All of the specific documentation listed below is required to be submitted with the Exhibit A – RFQ Response Packet. Bidders shall submit all documentation, in the order listed below, and clearly label each section of the RFQ response with the appropriate title (i.e. Table of Contents, Letter of Transmittal, Key Personnel, etc.).

1. **Description of the Proposed Equipment/System**: RFQ response shall include a description of the proposed equipment/system, as it will be finally configured during the term of the contract. The description shall specify how the proposed equipment/system will meet or exceed the requirements of the District and shall explain any advantages that this proposed equipment/system would have over other possible equipment/systems. The description shall include any disadvantages or limitations that the District should be aware of in evaluating the RFQ response. Finally, the description shall describe all product warranties provided by bidder.

2. **Sustainability Statement:** Contractors shall submit a statement regarding any sustainable or environmental initiatives or practices that they or their suppliers engage in. This information can be in relation to the specific products procured under this RFQ or in relation to the manufacture, delivery, or office practices of your firm.

   If applicable, please also provide any information you have available on the below:

   a. Has your firm taken steps to enhance its ability to assess, track and address issues regarding Greenhouse Gas (GHG) Emissions in answer to recent legislations such as the Buy Clean California Act? If so, please attach any data you can on the embedded greenhouse gas emissions in the production and transport of the products and/or services which will be provided via this RFQ. If this is not available, please describe the approach you plan to take in order to gather and report this information in the future. For further information in this topic, please see: http://www.ghgprotocol.org/scope-3-technical-calculation-guidance

3. **References:**
   (a) Bidders must use the templates in the "References" section of this Exhibit A – RFQ Response Packet to provide references.
   (b) References should have similar scope, volume, and requirements to those outlined in these specifications, terms, and conditions.
      - Bidders must verify the contact information for all references provided is current and valid.
      - Bidders are strongly encouraged to notify all references that the District may be contacting them to obtain a reference.

(c) The District may contact some or all of the references provided in order to determine Bidder's performance record on work similar to that described in this RFQ. The District reserves the right to contact references other than those provided in the RFQ response.

4. **Exceptions, Clarifications, Amendments:**

(a) The RFQ response shall include a separate section calling out all clarifications, exceptions, and amendments, if any, to the RFQ and associated RFQ documents, which shall be submitted with Bidder's RFQ response using the template in the "Exceptions, Clarifications, Amendments" section of this Exhibit A – RFQ Response Packet.

(b) **THE DISTRICT IS UNDER NO OBLIGATION TO ACCEPT ANY EXCEPTIONS, AND SUCH EXCEPTIONS MAY BE A BASIS FOR RFQ RESPONSE DISQUALIFICATION.**

5. **Contract Equity Program:**

(a) Every bidder must fill out, sign, and submit the appropriate sections of the Contract Equity Program and Equal Employment Opportunity documents located at the hyperlink contained in the last page of this Exhibit A. Special attention should be given to completing Form P-25, "Contractor Employment Data and Certification". Any bidder needing assistance in completing these forms should contact the District's Contract Equity Office at (510) 287-0114 prior to submitting an RFQ response.

EBMUD

REFERENCES

RFQ No. 2301 – FIBERGLASS REINFORCED PLASTIC TANKS

Bidder Name: ________________________________

Bidder must provide a minimum five (5) references, per page 6 of SECTION 43 41 45.

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

EXCEPTIONS, CLARIFICATIONS, AMENDMENTS

RFQ No. 2301 – FIBERGLASS REINFORCED PLASTIC TANKS

Bidder Name: _____

List below requests for clarifications, exceptions, and amendments, if any, to the RFQ and associated RFQ Documents, and submit with bidder's RFQ response. **The District is under no obligation to accept any exceptions and such exceptions may be a basis for RFQ response disqualification.**

Reference to:			**Description**
Page No.	Section	Item No.	
p. 23	**D**	**1.c.**	***Bidder takes exception to…***

*Print additional pages as necessary

CONTRACT EQUITY PROGRAM & EQUAL EMPLOYMENT OPPORTUNITY

The District's Board of Directors adopted the Contract Equity Program (CEP) to enhance equal opportunities for business owners of all races, ethnicities, and genders who are interested in doing business with the District. The program has contracting objectives, serving as the minimum level of expected contract participation for the three availability groups: white-men owned businesses, white-women owned businesses, and ethnic minority owned businesses. The contracting objectives apply to all contracts that are determined to have subcontracting opportunities, and to all contractors regardless of their race, gender, or ethnicity.

All Contractors and their subcontractors performing work for the District must be Equal Employment Opportunity (EEO) employers and shall be bound by all laws prohibiting discrimination in employment. There shall be no discrimination against any person, or group of persons, on account of race, color, religion, creed, national origin, ancestry, gender including gender identity or expression, age, marital or domestic partnership status, mental disability, physical disability (including HIV and AIDS), medical condition (including genetic characteristics or cancer), genetic information, or sexual orientation.

Contractor and its subcontractors shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identity, or national origin in the performance of this contract. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

All Contractors shall include the nondiscrimination provisions above in all subcontracts.
Please include the required completed forms with your bid.
Non-compliance with the Guidelines may deem a bid non-responsive, and therefore, ineligible for contract award. Your firm is responsible for:

1) Reading and understanding the CEP guidelines.

2) Filling out and submitting with your bid the appropriate forms.

   The CEP guidelines and forms can be found at the following direct link:
   Contract Equity Guidelines and Forms

   The CEP guidelines and forms can also be downloaded from the District website at the following link:
   http://ebmud.com/business-center/contract-equity-program/

If you have questions regarding the Contract Equity Program, please call (510) 287-0114.

EXHIBIT B
INSURANCE REQUIREMENTS

BIDDER shall take out and maintain during the life of the Agreement all insurance required and BIDDER shall not commence work until such insurance has been approved by DISTRICT. The proof of insurance shall be on forms provided by DISTRICT directly following these Insurance Requirements.

BIDDERS are not required to submit completed insurance verification documents with their bid but will be required to submit them upon notification of award. By signing Exhibit A – RFP Response Packet, the BIDDER agrees to meet the minimum insurance requirements stated in the RFP.

<u>The following provisions are applicable to all required insurance</u>:

A. Prior to the beginning of and throughout the duration of Services, and for any additional period of time as specified below, CONTRACTOR shall, at its sole cost and expense, maintain insurance in conformance with the requirements set forth below.

B. CONTRACTOR shall provide Verification of Insurance as required by this Agreement by providing the completed Verification of Insurance as requested below signing and submitting this Exhibit B to the DISTRICT. The Exhibit B may be signed by an officer of the CONTRACTOR (Agent) or by the Insurance Broker for the CONTRACTOR. CONTRACTOR shall update Exhibit B throughout the specified term of the insurance required by this Agreement by resubmitting the completed Exhibit B prior to the expiration date of any of the required insurance. The updated Exhibit B shall become a part of the Agreement but shall not require a change order to the Agreement. The Notice to Proceed shall not be issued, and CONTRACTOR shall not commence Services until such insurance has been accepted by the DISTRICT.

C. CONTRACTOR shall carry and maintain the minimum insurance requirements as defined in this Agreement. CONTRACTOR shall require any subcontractor to carry and maintain the minimum insurance required in this Agreement to the extent they apply to the scope of the services to be performed by subcontractor.

D. Acceptance of verification of Insurance by the DISTRICT shall not relieve CONTRACTOR of any of the insurance requirements, nor decrease liability of CONTRACTOR.

E. The insurance required hereunder may be obtained by a combination of primary, excess and/or umbrella insurance, and all coverage shall be at least as broad as the requirements listed in this Agreement.

F. Any deductibles, self-insurance, or self-insured retentions (SIRs) applicable to the required insurance coverage must be declared to and accepted by the DISTRICT.

G. At the option and request of the DISTRICT, CONTRACTOR shall provide documentation of its financial ability to pay the deductible, self-insurance, or SIR.

H. Any policies with a SIR shall provide that any SIR may be satisfied, in whole or in part, by the DISTRICT or the additional insured at its sole and absolute discretion.

I. Unless otherwise accepted by the DISTRICT, all required insurance must be placed with insurers with a current A.M. Best's rating of no less than A- V.

J. CONTRACTOR shall defend the DISTRICT and pay any damages as a result of failure to provide the waiver of subrogation from the insurance carrier.

K. For any coverage that is provided on a claims-made coverage form (which type of form is permitted only where specified) the retroactive date must be shown and must be before the date of this Agreement, and before the beginning of any Services related to this Agreement.

L. Insurance must be maintained, and updated Verification of Insurance be provided to the DISTRICT before the expiration of insurance by having CONTRACTOR's insurance broker or agent update, sign and return Exhibit B to the DISTRICT's contract manager. For all claims-made policies the updated Verification of Insurance must be provided to the DISTRICT for at least three (3) years after expiration of this Agreement.

M. If claims-made coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the effective date of this Agreement or the start of any Services related to this Agreement, CONTRACTOR must purchase an extended reporting period for a minimum of three (3) years after expiration of the Agreement.

N. If requested by the DISTRICT, a copy of the policies' claims reporting requirement must be submitted to the DISTRICT for review.

O. Where additional insured coverage is required, the additional insured coverage shall be "primary and non-contributory," and will not seek contribution from the DISTRICT's insurance or self-insurance.

P. CONTRACTOR agrees to provide immediate Notice to the DISTRICT of any loss or claim against CONTRACTOR arising out of, pertaining to, or in any way relating to this Agreement, or Services performed under this Agreement. The DISTRICT assumes no obligation or liability by such Notice but has the right (but not the duty) to monitor the handling of any such claim or claims if they are likely to involve the DISTRICT.

Q. CONTRACTOR agrees, upon request by the DISTRICT, to provide complete, certified copies of any policies and endorsements within 10 days of such request (copies of policies may be redacted to eliminate premium details.)

R. It is CONTRACTOR's responsibility to ensure its compliance with the insurance requirements. Any actual or alleged failure on the part of the DISTRICT to obtain proof of insurance required under this Agreement shall not in any way be construed to be a waiver of any right or remedy of the DISTRICT, in this or any regard.

S. Notice of Cancellation/Non-Renewal/Material Reduction The insurance requirements hereunder are mandatory, and the DISTRICT may, at its sole and absolute discretion, terminate the services provided by CONTRACTOR, should CONTRACTOR breach its obligations to maintain the required coverage and limits set forth in this Agreement. No coverage required hereunder shall be cancelled, non-renewed or materially reduced in coverage or limits without the DISTRICT being provided at least thirty (30) days prior written notice, other than cancellation for the non-payment of premiums, in which event the DISTRICT shall be provided ten (10) days prior written notice. Replacement of coverage with another policy or insurer, without any lapse in coverage or any reduction of the stated requirements does not require notice beyond

submission to the DISTRICT of an updated Verification of Insurance which shall be met by having the CONTRACTOR's insurance broker or agent update, sign and return this EXHIBIT B.

I. Workers' Compensation and Employer's Liability Insurance Coverage

A. Workers' Compensation insurance including Employer's Liability insurance with minimum limits as follows:

Coverage A. Statutory Benefits Limits

Coverage B. Employer's Liability of not less than:

Bodily Injury by accident:	$1,000,000 each accident
Bodily Injury by disease:	$1,000,000 each employee
Bodily Injury by disease:	$1,000,000 policy limit

B. CONTRACTOR's insurance shall be primary, and any insurance or self-insurance procured or maintained by the DISTRICT shall not be required to contribute to it.

C. If there is an onsite exposure of injury to CONTRACTOR, subcontractor, and/or subcontractor's employees under the U.S. Longshore and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations or statutes applicable to maritime employees, coverage is required for such injuries or claims.

D. If CONTRACTOR is self-employed, a sole proprietorship or a partnership, with no employees, and is exempt from carrying Workers' Compensation Insurance, CONTRACTOR must return the completed Verification of Insurance confirming that CONTRACTOR has no employees and is exempt from the State of California Workers' Compensation requirements.

E. If CONTRACTOR is self-insured with respect to Workers' Compensation coverage, CONTRACTOR shall provide to the DISTRICT a Certificate of Consent to Self-Insure from the California Department of Industrial Relations. Such self-insurance shall meet the minimum limit requirements and shall waive subrogation rights in favor of the DISTRICT as stated below in section "F."

F. Waiver of Subrogation. Workers' Compensation policies, including any applicable excess and umbrella insurance, must contain a waiver of subrogation endorsement providing that CONTRACTOR and each insurer waive any and all rights of recovery by subrogation, or otherwise, against the DISTRICT, its directors, board, and committee members, officers, officials, employees, agents, and volunteers. CONTRACTOR shall defend and pay any and all damages, fees, and costs, of any kind arising out of, pertaining to, or in any way relating to CONTRACTOR's failure to provide waiver of subrogation from the insurance carrier.

INSURANCE VERIFICATION DOCUMENTS

Verification of Workers' Compensation and Employer's Liability Insurance Coverage

☐ **By checking the box and signing below, I hereby verify that the CONTRACTOR is exempt from the State of California's requirement to carry workers' compensation insurance.**

As the CONTRACTOR's insurance broker/agent, I hereby verify that I have reviewed and confirmed that the CONTRACTOR carries workers' compensation insurance as required by this Agreement, including the relevant provisions applicable to all required insurance.

Self-Insured Retention Amount: $_____

Policy Limit: $_____

Policy Number: _____

Policy Period: from:_____ to: _____

Insurance Carrier Name:_____

Insurance Broker or Agent: Print Name:_____

Insurance Broker or Agent's Signature: _____

II. Commercial General Liability Insurance ("CGL") Coverage

A. CONTRACTOR's insurance shall be primary, and any insurance or self-insurance procured or maintained by the DISTRICT shall not be required to contribute to it.

B. The insurance requirements under this Agreement shall be the greater of (1) the minimum coverage and limits specified in this Agreement; or (2) the broader coverage and maximum limits of coverage of any insurance policies or proceeds available to the Named Insured. It is agreed that these insurance requirements shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimums required herein. No representation is made that the minimum insurance requirements of this Agreement are sufficient to cover the obligations of the CONTRACTOR.

C. Minimum Requirements. CGL insurance with minimum per occurrence and aggregate limits as follows:

Bodily Injury and Property Damage	$2,000,000 per occurrence & aggregate
Personal Injury/Advertising Injury	$2,000,000 per occurrence & aggregate
Products/Completed Operations	$2,000,000 per occurrence & aggregate

D. Coverage must be on an occurrence basis.

E. Coverage for Products, and Completed Operations, and Ongoing Operations must be included in the insurance policies and shall not contain any "prior work" coverage limitation or exclusion applicable to any Services performed by CONTRACTOR and/or subcontractor under this Agreement.

F. Insurance policies and Additional Insured Endorsement(s) Coverage shall be included for all premises and operations in any way related to this Agreement.

G. There will be no exclusion for explosions, collapse, or underground liability (XCU).

H. Insurance policies and Additional Insured Endorsement(s) shall not exclude liability and damages to work arising out of, pertaining to, or in any way relating to services performed by Subcontractor on CONTRACTOR's behalf.

I. Contractual liability coverage shall be included and shall not limit, by any modification or endorsement, coverage for liabilities assumed by CONTRACTOR under this Agreement as an "insured contract."

J. Waiver of Subrogation. The policy shall be endorsed to include a Waiver of Subrogation ensuring that the CONTRACTOR and its insurer(s) waive any rights of recovery by subrogation, or otherwise, against the DISTRICT, its directors, board, and committee members, officers, officials, agents, volunteers, and employees. CONTRACTOR shall defend and pay any and all damages, fees, and costs, of any kind, arising out of, pertaining to, or in any way resulting from CONTRACTOR's failure to provide the waiver of subrogation from its insurance carrier(s).

K. "Independent CONTRACTOR's Liability" shall not limit coverage for liability and/or damages arising out of, pertaining to, or in any way resulting from Services provided under this Agreement.

To the fullest extent permitted by law, the DISTRICT, its directors, board, and committee members, officers, officials, employees, agents, and volunteers must be covered as Additional Insureds on a primary and noncontributory basis on all underlying, excess and umbrella policies that shall be evidenced in each case by an endorsement. The Additional Insureds must be covered for liability arising in whole, or in part, from any premises, Products, Ongoing Operations, and Completed Operations by or on behalf of CONTRACTOR, in any way related to Services performed under this Agreement.

L. A severability of interest provision must apply for all the Additional Insureds, ensuring that CONTRACTOR's insurance shall apply separately to each insured against whom a claim is made, or suit is brought, except with respect to the policies' limit(s).

Verification of Commercial General Liability (CGL) Insurance Coverage

As the CONTRACTOR'S insurance broker/agent, I hereby verify that I have reviewed and confirmed that the CONTRACTOR carries Commercial General Liability insurance, as required by this Agreement, including the relevant provisions applicable to all required insurance:

Self-Insured: Amount: $_____

Policy Limit: Per Occurrence: $_____ Aggregate: $_____

Policy Number: _____

Policy Period: from:_____ to: _____

Insurance Carrier Name:_____

Insurance Broker or Agent: Print Name:_____

Insurance Broker or Agent's Signature: _____

III. Business Auto Liability Insurance Coverage

CONTRACTOR's insurance shall be primary, and any insurance or self-insurance procured or maintained by the DISTRICT shall not be required to contribute to it.

A. The insurance requirements under this Agreement shall be the greater of (1) the minimum coverage and limits specified in this Agreement; or (2) the broader coverage and maximum limits of coverage of any insurance policies or proceeds available to the Named Insured. It is agreed that these insurance requirements shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimums required herein. No representation is made that the minimum insurance requirements of this Agreement are sufficient to cover the obligations of the CONTRACTOR.

B. Minimum Requirements. Auto insurance with minimum coverage and limits as follows:
Each Occurrence Limit (per accident) and in the Aggregate: $2,000,000
Bodily Injury and Property Damage: $2,000,000

C. Coverage must include either "owned, non-owned, and hired" autos or "any" automobile

This provision ensures the policy covers losses arising out of use of company-owned vehicles ("owned autos"), employee's personal autos ("non-owned autos" meaning not owned by company/insured) or autos that are rented or leased ("hired autos").

D. If CONTRACTOR is transporting hazardous materials or contaminants, evidence of the Motor Carrier Act Endorsement-hazardous materials clean-up (MCS-90, or its equivalent) must be provided.

E. If CONTRACTOR's Scope of Services under this Agreement exposes a potential pollution liability risk related to transport of potential pollutants, seepage, release, escape or discharge of any nature (threatened or actual) of pollutants into the environment arising out of, pertaining to, or in any way related to CONTRACTOR's and/or Subcontractor's performance under this Agreement, then Auto Liability Insurance policies must be endorsed to include Transportation Pollution Liability insurance. Alternatively, coverage may be provided under the CONTRACTOR's Pollution Liability Policies if such policy has no exclusions that would restrict coverage under this Agreement. Coverage shall also include leakage of fuel or other "pollutants" needed for the normal functioning of covered autos.

F. To the fullest extent permitted by law, the DISTRICT, its directors, board, and committee members, officers, officials, employees, agents, and volunteers must be covered as Additional Insureds on a primary and noncontributory basis on all underlying and excess and umbrella policies. The Additional Insureds must be covered for liability arising in whole, or in part, from any premises, Products, Ongoing Operations, and Completed Operations by or on behalf of CONTRACTOR, in any way related to Services performed under this Agreement.

G. A severability of interest provision must apply for all the Additional Insureds, ensuring that CONTRACTOR's insurance shall apply separately to each insured against whom a claim is made, or suit is brought, except with respect to the insurer's limits of liability.

Verification of Business Auto Liability Insurance Coverage

As the CONTRACTOR'S insurance broker/agent, I hereby verify that I have reviewed and confirmed that the CONTRACTOR carries Business Automobile Liability insurance, as required by this Agreement, including the relevant provisions applicable to all required insurance:

Self-Insured: Amount: $_____

Policy Limit: Per Accident/Occurrence $_____ Aggregate: $ _____

Policy Number: _____

Policy Period: from:_____ to: _____

Insurance Carrier Name:_____

Insurance Broker or Agent: Print Name:_____

Insurance Broker or Agent's Signature: _____

IV. Professional Liability (also known as Errors and Omissions) Insurance Coverage

A. CONTRACTOR's insurance shall be primary, and any insurance or self-insurance procured or maintained by the DISTRICT shall not be required to contribute to it.

B. The insurance requirements under this Agreement shall be the greater of (1) the minimum coverage and limits specified in this Agreement; or (2) the broader coverage and maximum limits of coverage of any insurance policies or proceeds available to the Named Insured. It is agreed that these insurance requirements shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimums required herein. No representation is made that the minimum insurance requirements of this Agreement are sufficient to cover the obligations of the CONTRACTOR.

C. Minimum Requirements: Professional Liability Insurance with minimum limits as follows:

Each Claim or Occurrence Limit:	$2,000,000
Aggregate Limit:	$2,000,000

D. If Coverage is written on a claims-made form, the following shall apply:

1. The retroactive date must be shown and must be before the date of the Agreement or the beginning of the Services.
2. Insurance must be maintained, and evidence of insurance must be provided for a minimum of three (3) years after completion of the Services.

3. If claims-made coverage is canceled or non-renewed, and not replaced with another claims-made policies form with a retroactive date prior to the effective date of the Agreement, CONTRACTOR must purchase an extended period of coverage for a minimum of three (3) years after completion of the Services.

E. Insurance shall include prior acts coverage sufficient to cover the services under this Agreement.

F. Coverage shall be included for all premises and operations in any way related to this Agreement.

Verification of Professional Liability (Errors and Omissions) Insurance Coverage

As the CONTRACTOR'S insurance broker/agent, I hereby verify that I have reviewed and confirmed that the CONTRACTOR carries Professional Liability insurance as required by this Agreement, including the relevant provisions applicable to all required insurance.

Self-Insured: Amount: $_____

Policy Limit: Per Claim $_____ Aggregate: $ _____

Policy Number: _____

Policy Period: from:_____ to: _____

Insurance Carrier Name:_____

Insurance Broker or Agent: Print Name:_____

Insurance Broker or Agent's Signature: _____

V. Excess and/or Umbrella Liability Insurance Coverage

A. CONTRACTOR's insurance shall be primary, and any insurance or self-insurance procured or maintained by the DISTRICT shall not be required to contribute to it.

B. The insurance requirements under this Agreement shall be the greater of (1) the minimum coverage and limits specified in this Agreement; or (2) the broader coverage and maximum limits of coverage of any insurance policies or proceeds available to the Named Insured. It is agreed that these insurance requirements shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimums required herein. No representation is made that the minimum insurance requirements of this Agreement are sufficient to cover the obligations of the CONTRACTOR.

C. Minimum Requirements: It is expressly understood by the parties that CONTRACTOR's Excess and/or Umbrella Liability policies shall, at minimum, comply with all insurance requirements set forth within this Agreement.

1. Coverage for Products, Completed Operations, and Ongoing Operations must be included in the insurance policies and shall not contain any "prior work" coverage limitation or exclusion applicable to any Services performed under this Agreement and, if it is a claims-made policy, it must be maintained for a minimum of three (3) years following final completion of the Services.

2. Coverage shall be included for all premises and operations in any way related to this Agreement.

3. There will be no exclusion for explosions, collapse, or underground damage (XCU).

4. Insurance policies and Additional Insured Endorsements shall not exclude coverage for liability and damages from services performed by Subcontractor on CONTRACTOR's behalf.

5. Contractual liability coverage shall be included and shall not limit, by any modification or endorsement, coverage for liabilities assumed by CONTRACTOR under this Agreement as an "insured contract."

6. "Independent CONTRACTOR's Liability" shall not limit coverage for liability and/or damage arising out of, pertaining to, or in any way related to Services provided under this Agreement.

7. To the fullest extent permitted by law, the DISTRICT, its directors, officers, officials, agents, volunteers, and employees must be covered as Additional Insureds on a primary and noncontributory basis on all excess and umbrella policies. The Additional Insureds must be covered for liability arising in whole or in part from any premises, Products, Ongoing Operations, and Completed Operations by or on behalf of CONTRACTOR, in any way related to Services performed under this Agreement.

8. A severability of interest provision must apply for all the Additional Insureds, ensuring that the CONTRACTOR's insurance shall apply separately to each insured against whom a claim is made, or suit is brought, except with respect to the policy's limits.

9. CONTRACTOR and its excess and/or umbrella Liability insurance coverage must waive any rights of subrogation against the DISTRICT, its directors, officers, officials, employees, agents, and volunteers, and CONTRACTOR shall defend and pay any damages as a result of failure to provide the waiver of subrogation from the insurance carrier(s).

D. CONTRACTOR shall defend and pay any damages as a result of failure to provide the waiver of subrogation from the insurance carrier(s).

Verification of Excess and/or Umbrella Liability Insurance Coverage

As the CONTRACTOR'S insurance broker/agent, I hereby verify that I have reviewed and confirmed that the CONTRACTOR carries Excess and/or Umbrella Liability insurance, as required by this Agreement, including the relevant provisions applicable to all required insurance.

Self-Insured: Amount: $_____

Policy Number: _____

Policy Period: from:_____ to: _____

Insurance Carrier Name:_____

Insurance Broker or Agent: Print Name:_____

Insurance Broker or Agent's Signature: _____

EXHIBIT C

GENERAL REQUIREMENTS

Effective: June 9, 2021
Supersedes: September 1, 2021

CONTENTS

1. DEFINITIONS

The following terms shall be given the meaning shown, unless context requires otherwise or a unique meaning is otherwise specified.

a. **"Change Order"** A Change Order is a written instrument used for modifying the contract with regards to the scope of Work, contract sum, and/or Contract Time. An approved

Change Order is a Change Order signed by the District. An executed Change Order is a Change Order signed by both the District and the Contractor.

b. **"Contract"** means the agreement between the District and Contractor as memorialized in the Contract Documents.

c. **"Business Entity"** means any individual, business, partnership, joint venture, corporation, sole proprietorship, or other private legal entity recognized by statute.

d. **"Buyer"** means the District's authorized contracting official.

e. **"Contract Documents"** comprise the entire agreement between the District and the Contractor and can include the District's contract form if used, any purchase order, RFP, RFQ or Contractor response packet, and any addenda, appendices and District approved changes or amendments. The Contract Documents are intended to be complementary and include all items necessary for the Contractor's proper execution and completion of the Work. Any part of the Work not shown or mentioned in the Contract Documents that is reasonably implied, or is necessary or usual for proper performance of the Work, shall be provided by the Contractor at its expense.

f. **"Contractor"** means the Business Entity with whom the District enters into a contractual agreement. Contractor shall be synonymous with "supplier", "vendor", "consultant" or other similar term.

g. **"Day"** unless otherwise specified, days are calendar days, measured from midnight to the next midnight.

h. **"District"** means the East Bay Municipal Utility District, its employees acting within the scope of their authority, and its authorized representatives.

i. **"Goods"** means off the shelf software and all types of tangible personal property, including but not limited to materials, supplies, and equipment.

j. **"Project Manager"** shall be the District designated individual responsible for administering and interpreting the terms and conditions of the Contract Documents, for matters relating to the Contractor's performance under the Contract with the District, and for liaison and coordination between the District and Contractor.

k. **"Work"** means all labor, tasks, materials, supplies, and equipment required to properly fulfill the Contractor's obligations as required in the Contract Documents.

l. **"Work Day"** Unless otherwise specified, work day includes all days of the year except Saturdays, Sundays and District holidays.

2. BOND

a. When required in the District's bid or proposal solicitation documents, the Contractor to whom award is made shall furnish a good and approved faithful performance bond and/or payment bond within ten business days after receiving the forms for execution.

b. The bonds shall be executed by a sufficient, admitted surety insurer (i.e.: as listed on website http://interactive.web.insurance.ca.gov/webuser/idb_co_list$.startup) admitted to transact such business in California by the California Department of Insurance. After acceptance of the bond(s) by the District, a copy of the bond(s) will be returned to the Contractor.

c. If, during the continuance of the Contract, any of the sureties, in the opinion of the District, are or become irresponsible, the District may require other or additional sureties, which the Contractor shall furnish to the satisfaction of the District within ten days after notice. If the Contractor fails to provide satisfactory sureties within the ten-day period, the Contract may be terminated for cause under Article 18.

3. CONTRACTOR'S FINANCIAL OBLIGATION

The Contractor shall promptly make payments to all persons supplying labor and materials used in the execution of the contract.

4. SAMPLES OR SPECIMENS

The Contractor shall submit samples or prepare test specimens of such materials to be furnished or used in the work as the Project Manager may require.

5. MATERIAL AND WORKMANSHIP

a. All goods and materials must be new and of the specified quality and equal to approved sample, if samples have been required. In the event any goods or materials furnished or services provided by the Contractor in the performance of the Contract fail to conform to the requirements, or to the sample submitted by the Contractor, the District may reject the same, and it shall become the duty of the Contractor to reclaim and remove the item promptly or to correct the performance of services, without expense to the District, and immediately replace all such rejected items with others conforming to the Contract. All work shall be done and completed in a thorough, workmanlike manner, notwithstanding any omission from these specifications or the drawings, and it shall be the duty of the Contractor to call attention to apparent errors or omissions and request instructions before proceeding with the work. The Project Manager may, by appropriate instructions, correct errors and supply omissions, which instructions shall be binding upon the Contractor as though contained in the original Contract Documents.

b. All materials furnished and all Work must be satisfactory to the Project Manager. Work, material, or machinery not in accordance with the Contract Documents, in the opinion of the Project Manager, shall be made to conform.

6. DEFECTIVE WORK

The Contractor shall replace at its own expense any part of the work that has been improperly executed, as determined by the Project Manager. If Contractor refuses or neglects to replace such defective work, it may be replaced by the District at the expense of the Contractor, and its sureties shall be liable therefor.

7. WARRANTY

Contractor expressly warrants that all goods furnished will conform strictly with the specifications and requirements contained herein and with all approved submittals, samples and/or models and information contained or referenced therein, all affirmations of fact or promises, and will be new, of merchantable quality, free from defects in materials and workmanship, including but not limited to leaks, breaks, penetrations, imperfections, corrosion, deterioration, or other kinds of product deficiencies. Contractor expressly warrants that all goods to be furnished will be fit and sufficient for the purpose(s) intended. Contractor expressly warrants that all goods shall be delivered free from any security interest, lien or encumbrance of any kind, and free from any claim of infringement, copyright or other intellectual property violation, or other violation of laws, statutes, regulations, ordinances, rules, treaties, import restrictions, embargoes or other legal requirements. Contractor guarantees all products and services against faulty or inadequate design, manufacture, negligent or improper transport, handling, assembly, installation or testing, and further guaranties that there shall be strict compliance with all manufacturer guidelines, recommendations, and requirements, and that Contractor guaranties that it will conform to all requirements necessary to keep all manufacturer warranties and guarantees in full force and effect. These warranties and guarantees are inclusive of all parts, labor and equipment necessary to achieve strict conformance, and shall take precedence over any conflicting warranty or guarantee. These warranties and guaranties shall not be affected, limited, discharged or waived by any examination, inspection, delivery, acceptance, payment, course of dealing, course of performance, usage of trade, or termination for any reason and to any extent. In the absence of any conflicting language as to duration, which conflicting language will take precedence as being more specific, Contractor's aforesaid warranties and guarantees shall be in full force and effect for a period of one year from the date of acceptance by the District, but shall continue in full force and effect following notice from District of any warranty or guarantee issue, until such issue has been fully resolved to the satisfaction of District.

8. NOT USED

9. SAFETY AND ACCIDENT PREVENTION

In performing work under the Contract on District premises, Contractor shall conform to any specific safety requirements contained in the Contract or as required by law or regulation. Contractor shall take any additional precautions as the District may reasonably require for safety and accident prevention purposes. Any violation of such rules and requirements, unless promptly corrected, shall be grounds for termination of this Contract or Contractor's right to precede in accordance with the default provisions of the Contract Documents.

10. CHARACTER OF WORKFORCE

The Contractor shall employ none but skilled competent qualified personnel to perform the Work, and shall maintain discipline and order in the conduct of the Work at all times.

11. PREVAILING WAGES & DIR REGISTRATION

a. Please see www.dir.ca.gov for further information regarding the below.

b. All Contractors and Subcontractors of any tier bidding on, or offering to perform work on a public works project shall first be registered with the State Department of Industrial Relations (DIR) pursuant to Section 1725.5 of the Labor Code. No bid will be accepted nor any contract entered into without proof of the Contractor and Subcontractors' current registration with the DIR (LC § 1771.1).

c. All public works projects awarded after January 1, 2015, are subject to compliance monitoring and enforcement by the DIR (LC § 1771.4) and all Contractors are required to post job site notices, "as prescribed by regulation" (LC § 1771.4).

d. To the extent applicable, pursuant to Section 1773 of the Labor Code, the District has obtained from the Director of Industrial Relations of the State of California, the general prevailing rates of per diem wages and the general prevailing rates for holiday and overtime work in the locality in which the Work is to be performed, for each craft, classification, or type of worker needed to execute the contract. Pursuant to Section 1773.2 of the Labor Code, a copy of the prevailing wage rates is on file with the District and available for inspection by any interested party at www.dir.ca.gov.

e. The holidays upon which such rates shall be paid shall be all holidays recognized in the collective bargaining agreement applicable to the particular craft, classification, or type of worker employed on the Work.

f. The Contractor shall post a copy of the general prevailing rate of per diem wages at the jobsite pursuant to Section 1773.2 of the Labor Code.

g. Pursuant to Section 1774 of the Labor Code, the Contractor and any of its Subcontractors shall not pay less than the specified prevailing rate of wages to all workers employed in the execution of the contract.

h. As set forth with more specificity in Section 1773.1 of the Labor Code, "per diem" wages include employer payments for health and welfare, pension, vacation, travel, subsistence and, in certain instances, apprenticeship or other training programs, and shall be paid at the rate and in the amount spelled out in the pertinent prevailing wage determinations issued by the Director of Industrial Relations.

i. The Contractor shall, as a penalty to the State or the District, forfeit not more than the maximum set forth in Section 1775 of the Labor Code for each calendar day, or portion thereof, for each worker paid less than the prevailing rates for the work or craft in which the worker is employed under the contract by the Contractor or by any Subcontractor under him. The difference between the prevailing wage rates and the amount paid to

each worker for each calendar day or portion thereof for which such worker was paid less than the stipulated prevailing wage rate shall be paid to such worker by the Contractor.

j. The specified wage rates are minimum rates only and the District will not consider and shall not be liable for any claims for additional compensation made by the Contractor because of its payment of any wage rate in excess of the general prevailing rates. All disputes in regard to the payment of wages in excess of those specified herein shall be adjusted by the Contractor at its own expense.

k. General prevailing wage determinations have expiration dates with either a single asterisk or a double asterisk. Pursuant to California Code of Regulations, Title 8, Section 16204, the single asterisk means that the general prevailing wage determination shall be in effect for the specified contract duration. The double asterisk means that the predetermined wage modification shall be paid after the expiration date. No adjustment in the Contract Sum will be made for the Contractor's payment of these predetermined wage modifications.

12. PAYROLL RECORDS & ELECTRONIC SUBMISSION

If prevailing wages apply, Contractor and each Subcontractor, as appropriate, shall comply with the following:

a. Contractor and each Subcontractor shall keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker or other employee employed in connection with the Work. The payroll records shall be certified and shall be available for inspection in accordance with the provisions of Section 1776 of the Labor Code. Certified payroll records shall be on the forms provided by the DIR or contain the same information required on the Department's form.

b. The Contractor shall submit for each week in which any contract Work is performed a copy of all payroll records to the Project Manager. The Contractor shall be responsible for submission of copies of payroll records of all Subcontractors.

c. The Contractor or Subcontractor shall certify the payroll records as shown on the DIR form. In addition, the records shall be accompanied by a statement signed by the Contractor or Subcontractor certifying that the classifications truly reflect the Work performed and that the wage rates are not less than those required to be paid.

d. For public works projects awarded on or after April 1, 2015, or that are still ongoing after April 1, 2016, no matter when awarded, each Contractor and Subcontractor shall furnish the certified payroll related records as more specifically described above and in Labor Code section 1776 directly to the Labor Commissioner (see LC § 1771.4). These records shall be provided to the Labor Commissioner at least monthly or more frequently if required by the terms of the Contract. For exception on projects covered by collective bargaining agreements like a PLA, please see Labor Code section 1771.4.

e. In the event of noncompliance with the requirements of Section 1776 of the Labor Code, the Contractor shall have 10 days in which to comply subsequent to receipt of written notice specifying in what respects such Contractor must comply with said Section. Should noncompliance still be evident after such 10-day period, the Contractor shall, as a penalty to the State or the District, forfeit the amount set forth in Section 1776 of the Labor Code for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, such penalties shall be withheld from progress payments then due.

f. The Contractor and every Subcontractor shall post at the workplace and comply with all required wage related workplace postings. Copies of the required postings may be downloaded or ordered electronically from the Department of Industrial Relations website at http://www.dir.ca.gov/wpnodb.html.

13. HOURS OF LABOR

Pursuant to the provisions of Sections 1810, et seq. of the Labor Code and any amendments thereof:

a. Eight hours of labor constitutes a legal day's Work under the contract.

b. The time of service of any worker employed upon the work shall be limited and restricted to eight hours during any one calendar day, and forty hours during any one calendar week except as provided in Article 13.iv below.

c. The Contractor shall, as a penalty to the State or the District, forfeit the amount set forth in Section 1813 of the Labor Code for each worker employed in the execution of the contract by the Contractor or by any Subcontractor for each calendar day during which such worker is required or permitted to work more than eight hours in any calendar day and forty hours in any one calendar week in violation of this Article and the provisions of Labor Code, Sections 1810, et seq.

d. Work performed by employees of the Contractor in excess of eight hours per day, and forty hours during any one calendar week, shall be permitted upon compensation for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay.

e. The Contractor and every Subcontractor shall keep an accurate record showing the name of and the actual hours worked each calendar day and each calendar week by each worker employed by him in connection with the Work; the record shall be kept open at all reasonable hours to the inspection of the District and to the Division of Labor Standards Enforcement of the State of California.

14. EMPLOYMENT OF APPRENTICES

a. In the performance of the contract, the Contractor and any Subcontractor shall comply with the provisions concerning the employment of apprentices in Section 1777.5 of the Labor Code and any amendments thereof.

b. In the event the Contractor or any Subcontractor willfully fails to comply with the aforesaid section, such Contractor or Subcontractor shall be subject to the penalties for noncompliance in Labor Code, Section 1777.7.

15. CHANGES

a. Changes in the Work can only be made in writing signed by an authorized employee of the District. If the change causes an increase or decrease in the contract sum, or a change in the time for performance under the Contract, an adjustment may be made as determined by the Project Manager.

b. The District reserves the right to make changes in the design of materials, equipment, or machinery, to make alterations or additions to or deviations or subtractions from the Contract and any specifications and drawings, to increase or decrease the required quantity of any item or portion of the Work or to omit any item or portion of the Work, as may be deemed by the Project Manager to be necessary or advisable and to order such extra work as may be determined by the Project Manager to be required for the proper execution and completion of the whole Work contemplated. Any such changes will be ordered in writing by the Project Manager. The determination of the Project Manager on all questions relating to changes, including extra work, shall be conclusive and binding.

c. Prior to issuing an amendment or change to the Contract, the Project Manager may request that the Contractor submit a proposal covering the changes. Within 10 business days of receiving the request, the Contractor shall submit its proposal to the Project Manager of all costs associated with the proposed amendment or change and any request for an extension of Contract time. Contractor's proposal shall include detailed estimates with cost breakdowns, including labor, material, equipment, overhead, and profit. Labor shall be broken down into hours and rate per hour. If applicable, the proposal shall include a breakdown for off-site labor (including factory labor, engineering, etc.). The Contractor's proposal shall include an analysis of schedule impact when the Contractor is requesting an adjustment in contract time. The Contractor shall be responsible for any delay associated with its failure to submit its change proposal within the time specified. If the Project Manager decides not to issue an amendment or change after requesting a proposal from the Contractor, the Contractor will be notified in writing. The Contractor is not entitled to reimbursement for Change Order preparation costs if the Contractor's proposal is not accepted by the Project Manager.

d. If the Contractor agrees with the terms and conditions of the approved Change Order, the Contractor shall indicate its acceptance by signing the original copy and returning it to the Project Manager within 10 Work Days after receipt or with reasonable promptness and in such sequence as to not delay the Work or activities of the District or of separate contractors, whichever is sooner. If notice of any change is required to be given to a surety by the provisions of any bond, the Contractor shall provide notice and the amount of each applicable bond shall be adjusted separately. Payment in

accordance with the terms and conditions set forth in the executed Change Order shall constitute full compensation for all Work included in the Change Order and the District will be released from any and all claims for direct, indirect, and impact expenses and additional time impact resulting from the Work. If the Contractor disagrees with the terms and conditions of the approved Change Order, the Contractor shall indicate specific areas of disagreement and return the approved Change Order to the Project Manager with a detailed written dispute. No payment will be made on the disputed work until the approved Change Order is returned to the Project Manager. However, whether or not the Contractor agrees with the terms and conditions of an approved Change Order, the Contractor shall immediately revise its sequence of operations as required to facilitate timely completion of the changed work and shall proceed with the revised work sequence.

e. The Project Manager may, after having received a written cost quotation from the Contractor, order the Contractor, in writing, to proceed with the work prior to issuance of an approved Change Order through a change directive. The change directive will authorize the Contractor to proceed with the work subject to the cost quotation submitted by the Contractor. Within five days following receipt of the change directive, the Contractor shall submit a detailed change proposal documenting the amount of compensation. The Project Manager will review the change proposal and, at its option, will either issue an approved Change Order for the work or direct the Contractor to perform the work through Force Account. Until the method of compensation is determined and the approved Change Order is received, the Contractor shall keep full and complete time and material records of the cost of the ordered work and shall permit the Project Manager to have access to such records. An approved Change Order shall supersede any previously issued written change directive covering the same Work.

16. EFFECT OF EXTENSIONS OF TIME

The granting, or acceptance, of extensions of time to complete the Work or furnish the labor, supplies, materials or equipment, or any one of the aforementioned, will not operate as a release of Contractor or the surety on Contractor's faithful performance bond.

17. DELAYS

a. The Contractor shall take reasonable precautions to foresee and prevent delays to the Work. When the Contractor foresees a delay event, and upon the occurrence of a delay event, the Contractor shall immediately notify the Project Manager of the probability or the actual occurrence of a delay, and its cause. With respect to all delays (compensable, excusable or inexcusable), the Contractor shall reschedule the Work and revise its operations, to the extent possible, to mitigate the effects of the delay. Within 15 days from the beginning of a delay the Contractor shall provide the Project Manager with a detailed written description of the delay, its cause, its impact and the Contractor's mitigation plans. Failure to provide the notification required above waives the Contractor's right to any additional time or compensation resulting from the delay for whatever cause. The Project Manager will investigate the facts and ascertain the extent of the delay, and the Project Manager's findings thereon shall be final and conclusive, except in the case of gross error. An extension of time must be approved by the Project Manager to be effective, but an extension of time, whether with or without consent of

the sureties, shall not release the sureties from their obligations, which shall remain in full force until the discharge of the contract.

b. For inexcusable delays (delays caused by circumstances within the Contractor's control, the control of its subcontractors or supplies of any tier, or within the scope of the Contractor's contract responsibilities) the Contractor shall not be entitled to an extension of time or additional compensation for any loss, cost, damage, expense or liability resulting directly or indirectly from the inexcusable delay.

c. For excusable delays (delays to completion of the Work within the time limits set forth in the Contract Documents directly caused by events beyond the control of both the Contractor and the District, which delay is not concurrent with an inexcusable delay and which could not have been avoided by the Contractor through reasonable mitigation measures the Project Manager will grant the Contractor an extension of time in an amount equal to the period of Excusable Delay based on the analysis of schedule impact and delay analysis diagram, which shall be the Contractor's sole and exclusive remedy for such delay. Excusable Delays shall include labor strikes, adverse weather as defined in Article 8.5, and Acts of God.

d. For compensable delays (delays to completion of the Work within the time limits set forth in the Contract Documents that could not be avoided by Contractor mitigation, caused directly and solely by the District or by causes within the exclusive control of the District, and which were not concurrent with any other type of delay) the Project Manager will grant the Contractor an extension of the time to perform under the Contract and compensation in an amount that represents the Contractor's actual direct costs incurred as a direct result of the compensable delay. The Contractor may recover its direct costs only and may not recover (and waives) all other types of indirect, consequential, special and incidental damages.

e. For concurrent delays (two or more independent causes of delay directly preventing the Contractor from completing the Work within the time limits set forth in the Contract Documents where the delays occur at the same time during all or a portion of the delay period being considered, and where each of the delays would have caused delay to the

Contractor even in the absence of any of the other delays, and none of the delays could have been avoided by Contractor mitigations) the following rules apply:

i. One or more of the concurrent delays are excusable or compensable, then the period of concurrent delay will be treated as an excusable delay; and

ii. All of the concurrent delays are inexcusable, then the period of concurrent delay will be inexcusable.

18. TERMINATION

a. Termination by the District for Cause:

i. District may terminate the Contractor's right to proceed under the Contract, in whole or in part, for cause at any time after the occurrence of any of the following events, each of which constitutes a default:

1. The Contractor becomes insolvent or files for relief under the bankruptcy laws of the United States.

2. The Contractor makes a general assignment for the benefit of its creditors or fails to pay its debts as the same become due.

3. A receiver is appointed to take charge of the Contractor's property.

4. The Contractor fails to supply skilled supervisory personnel, an adequate number of properly skilled workers, proper materials, or necessary equipment to prosecute the Work in accordance with the Contract Documents.

5. The Contractor fails to make progress so as to endanger performance of the Work within the contractually required time.

6. The Contractor disregards legal requirements of agencies having jurisdiction over the Work, the Contractor, or the District.

7. The Contractor fails to provide the District with a written plan to cure a District identified default within five business days after the District's request for a plan to cure; the District does not accept the Contractor's plan for curing its default; or the Contractor does not fully carry out an accepted plan to cure.

8. The Contractor abandons the Work. Abandonment is conclusively presumed when the District requests a written plan to cure a default and the Contractor does not submit the plan within five business days of the District's request.

9. The Contractor materially fails to meet its obligations in accordance with the Contract Documents.

10. The Contractor is in default of any other material obligation under the Contract Documents.

ii. If any of the above events occur, the District may, in its discretion, require that the Contractor submit a written plan to cure its default, which plan must be provided to the District within 5 business days of the request and must include a realistic, executable plan for curing the noted defaults.

iii. Upon any of the occurrences referred to in Article 18.a.i. above, the District may, at its election and by notice to the Contractor, terminate the Contract in whole or in part; accept the assignment of any or all of the subcontracts; and then complete the Work by any method the District may deem expedient. If requested by the District, the Contractor shall remove any part or all of the Contractor's materials, supplies, equipment, tools, and machinery from the site of the Work within seven days of such request; and, if the Contractor fails to do so, the District may remove or store, and after 90 days sell, any of the same at the Contractor's expense.

iv. No termination or action taken by the District after termination shall prejudice any other rights or remedies of the District provided by law or by the Contract Documents.

v. Conversion: If, after termination for other than convenience, it is determined that the Contractor was not in default or material breach, or that the default or material breach was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for convenience pursuant to Article 18.b. below.

b. Termination by the District for Convenience:

i. The District may, at its option, and for its convenience, terminate the Contract at any time by giving written notice to the Contractor specifying the effective date of termination. Upon such termination, the Contractor agrees to comply with the notice and further agrees to waive any claims

for damages, including loss of anticipated profits, on account of the termination; and, as the sole right and remedy of the Contractor, the District shall pay the Contractor as set forth below.

ii. Upon receipt of a notice of termination for convenience, the Contractor shall, unless the notice directs otherwise, do the following:

1. Immediately discontinue its performance of the Contract to the extent specified in the notice.

2. Place no further orders or subcontracts for materials, equipment, services, or facilities, except as may be necessary for completion of a portion of the Work that is not discontinued or that is necessary for an orderly cessation of the Work.

3. Promptly cancel, on the most favorable terms reasonably possible, all subcontracts to the extent they relate to the performance of the discontinued portion of the Work.

4. Thereafter, do only such Work as may be necessary to preserve and protect Work already in progress and to protect materials, plants, and equipment in transit to or on the site of performance.

iii. Upon such termination for convenience, the District will pay to the Contractor the sum of the following:

1. The amount of the contract sum allocable to the portion of the Work properly performed by the Contractor as of the effective date of termination, less sums previously paid to the Contractor.

2. Previously unpaid costs of any items delivered to the project site that were already fabricated for subsequent incorporation into the Work.

3. Any proven losses with respect to materials and equipment directly resulting from the termination.

4. Reasonable demobilization costs.

iv. The above reimbursement is the sole and exclusive remedy to which the Contractor is entitled in the event the contract is terminated for convenience; and the Contractor expressly waives any other claims, damages, demands, compensation or recovery related to this contract or

project. The Contractor agrees to sign a general release incorporating this waiver.

c. Effect of Termination: Upon termination, the obligations of the Contract shall continue as to portions of the Work already performed and, subject to the Contractor's obligations under Article 18.b.ii, as to bona fide obligations assumed by the Contractor prior to the date of termination.

d. Force Majeure: If the contract is suspended or terminated by the District because Contractor's performance is prevented or delayed by an event including an irresistible, superhuman cause, or by the act of public enemies of the State of California or of the United States ("Force Majeure"), the Contractor will be paid for Work performed prior to the Force Majeure event at either (i) the unit prices named in the Contract; or (ii) in the event no unit prices are named, a sum equal to the percentage of the total contract amount that matches the percentage of the total contract Work performed prior to the Force Majeure event.

19. DAMAGES

All losses or damages to material or equipment to be furnished pursuant to the Contract Documents occurring prior to receipt and final acceptance of the Work shall be sustained by the Contractor. The Contractor shall sustain all losses arising from unforeseen obstructions or difficulties, either natural or artificial, encountered in the prosecution of the Work, or from any action of the elements prior to final acceptance of the work, or from an act or omission on the part of the Contractor not authorized by the Contract Documents.

20. ORDER OF PRECEDENCE

a. In the case of conflicts, errors, or discrepancies in any of the Contract Documents, the order of precedence is as follows. Within the same order of precedence, specific requirements shall take precedence over general requirements.

i. Approved Change Orders.
ii. Addenda.
iii. RFQ or RFP.
iv. Referenced Standard Specifications and Drawings.
v. Contractor's Response Packet.

b. With reference to drawings:

i. Numerical dimensions govern over scaled dimensions.
ii. Detailed drawings govern over general drawings.
iii. Addenda/Change Order drawings govern over contract drawings.
iv. Contract drawings govern over standard drawings.

v. Notes apply only to the drawing where the notes appear, unless classified as "typical" or intended to apply elsewhere in which case they apply to all drawings where the conditions or circumstance noted occurs.

vi. Typical details apply to all drawings unless a specific different detail is shown.

21. INDEMNIFICATION

Contractor expressly agrees to defend, indemnify, and hold harmless DISTRICT and its Directors, officers, agents and employees from and against any and all loss, liability, expense, claims, suits, and damages, including attorneys' fees, arising out of or resulting from Contractor's, its associates', employees', subconsultants', or other agents' negligent acts, errors or omissions, or willful misconduct, in the operation and/or performance under this Agreement.

22. PROHIBITION OF ASSIGNMENT

The Contractor shall not assign, transfer, or otherwise dispose of any of its rights, duties or obligations under this Contract. This prohibition does not apply to the District. The District retains the right to assign this Contract in whole or in part at any time upon reasonable terms.

23. NEWS RELEASES

The Contractor, its employees, subcontractors, and agents shall not refer to the District, or use any logos, images, or photographs of the District for any commercial purpose, including, but not limited to, advertising, promotion, or public relations, without the District's prior written consent. Such written consent shall not be required for the inclusion of the District's name on a customer list.

24. SEVERABILITY

Should any part of the Contract be declared by a final decision by a court or tribunal of competent jurisdiction to be unconstitutional, invalid or beyond the authority of either party to enter into or carry out, such decision shall not affect the validity of the remainder of the Contract, which shall continue in full force and effect, provided that the remainder of the Contract can be interpreted to give effect to the intentions of the parties.

25. COVENANT AGAINST GRATUITIES

The Contractor warrants that no gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor, to any officer or employee of the District with a view toward securing the Contract or securing favorable treatment with respect to any determinations concerning the performance of the Contract. For breach or violation of this warranty, the District shall have the right to terminate the Contract, either in whole or in part, and any loss or damage sustained by the District in procuring on the open market any items which Contractor agreed to supply shall be borne and paid for by the Contractor. The rights and remedies of the District provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or in equity.

26. RIGHTS AND REMEDIES OF THE DISTRICT

The rights and remedies of the District provided herein shall not be exclusive and are in addition to any other rights and remedies provided by law or under the Contract.

27. WAIVER OF RIGHTS

Any action or inaction by the District or the failure of the District on any occasion, to enforce any right or provision of the Contract, shall not be construed to be a waiver by the District of its rights and shall not prevent the District from enforcing such provision or right on any future occasion. Rights and remedies are cumulative and are in addition to any other rights or remedies that the District may have at law or in equity.

28. CONFIDENTIALITY

Contractor agrees to maintain in confidence and not disclose to any person or entity, without the District's prior written consent, any trade secret or confidential information, knowledge or data relating to the products, process, or operation of the District. Contractor further agrees to maintain in confidence and not to disclose to any person or entity, any data, information, technology, or material developed or obtained by Contractor during the term of the Contract. The covenants contained in this paragraph shall survive the termination of this Contract for whatever cause.

EXHIBIT D
IRAN CONTRACTING ACT CERTIFICATION

Pursuant to Public Contract Code (PCC) § 2204, an Iran Contracting Act Certification is required for solicitations of goods or services of $1,000,000 or more.

To submit a bid or proposal to East Bay Municipal Utility District (District), you must complete **ONLY ONE** of the following two paragraphs. To complete paragraph 1, check the corresponding box **and** complete the certification for paragraph 1. To complete paragraph 2, check the corresponding box and attach a copy of the written permission from the District.

☐ 1. We are not on the current list of persons engaged in investment activities in Iran created by the California Department of General Services ("DGS") pursuant to PCC § 2203(b), and we are not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person, for 45 days or more, if that other person will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS.

CERTIFICATION FOR PARAGRAPH 1:

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY, that I am duly authorized to legally bind the BIDDER/bidder to the clause in paragraph 1. This certification is made under the laws of the State of California.

Firm: _____

By: _____ Date: _____
(Signature of Bidder)

Title: _____

Signed at: _____ County, State of: _____

OR

☐ 2. We have received written permission from the District to submit a bid or proposal pursuant to PCC § 2203(c) or (d). *A copy of the written permission from the District is included with our bid or proposal.*

EXHIBIT E – TECHNICAL SPECIFICATIONS

SECTION 43 41 45

FIBERGLASS REINFORCED PLASTIC TANKS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Includes: All labor, materials, equipment, and incidentals required to design, fabricate and deliver all fiberglass reinforced plastic (FRP) vertical tanks, complete with all FRP components, steel anchors and lugs, and other appurtenances as specified herein and as shown on the RFQ Contract Documents.

B. Related Sections:

1. Section 01 33 00 – Submittal Procedures

2. Section 01 43 09 – Wind Design Criteria

3. Section 01 43 11 – Seismic Design Requirements

4. Section 05 50 00 – Metal Fabrications

5. Section 05 50 10 – Anchor Systems

6. Section 06 82 00 – Glass Fiber Reinforced Plastic Fabrications

7. Section 43 06 45.05 – Schedule of Liquid Chemical Properties

1.2 REFERENCES

A. The following is a list of standards which may be referenced in this section. Where reference is made, the revision in effect at the time of bid opening shall apply. When two or more of the above regulations are applicable, the more stringent requirement shall be met.

B. ASTM International (ASTM):

1. D883 – Standard Terminology Relating to Plastics

2. D2583 – Standard Test Method For Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor

3. D2584 – Standard Test Method For Ignition Loss of Cured Reinforced Resins

4. D3299 - Standard Specification For Filament-Wound, Fiberglass Reinforced Thermoset Resin Chemical Resistant Tanks

C. American Society of Mechanical Engineers (ASME):

1. RTP-1 – Reinforced Thermoset Plastic Corrosion Resistant Equipment

1.3 SUBMITTALS

A. Submit in accordance with Specification Section 01 33 00, Submittal Procedures.

B. Provide the following with the RFQ Proposal Submittal:

1. Indicate conformance to this Section and the standards and drawings referenced herein. Specifically list any exceptions and describe completely.

2. Alternate proposals will be considered only when provided in addition to a proposal that complies with the specified requirements, such that costs and features can be compared and evaluated between the base bid and requested alternate. Alternate proposals must include adequate explanation of the reasons for and benefits of the deviation. Alternate configurations or designs must satisfy the intent of the original design, and the proposal must include sufficient basis to demonstrate adequacy and allow proper evaluation.

3. Minor variations may be proposed for filament winding laminate sequences and/or the addition of mat layers if necessary to accommodate particular production techniques. The alternate sequences must be specifically described, meet the specified minimum thickness, and contain equal amounts of hoop winding, unidirectional reinforcement and minimum glass contents as the specified laminates. Alternate sequences shall be reviewed for approval prior to construction.

4. For alternate dome configurations, provide a complete description of the proposed configuration, including crown radius, knuckle radius, straight-side skirt length, and overall height.

5. Approximate shipping weight for each tank.

6. Case histories with current references for projects of similar scope which have been successfully completed using construction techniques similar to those specified in accordance with Article 1.5 QUALITY ASSURANCE.

C. Submit the following prior to fabrication:

1. Detailed schedule including submittals, material order, shop fabrication, inspection milestones, and delivery of tanks.

2. Catalog cuts: Provide catalog cuts for all off-the-shelf items.

3. Detailed description and product data for construction of tank. The submittal shall include, but not be limited to:

    a. Tank size, configuration, weights, and location of openings, nozzles, vents, brackets, hold downs, pipe supports and picking points.

    b. Tank resin manufacturer and resin data sheet.

    c. Wall thickness and hoop stress calculation.

    d. Details of all equipment and accessories to be furnished with the tanks including nozzles, piping, manways, insulation, heat tracing, bolts, gaskets, brackets, platforms, ladder, and their support systems. Indicate material of construction on drawings or provide information on catalog cut sheets.

    e. Tank restraint anchor lug drawings that show all data and details required to install the tanks and accessories to the concrete foundation including the size, type, location, dimensions, and projection for each type of anchor bolts.

    f. Letter from resin manufacturer stating that the material used will provide chemical resistance for the intended application and resin will meet the performance requirements stated and is suitable for the service conditions specified herein.

4. FRP tank structural design calculations, including material property test data, signed, and stamped by a registered engineer in the state of California.

5. Tank seismic anchor calculations signed and stamped by a registered civil or structural engineer in the state of California.

6. Plan and elevation views, and details (Orthographic) drawings:

    a. Orthographic drawings for the tanks shall be scale drawings showing the relative size, configuration, location, materials of construction, and details of all equipment and materials to be furnished including the tanks, nozzles, and tank hold down and support systems. Both plan and elevation views shall be provided. All piping terminal points shall be clearly shown and fully dimensioned. Orthographic drawings for the platforms and ladders shall be scale drawings showing the dimensions, materials of construction and details of construction.

b. Manufacturer shall submit for approval any shop drawings or procedures, fabrication information, design data or construction details needed to document alternates, clarifications or exceptions, to describe items not specified herein, or as required to satisfy the requirements of this specification. Review or approval of Manufacturer submittals by District will in no way relieve the Manufacturer of responsibility for compliance with specification requirements.

c. All drawings shall be drafted by computer aided drafting method and submitted in pdf format in accordance with Section 01 33 00 Submittals.

d. After the drawings have been accepted by the District, the District requests that the Manufacturer submit two CDs containing the CAD files of the accepted drawings for District use as record drawings. This item is a request and not a requirement.

7. A Quality Control (QC) Manual for approval prior to fabrication of any equipment. As a minimum, the QC Manual shall include all procedures as required by Article 3.1.

D. Submit the following 10 days prior to shipment:

1. QC Manual and other documentation in accordance with Article 3.1.

2. Factory Test Results: Provide a certified copy of all factory test results as required by Article 3.1.

3. O&M Manuals: In addition to the requirements in Section 01 33 00, include final tank drawings, installation instructions, factory test reports, and provide a section for Manufacturer's Certificate of Proper Installation and field test reports (to be inserted when available).

4. Unloading and Handling Procedures: Provide written instructions and methods for tank unloading, storing, and handling. Lifting points along with the rated lifting capacities shall be included for all factory fabricated assemblies and individual components weighing over 100 pounds.

5. Installation Instructions: Installation instructions shall be complete, detailed, and sequenced instructions for original installation. Recommended methods for assembly and adjustment including all bolt torques shall be provided along with special precautions.

6. Certification letter indicating compliance with specification prior to shipment to jobsite.

E. Submit the following prior to contract completion:

1. Final as built tank drawings in accordance with Section 01 33 00

2. Tank Manufacturer's Certificate of Proper Installation

3. Warranty certificates

1.4 MANUFACTURER'S FIELD SERVICES

A. The Manufacturer's representatives for the tanks and liners specified herein shall be present at the jobsite for the minimum person-days listed for the services shown below, travel time excluded:

1. One (1) 8-hour person-day for certification of each installation and functional testing (total of 3 trips).

B. Manufacturer's representative for the storage tanks shall provide certificates of satisfactory installation stating that the tanks have been:

1. Installed in accordance with this specification and the Manufacturer's recommendations and inspected by a Manufacturer's authorized representative, and

2. All applicable safety equipment has been properly installed, and

3. The tanks are ready for start-up.

1.5 QUALITY ASSURANCE

A. Fiberglass Reinforced Plastic (FRP) tanks specified under this Section shall be furnished by Manufacturers who are fully experienced, reputable, qualified, and regularly engaged in the manufacture of the items to be furnished which have been used as required herein.

B. The tank Manufacturer, by submitting its bid attests that responsible production personnel, supervisors, foremen and quality control personnel have each had at least 5 years' experience in the manufacture of tanks of similar size and construction. The tank Manufacturer further attests that it has adequate production machinery, equipment, and facilities to manufacture the tanks. The apparent successful low bidder shall provide documentation of said experience and facilities within 3 days following the opening of bids if requested by the District.

1. The tank Manufacturer shall have at least 5 years' experience in design and fabrication of similar sodium hypochlorite storage tanks as demonstrated by a list of at least five (5) successful installations **submitted as part of its bid.**

2. References for each successful installation shall include a summary of design criteria with valid names and contact numbers of sodium hypochlorite storage tanks meeting the following criteria:

a. Comparable in size (3,000 gallons or greater).

b. Installed at municipal wastewater and/or water treatment plants in the United States.

c. In operation for at least three (3) years.

C. The Manufacturer shall strictly follow the Quality Control Manual submitted to the District for acceptance.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery of FRP tanks to job site will require staggered delivery due to phased installation by the construction contractor.

1. The first tank shall be delivered on May 19, 2023. Each remaining tank shall be delivered seven (7) weeks apart to reduce the need for storage on-site.

2. Coordinate with District for final project sequencing and schedule prior to fabrication.

B. All materials fabricated to this Specification must be packaged, crated, or protected in such a manner so as to prevent damage in handling and while in transit. Details of these procedures shall be the responsibility of the Manufacturer and Article 3.3 of this Specification.

1.7 PROJECT CONDITIONS

A. Environmental Requirements:

1. Equipment for project is to be suitable for performance in wastewater treatment plant and marine environment and under following conditions:

a. Location: Oakland, CA, outdoors

b. Ambient Temperatures: 30 to 110 degrees Fahrenheit

c. Relative Humidity’s: 60 to 100 percent

d. Site elevation is approximately 12.5 feet (NAVD 88).

1.8 DESIGN CRITERIA

A. Unless indicated otherwise, tanks are designed for vertical installation, cylindrical with flat bottom and dome top as indicated. The tanks shall be made of fiberglass reinforced plastic (FRP) with integral structural steel anchor lugs chairs and pipe/appurtenance supports. Capacities, dimensions, and tank penetrations shall be as specified herein and as shown on the Contract Drawings.

B. Tanks shall be designed per ASME RTP-1, Part 3 (3A or 3B as applicable). Vessel major components, shell joints (secondary bond overlays), flanged nozzles, manways, reinforcement of cutouts and installation of nozzles shall be Type I, Type II, or Type X fabrications as determined by the ASME RTP-1 certified fabricator to meet the vessel design requirements. Corrosion liner thickness shall be excluded from the structural calculations. All other reinforced thermoset plastic accessories designed and fabricated to ASTM 3299, ASTM 4097, and NBS PS-15-69, as applicable. QA procedures per the ASME RTP-1 certified fabricator's non-RTP-1 standard process.

C. Like items of equipment specified herein shall be the end products of one tank Manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts, and tank Manufacturer's service.

D. All of the tanks specified herein are intended to be custom constructed tanks for the long-term storage of sodium hypochlorite vented at atmospheric pressure. All tanks are designed based on liquid contents with specific gravity and process temperatures ranging from 70°-105°F as specified in Section 43 06 40.05.

E. All tanks shall be designed to meet the seismic and wind design criteria in accordance with Specification Sections 01 43 09 Wind Design Criteria and 01 43 11 Seismic Design Requirements.

F. Tanks shall be installed on existing concrete foundation as shown on the drawings. Anchor bolts shall be designed per latest California Building Code and requirements listed in Section 01 43 09 Wind Design Requirements, Section 01 43 11 Seismic Requirements and Section 05 50 10 Anchor Systems. Critical edge dimension and existing concrete pad and containment area slab compressive strength are included on Drawing RFQ2301-W6T40-S101.

G. Tank design shall include resin selection, wall thickness, methods and locations of support, and stiffener requirements stamped by a registered professional engineer licensed in California with a minimum of 5 years' experience in FRP in accordance with Article 1.5.

H. The manway and all flanges and other penetrations shall be an integrally molded and assembled in accordance with this Section and as shown on the drawings.

Personnel access roof load shall be a minimum of 300 pounds exerted as a concentrated load in accordance with ASCE 7-16.

I. Materials that are not indicated to be coated shall be fabricated from materials as indicated. Where materials are not indicated, the Manufacturer shall provide corrosion-resistant materials suitable for long-term service.

J. Tank Schedule: Provide Fiberglass Reinforced Plastic Tanks per Table A below.

Table A – Fiberglass Reinforced Plastic Tank Schedule

Tank No.	Orientation	Dia. x Sidewall Ht (ft.)	Nominal Capacity (Gal)	SG
W-6T-SHC-TNK-001	Vertical, Dome Top	12’ X 17’	12,150	1.9
W-6T-SHC-TNK-002	Vertical, Dome Top	12’ X 17’	12,150	1.9
W-6T-SHC-TNK-003	Vertical, Dome Top	12’ X 17’	12,150	1.9

Note 1: Manufacturer shall coordinate exact tank dimensions with the District.
Note 2: All appurtenances shall be provided as specified herein and as shown on the drawings.
Note 3: See Spec 43 06 40.05 - Schedule of Liquid Chemical Properties for Specific Gravity information.

1.9 WARRANTY

A. The Manufacturer shall provide a two-year warranty covering all defects in material and workmanship from the date of commissioning.

PART 2 - MATERIALS

2.1 MANUFACTURER

A. Fiberglass Tank Manufacturers shall hold a valid ASME RTP-1 Certificate of Authorization:

1. Diamond Fiberglass, Victoria, TX

2. Ershigs, Inc., Bellingham, WA

3. RL Industries, Inc., Fairfield, OH

4. Belco Manufacturing, Belton, TX

5. Strand Composites, Harrison, AR

6. Plas-Tanks Industries, Inc., Hamilton, OH

7. Or equal

2.2 FABRICATION DATA SUMMARY

A. Tables referenced for nomenclature and laminate sequencing are at the end of this Section.

B. Tanks shall be fabricated with the following:

1. Corrosion Liner:

a. Two layers synthetic veil followed by three layers of 1-1/2 oz./sq.ft. chopped strand mat

b. Sequence = NNMMM (see key in Laminate Sequence Tables)

c. Minimum thickness: 0.15 inch

d. Resin: Derakane Signia 411-350 WSR or AOC Vipel F010-H2O

e. BPO/DMA catalyst system

2. Structural Laminates:

a. Resin: Derakane Signia 411-350 WSR or AOC Vipel F010-H2O

b. MEKP catalyst system

3. Post cure required, 4 hours at 180° or as necessary to achieve proper cure.

4. Exterior: Pigmented gel coat with UV stabilizers and/or exterior coating for protection from chemical exposure.

C. All equipment specified herein shall be factory fabricated and assembled to maximum extent possible requiring a minimum of field assembly. Field installation shall be limited to anchoring the tanks and making external piping and electrical connections.

2.3 MATERIALS

A. Resin:

1. Resin used throughout all laminates shall be premium grade bisphenol A epoxy-based vinyl ester as listed in Article 2.2 or equal.

2. Except as specified below, no fillers, additives, or pigments shall be used in the resin or resin putty.

a. A thixotropic agent for viscosity control may be used in accordance with the resin manufacturer's recommendations.

b. Thixotropic agent shall not be used in the corrosion liner or on surfaces that will be in contact with the corrosive environment.

c. Resin putty shall be made with the same resin used in the laminates.

d. Resin putty shall contain a minimum 15 percent by weight of milled glass fibers. A fumed-silica additive may be added to increase the viscosity of the putty.

B. Catalysts/Promoters:

1. Catalysts and cure system to be used in each service shall be as specified for the specific equipment in Article 2.2 and shall conform to the requirements of the resin manufacturer.

2. For BPO/DMA cure systems, the ratio of benzoyl peroxide to dimethylaniline must be in the range of 10 to 20 parts active BPO to one part DMA, (preferably 10-15:1) or as specified by the resin manufacturer. Ratios outside of this range may result in resin not gelling, gelling but not curing, or not curing to adequate hardness, regardless of the extent of posture.

C. Reinforcement:

1. General: Fiber reinforcement shall have an epoxy compatible silane type surface finish and binder that is specifically recommended by the reinforcement manufacturer for the particular resin system to be used.

2. Surfacing Veils:

a. All surfacing veils shall be 10 mil nominal thickness.

b. Surfacing veil for inner surfaces shall be Type C-glass or synthetic surfacing veil, apertured such as Nexus 100-10, as specified in Article 2.2 and the Laminate Tables.

c. Surfacing veil for exterior surfaces shall be Type C-glass or A-glass.

3. Mat:

a. Mat shall be Type ECR glass with a weight of 1-1/2 ounce per square foot, as specified for the particular laminate.

b. Mat shall have a nominal fiber length of 1.25 inch, ±0.75. inch

4. Roving:

a. Continuous glass roving used in chopper gun for spray-up shall be Type ECR chopper roving.

b. Woven roving shall be 24 oz./sq.yd. with a 5 x 4 plain weave and be Type ECR glass.

c. Continuous glass roving used for filament winding shall be Type ECR glass with a yield of 200 yards or more per pound.

d. Unidirectional fabric shall be Type ECR glass. Weft style unidirectional fabric shall be approximately 16 ounce per square yard, made with glass strand of a yield greater than, (more yds/lb.) that of the adjacent filament winding strand, and stitched in a manner that provides uniform strand density without bunching or gapping.

2.4 FABRICATION

A. General:

1. Equipment shall be fabricated in accordance with this Specification and as shown on the drawings.

2. The Manufacturer shall provide any required fabrication details not shown on the drawings. Proposed details must be accepted by the District prior to fabrication.

3. Positive measurement control of catalysts, promoters, and resins shall be maintained.

4. Ambient Considerations:

a. Materials shall be stored in a dry area and within the temperature and humidity limits recommended by the material manufacturers.

b. Temperature of materials and laminate surfaces during fabrication shall be maintained:

1) Within a range of 60 degrees Fahrenheit to 95 degrees Fahrenheit.

2) A minimum of 5 degrees Fahrenheit above dewpoint.

c. Materials and laminate surfaces shall be protected from dust, fog, rain, and other contaminants.

d. If any of the above requirements are not met during final surface preparation or lamination, the affected plies shall be removed. The surface exposed due to the removal of the plies shall be abraded and prepared in accordance with this Specification before applying new plies.

B. Molds

1. Molds shall be completely covered with mylar or other suitable material that produces a smooth and glossy internal surface.

2. Mandrels shall be cylindrical and smoothly curved. Use of mandrels with a surface comprised of multiple flat segments is not allowed.

C. Laminates:

1. General:

a. Laminate sequences shall conceptually conform to the Laminate Tables 1 through 4 in accordance with RTP-1, except as allowed by Article 2.4, E of this Specification.

b. Thicknesses shown are construction minimums. It is the responsibility of the Manufacturer to assure that minimum thickness is achieved using the specified sequence, or by adding layers of reinforcement if necessary.

c. Reinforcement shall not be saturated on waxed paper or other contaminated material. Reinforcement may be saturated on clean paper or cardboard.

d. Laminate surfaces that are not molded shall be coated with resin that contains sufficient wax to allow full cure of the surfaces.

e. For internal corrosion surfaces that are not molded, the resin/wax coat shall be applied within 24 hours of application of the laminate.

f. All external surfaces shall be covered with a surfacing veil and a natural translucent wax coat containing U.V. stabilizer. Type and amount of U.V. stabilizer shall conform to the recommendation of the resin manufacturer.

g. Chopped strand glass applied by chopper gun may be used in lieu of mat plies if:

1) The application is mechanically controlled in a manner that ensures uniform thickness and uniform glass-to-resin ratio.

2) The application procedure is accepted by the District prior to fabrication.

2. Corrosion Liner Laminate:

a. Inner surface of all laminates shall be resin rich and reinforced with 1- or 2-layers surfacing veil as specified in the Fabrication Data Summary and the Laminate Tables.

b. Interior layer of the corrosion liner shall consist of 2 or 3 layers of 1-1/2 ounce per square foot mat, as specified in Article 2.2 and the Laminate Tables.

c. Corrosion liner laminate shall contain not less than 20 percent nor more than 30 percent glass (by weight).

d. Interruptions in the application of the corrosion liner laminate are not allowed except as allowed by RTP-1.

e. Minimum thickness of corrosion liner laminate shall be as required in Article 2.2.

f. Edges of surfacing veils shall be lapped a minimum of 1 inch.

3. Hand Lay-up Structural Laminate:

a. Structural laminate reinforcement shall consist of alternating layers of mat and woven roving plies, as specified in the Laminate Tables.

b. Woven roving plies shall have a mat ply on each side.

c. Edges of woven roving layers shall be lapped a minimum of 2 inches. Lapped edges of adjacent plies shall be staggered.

d. Laminate that is made up primarily of 1 1/2 ounce per square foot mat plies and woven roving plies shall contain not less than 35 percent or more than 45 percent glass (by weight).

4. Filament Wound Structural Laminate:

a. Structural laminate reinforcement shall consist of continuous strand hoop (approx. 90°) winding, unidirectional (axial) roving, and chopped strand glass, as described in the Laminate Tables.

b. Each cycle of filament winding shall completely cover the surface uniformly without bunching or gapping.

c. Each layer of hoop winding or unidirectional roving shall be separated by a layer of chopped strand glass, as shown in the Laminate Tables.

d. Adjustments in the winding laminate sequence may be proposed, but basic ratios of hoop, axial and random chopped glass must be maintained. Changes to the specified laminate sequence require District acceptance.

e. Edges of unidirectional roving layers shall be lapped a minimum of 2 inches +/- 1". Axial glass strands shall be oriented within ±5° of the axial centerline of the tank.

f. Layers of mat may be added as required:

1) To ensure proper bonding between the corrosion liner and the filament windings.

2) Within the filament windings to accommodate the manufacturing method.

3) To provide laminate of acceptable quality.

g. Additional layers of mat beyond those specified in the Laminate Tables are not considered as part of the specified wall thickness.

D. Exotherm Delays

1. General: Manufacturer's written procedures for how to handle exotherm delays shall be handled in accordance with RTP-1. A conceptual description is as follows.

2. Delays in laminating sequence are suggested after exotherm plies (E or e) as shown in the Laminate Tables. If interruptions are needed other than as suggested:

   a. They shall follow application of a mat (M or m) ply.

   b. Lamination shall not proceed until the exotherm has completed and the laminate has cooled to 95 degrees Fahrenheit or less.

   c. Laminate shall not be cooled by artificial means.

   d. When lamination is resumed, it shall begin with a mat (M) ply. This may require an additional ply beyond the number of plies specified.

3. If application of filament winding is interrupted such that the outer surface gels:

   a. Application shall be discontinued, and the laminate shall be allowed to cure and exotherm.

   b. Ridges on the cured surface shall be ground smooth.

   c. After grinding, a layer of mat or chopped glass shall be applied, and application of the filament winding shall resume before this layer gels.

   d. Additional mat layer shall not be considered as part of the specified wall thickness.

4. If interruptions in laminating results in the laminate surface losing acetone sensitivity or is contaminated, the surface shall be abraded and prepared in accordance with this Specification before the laminating sequence resumes.

E. Secondary Overlays:

1. General:

   a. Secondary overlays used for joining or construction of components shall be as shown on the drawings.

b. Use of additional joints or other joint designs is not allowed.

c. If joint locations are required for construction of tank shells, Manufacturer shall propose number and location for approval of the District.

2. Surface Abrasion:

a. Surfaces that will receive a secondary overlay shall be abraded prior to application of the overlay.

b. Abraded area shall extend a minimum of 1 inch beyond the edge of the secondary overlay.

c. If application of the secondary overlay does not begin within four hours of surface abrasion, the abrasion shall be repeated.

d. Abrasion shall remove all traces of glossy resin coat and shall expose the glass fiber over the entire abraded area.

e. Perimeter of the abraded area shall be smoothly contoured into the surrounding surface.

f. Abrasion shall be done by grinding. Grinding disks shall be new and not contaminated and shall have a grit size of 16 to 24.

3. Final Surface Preparation:

a. Dust shall be removed from the abraded area immediately prior to beginning application of the secondary overlay.

b. Dust shall be removed by vacuuming or brushing with clean non-metallic brushes or by wiping with clean dry rags.

c. Dust shall not be removed with solvent or with compressed air.

d. If abraded area shows any indication of contamination, it shall be cleaned with solvent, allowed to evaporate and abrasion of the area shall be repeated.

4. Application of Secondary Overlays:

a. Equipment components to be joined shall be restrained from movement until the secondary overlays are completed.

b. Cut edges of laminates shall be thoroughly coated with resin such that no glass fibers are exposed. Voids shall be filled with resin putty.

c. The puttied area shall be ground to a smooth contour and the surface shall be prepared in accordance with this specification.

d. Immediately resin coat the abraded area, using a brush to work the resin into the surface.

e. Resin coats shall be applied only to the portion of the abraded areas that will be covered immediately by secondary overlay.

f. Resin coats shall not contain any thixotropic material.

1) Unless otherwise specified, beginning ply width for joint overlays shall be 4". Successive plies shall uniformly increase in width until the minimum total joint width is achieved. Joint width specified is exclusive of the exterior surfacing veil layer.

g. Secondary overlays at joints shall extend equally within ±1/2 inch on each side of the joint.

h. Tolerance on width of secondary overlays shall be greater than or equal to zero.

i. Woven roving plies shall not exceed the width of the mat ply below them.

j. Abraded area that is not covered with the secondary overlay shall be surface coated after completion.

F. Postcure:

1. If necessary to achieve a full cure, completed equipment shall be postcured in accordance with the resin manufacturer's recommendations.

2. Equipment shall be inspected, all necessary repairs completed prior to postcure.

3. Postcuring shall be done in a manner that assures minimum temperature requirements are achieved in all parts of the vessel without overheating of any localized areas.

4. Minimum Barcol hardness shall be 90 percent of the resin manufacturer's minimum recommended Barcol hardness. This valve shall be agreed on prior to start of fabrication.

2.5 TANK ASSEMBLY

A. Tolerances for fabrication of the tank shall conform to manufacturer’s standard quality assurance methods.

B. Mid-shell slip joints used for connecting short sections of tank shell by overwinding are not allowed.

C. A non-skid surface shall be provided on the exterior surface of the domed cover. Silica grit may be applied in conjunction with the final resin coat, or other methods employed if accepted by the District.

D. Nozzles/Flanges

1. Flanged nozzles shall conform to the drawings.

2. Nozzle neck and flange shall be made in one piece, with all layers of reinforcement in the nozzle neck and hub extending uninterrupted into the flange. Corrosion liner thickness shall extend completely across flange face. The “flange on pipe” method of nozzle fabrication shown in RTP-1, Fig. 4-11(a) is not allowed.

3. Additional thickness in the hub shall be obtained with alternating layers of 1-1/2 ounce per square foot mat and 24 ounce per square yard woven roving.

4. Additional thickness in the flange shall be obtained with layers of mat. These mat layers shall be uniformly distributed throughout the flange thickness.

5. Flanges may be manufactured using a lighter weight roving or cloth in lieu of 24 oz./sq. yd woven roving specified in the Laminate Tables, provided the same total amount (by weight) of woven material is applied. Specific alternate materials and sequence shall be submitted to the District for acceptance prior to manufacture.

6. Plies of 24 oz./sq.yd. woven roving shall have a mat ply on each side. When multiple plies of lighter weight woven material are used in lieu of a single ply of 24 oz./sq.yd. woven roving, they may be applied back-to-back, but not to exceed the thickness of the 24 oz./sq.yd. woven roving.

7. Back of flanges shall be spotfaced at the bolt holes for proper bearing of the bolt heads and washers. Overall machining of the back of the flange is allowed if the fillet radius is maintained and the hub reinforcement is not undercut.

8. Size of spotfacing shall accommodate SAE size washers.

9. Spotfacing or backfacing shall not produce a flange thickness less than that specified.

10. Unless otherwise specified, flanged nozzles shall be installed with the bolt holes straddling the vertical and the horizontal centerlines of the equipment.

11. Potential warping of flanges shall be anticipated and corrected by machining if necessary to achieve the required flatness tolerance. Full required corrosion liner thickness shall be maintained and surfacing veils shall be restored after machining.

12. Bolt holes shall be coated with resin such that no fibers are exposed.

2.6 EXTERIOR COATING

A. In addition to the external gel coat specified in paragraph 2.4, C, 1, f, the Manufacturer shall make allowance for additional protection of exterior surfaces from chemical exposure due to leaks from top pipe connections.

2.7 APPURTENANCES

A. The tanks shall be equipped with the following items, as specified, and required and as shown on the Drawings referenced above:

1. Nozzles and manways as shown on the Drawings. All manways shall be provided with accepted access covers or blind flanges. Manway openings shall be provided for side access in addition to top access where indicated. Access manways shall have a nominal diameter of 30 inches.

2. Anchor chairs and bolts for anchoring tank to the concrete pad shall be in accordance with Sections 05 50 00 Metal Fabrications and 05 50 10 Anchor Systems.

3. Hardware: All necessary corrosion-resistant hardware for installation of the tanks and accessories furnished by the tank Manufacturer shall be supplied. The hardware shall be made of type 316 stainless steel in accordance with Section 05 50 00 Metal Fabrications.

4. Lifting lugs.

5. Piping and instrumentation support.

6. Gaskets: Gaskets shall be provided for all flanged openings. Gaskets shall be minimum 1/8" thick with Shore A durometer of 60±5; material to be Viton A.

7. Label:

    a. Contents Label: The tanks shall be identified by stenciled label with black colored lettering minimum 6 inches high, in polyurethane or polysiloxane coating, with suitable primer, which spells out the tank name, number, and chemical being stored. Contents label lettering shall be a minimum of 6 inches high and plainly visible.

    b. Provide confined space entry signage at all manways.

8. Nameplate: The vendor shall furnish and mount three (3) feet from the bottom on the outside of the tank a 316 stainless steel nameplate with the following:

    a. Name of Manufacturer

    b. Date of manufacture

    c. District's equipment ID number

    d. Estimated empty weight

    e. Estimated maximum operating weight

    f. Tank capacity (in gallons)

    g. Resin number and manufacturer

    h. Type of corrosion resistant liner

    i. Design pressure and temperature

9. Sight Gauges: Reverse float rope gauge:

    a. Exterior gauge pipe: Constructed of 2-inch diameter min Schedule 40 clear UV resistant PVC pipe, Enviroking by CF Harvel or equal.

b. Internal pipe: 4-inch diameter perforated PVC pipe with ¾" holes. Rope shall be ¼" diameter twisted yellow polypropylene rope.

c. Float: PVC ball float weighted to chemical specific gravity

d. Reverse level gauge board: Attached to exterior gauge pipe and concrete with stainless steel brackets, nuts, and bolts. Readings in 6-inch increments with large black numbers and markings at every 1-ft, on an orange background. Constructed of 1/8" thick minimum, 6-inch wide, powder-coated 6061 aluminum sheet, bent into U-shape.

e. Pulleys: Teflon coated, shall be accessible by removing cover plate on pipe elbow.

f. Isolation Valves: Flanged CPVC diaphragm valves, to allow draining and flushing of gauge pipe.

2.8 ACCESS PLATFORMS AND LADDERS

A. Provide maintenance platform(s), railing and caged ladder supported from the vessel for accessing manways and roof mounted piping connections for each vessel in the general arrangement shown on the drawings.

B. All ladders, platforms and railings shall be OSHA compliant and constructed of FRP in accordance with Section 06 82 00 Glass-Fiber Reinforced Plastic. All fasteners and miscellaneous connecting hardware shall be Type 316 SS in accordance with Section 05 50 00 Metal Fabrications.

PART 3 - EXECUTION

3.1 FACTORY INSPECTION AND TESTING

A. General:

1. Manufacturer shall implement a Quality Control procedure which verifies and documents that materials, fabrication operations, and completed tank complies with this specification.

2. Quality Control shall include a final inspection by the Manufacturer and a written record of this final inspection. The objective of Manufacturer's quality control and inspection procedure is to have the tank comply with these Contract Documents .

3. As a minimum, the Quality Control Manual shall include adequate inspection and/or testing to verify and document the following:

a. Allowable visual defects

b. Sequence and thickness of laminates

c. Glass content of laminates

d. Filament winding angle

e. Barcol hardness in accordance with ASTM D2583

f. Lack of acetone sensitivity for all internal secondary bonds

g. Dimensional tolerances

h. Conformance to Details

i. Surface preparation prior to secondary overlays

j. Ambient conditions during fabrication

k. Postcure procedures.

4. The Manufacturer's Quality Control Manual and all documentation shall be made available for the District’s review at all times during the fabrication.

B. Resin Testing:

1. Manufacturer shall test resin or provide Certificate of Analysis of the resin from the resin manufacturer to establish cure characteristics and verify that it meets the acceptance standards of the resin manufacturer.

2. Resin testing shall be performed in accordance with ASTM D2471. Gel time, time to peak exotherm, and peak exotherm temperature shall be recorded.

3. If resin is used in the form it is received, one test shall be performed for each manufacturer's batch number.

4. If resin is altered with additives, one test shall be performed for each drum of resin, or portion thereof, that is mixed with additives.

C. Inspection of Glass Reinforcement:

1. Glass reinforcement shall be inspected prior to using it in the fabrication.

2. Glass that does not meet the acceptance standards of the glass manufacturer shall not be used.

3. Glass reinforcement that is wet or has been wet shall not be used.

D. Sampling and Inspection of Laminates:

1. Nozzle cutouts and other excess laminates shall be retained for use as samples.

2. Samples shall be clearly marked to indicate the location from which they were taken.

3. At the District's request, sample plugs shall be taken at locations not otherwise sampled. Subsequent holes shall be repaired with a procedure accepted by the District.

4. Laminate samples shall become the property of the District at the District's option.

5. Available samples from at least two representative areas of each major equipment component shall be tested and documented as follows:

a. Measure and record total thickness, corrosion liner thickness and structural laminate thickness.

E. Visual Inspection:

1. Manufacturer shall take care to minimize the amount of defects in all laminates. In no case shall visual defects in any area of the equipment exceed the maximum allowable levels of visual defects set forth in RTP-1, Table 6-1, Level 2. Allowable defects apply to small, localized areas and shall not be averaged over larger areas.

2. Air entrapment limits, (gaseous bubbles or blisters), that are required to supplement RTP-1 Table 6-1, shall be as follows. Dimensions refer to the largest measured dimension for any specific defect. Defects at the interfaces between layers are subject to the most stringent requirement.

a. Inner Surface: 2 per sq. in. up to max. size of 1/16 inch, except < 1/64 inch is unlimited.

b. Interior Layer: 2 per sq. in. up to max. size of 1/8 inch, except < 1/32 inch is unlimited.

c. Structural Layer: 2 per sq. in. up to max. size of 3/16 inch, except < 1/16 inch is unlimited.

3. Presence of visual defects in excess of the allowable levels shall be grounds for rejection of the equipment.

F. Non-Conformances and Repairs:

1. A component will be considered to be a non-conformance when it is found to deviate from the specifications, project drawings or other accepted documents.

2. All non-conformances shall be documented and brought to the attention of the District.

3. Damaged material and material not conforming to the specifications and drawings may be rejected by the District at any time.

4. The Manufacturer shall correct or replace any components in non-conformance as directed by the District.

5. Any repairs recommended by the Manufacturer shall be described in detail and submitted to the District for approval prior to implementation.

G. Documentation:

1. Manufacturer shall provide copies of all records produced from the inspection and testing of the equipment, and during fabrication when requested.

2. The report shall also include a record of as-built dimensions and other data, to document any changes made and accepted during the fabrication.

H. Hydrotesting:

1. Each tank shall be hydrostatically tested for leaks at the factory by filling with water. Each FRP tank shall be checked for leaks after it has been filled for at least 2 hours. The Manufacturer shall run this test prior to shipment of the tanks. No leakage will be allowed.

2. Hydrotesting shall be performed after completion of the fabrication, after all laminates are fully cured, and after inspection and acceptance by the District.

3. Hydrotesting shall be performed at atmospheric pressure only.

I. Final Inspection:

1. The District reserves the option to carry out a final inspection of the equipment prior to shipment. The District will incur all travel and lodging costs for its inspector. Manufacturer shall give the District a minimum of fourteen days advance notice of completion.

2. Prior to final inspection by the District:

   a. Equipment shall be cleaned of all foreign material.

   b. Obstructions to the inspection shall be removed.

   c. Tank shall be in a position that allows easy access and viewing.

3. If requested during final inspection, the tanks shall be moved as required to allow viewing of all parts.

3.2 HANDLING AND SHIPPING

A. General:

1. The Manufacturer shall be responsible for shipping, handling, and delivery of the tank and accessories so as to prevent transit and handling damage to the tanks and coatings.

B. Handling:

1. Loads imposed on the FRP tanks or shell sections during handling, storage, and erection shall be considered and precautions taken to assure that damage does not occur. Conditions such as ovalling and localized stresses at lifting/anchor points and temporary support points are of particular importance.

2. Equipment shall not be rolled, slid, dropped, allowed to swing into other objects, or forced out of shape.

3. Care shall be exercised to prevent tools, scaffolding, or other objects from striking or being dropped on or inside the equipment.

4. Personnel entering the equipment shall wear soft-soled shoes.

5. Equipment shall be lifted/positioned using proper rigging and hoisting practices.

6. Unless otherwise specified, a crane shall be used to lift/position the equipment.

7. Lifting slings that will be in direct contact with the equipment shall be made from woven nylon or canvas and shall be a minimum of 3 inches wide.

8. Care shall be exercised to prevent shackles, eyes, hooks, etc. from coming into contact with the equipment.

9. Lifting slings shall not be attached to, or allowed to come in contact with, nozzles, flanges, gussets, or other fittings.

C. Shipping:

1. The Manufacturer and the District shall coordinate the delivery schedule.

2. Manufacturer shall provide instructions for unloading storage and installation of all tank and accessories.

3. Manufacturer shall be responsible for packing and loading equipment and associated materials in a manner that precludes damage during shipping.

4. Support saddles used to ship tank in a horizontal position shall be padded and support a minimum of 90° of the circumference.

5. Smaller tanks shall be mounted on skids or protective framework so constructed as to provide for easy handling by fork truck or similar device, and shall also be provided with lifting lugs, cleats, etc. to permit handling by crane.

6. Blocking that is used to prevent shifting of equipment shall be padded.

7. Equipment shall be mounted on the shipping vehicle such that there is a minimum clearance of 2 inches between equipment projections, such as nozzles, and the bed of the shipping vehicle.

8. If two or more pieces of equipment are shipped together there shall be sufficient clearance between them to prevent contact in transit.

9. Flange faces shall be protected from damage. All openings are to be covered with securely bolted wooden or plastic blank flanges to prevent entrance of dirt, water, and debris.

10. Loose parts, such as fasteners, gaskets, and accessory fittings, shall be securely packed to allow storage in the field. No components or other pieces shall be shipped loose inside of the tanks.

11. Each shipping crate shall be clearly marked with its contents.

12. Additional requirements are per RTP-1, NM-8.

3.3 INSTALLATION

A. Installation of the tanks shall be performed by a separate contractor contracted by the District in strict accordance with the Manufacturer's printed instructions.

B. The tank Manufacturer shall inspect the installed tanks and complete a Tank Manufacturer's Certificate of Proper Installation.

END OF SECTION

LAMINATE SEQUENCE TABLES

Notes:

1. Key for Tables 1 through 4:

N = 10 mil synthetic surfacing veil (0.10")
C = 'C'-glass surfacing veil ('A' glass acceptable on exterior) (0.10")
M = 1 1/2 oz./sq.ft. mat (0.43")
E = 1 1/2 oz./sq.ft. mat, exotherm ply (0.43")
R = 24 oz./sq.yd. woven roving, 5x4 plain weave (0.33")
H = Hoop (approx. 90°) filament winding (0.025")
U = 16 oz./sq.yd. unidirectional roving (0.21")
c = 1/2 oz./sq.ft. chopped strand mat (0.14")

TABLE 1	FILAMENT WOUND LAMINATE CONSTRUCTION							
Total Thk.	Min. Glass %	Structural Thk.	C/N	M/E	H	U	c	Sequence of Plies
0.37"	53%	0.27"	2	2	5	2	7	CME cHcUcH cHcUcHcH C
0.42"	53%	0.27"	3	3	5	2	7	NNMME cHcUcH cHcUcHcH C

TABLE 2	HAND LAYUP LAMINATE CONSTRUCTION			
Thk.	C/N	M/E	R	Sequence of Plies
0.33"	4	6	1	NNMMMRMMMNN
0.32"	3	6	1	NNMME MRMM C
0.34"	4	8	-	NNMME MM MMMNN
0.35"	3	6	2	NNMME MRMRM C
0.43"	3	7	3	NNMME MRMRMRM C
0.81"	1	13	7	NNMME MRMRMRE MRMRE MRMRM
0.27"	2	5	1	CME MRMM C
0.30"	2	5	2	CME MRMRM C
0.38"	2	6	3	CME MRMRMRM C
0.76"	1	12	7	CME MRMRMRE MRMRE MRMRM

TABLE 3	EXTERIOR JOINING LAMINATE CONSTRUCTION			
Thk.	C/N	M/E	R	Sequence of Plies
0.14"	1	3		MMM C
0.25"	1	4	2	MMRMRM C
0.32"	1	5	3	MMRMRMRM C
0.44"	1	7	4	MMRMRE MRMRM C
0.52"	1	8	5	MMRMRMRE MRMRM C
0.60"	1	9	6	MMRMRMRE MRMRMRM C
0.67"	1	10	7	MRMRMRE MRMRE MRMRM C
0.75"	1	11	8	2(MRMRMRE) MRMRM C

TABLE 4	INTERIOR JOINING LAMINATE CONSTRUCTION			
Thk.	C/N	M/E	R	Sequence of Plies
0.16"	2	3	-	MMMNN
0.26"	3	6	-	NMMM MMMNN
0.31"	2	6	1	MMMRMMMNN
0.14"	1	3	-	MMM C

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section outlines in general the items that the Manufacturer must prepare or assemble for submittal during the progress of the work. There is no attempt herein to state in detail all of the procedures and requirements for each submittal. The Manufacturer's attention is directed to the individual Specification sections in these Contract Documents which may contain additional and special submittal requirements. The District reserves the right to direct and modify the procedures and requirements for submittals as necessary to accomplish the specific purpose of each submittal. The Manufacturer shall anticipate resubmitting submittals for major pieces of equipment and for control systems. Should the Manufacturer be in doubt as to the procedure, purpose, or extent of any submittal, the Manufacturer shall direct its inquiry to the Engineer.

1.2 TECHNICAL SUBMITTALS

A. General:

1. Requirements in this section are in addition to any specific requirements for submittals specified in other divisions and sections of these Contract Documents.

2. Submittals will be reviewed for general conformance with the Drawings and Specifications. The intent of the review is to determine if the Manufacturer is submitting materials and equipment which are in general conformance with the Contract Documents. Detailed review of dimensions, sizes, space requirements, coordination with other equipment, and other construction details is not performed. Additional work and costs, resulting from errors in the submittals shall be the Manufacturer's responsibility and liability. Accuracy, coordination, and completeness of submittals shall be the sole responsibility of the Manufacturer, including responsibility to back check comments, corrections, and modifications from the Engineer's review before fabrication. The Manufacturer shall indicate on the submittal transmittal form if and how the submittal deviates from the contract requirements.

3. Submit samples, drawings, and data for the Engineer's approval which demonstrate fully that the construction, and the materials and equipment to be furnished will comply with the provisions and intent of this Specification. All submittals shall be written in Standard American English and all numerical data, whether in drawings, test reports,

engineering calculations, manufacturer's literature, or maintenance manuals, shall be in United States Customary System (USCS) measuring units (foot, pound, gallons, etc.). If original design work was completed in metric units, their equivalent USCS dimension and unit shall be indicated. All submittals, in printed or electronic format, shall be original quality and completely legible. Any obfuscation or loss of clarity of original which may result in ambiguous interpretation is not acceptable.

4. Each submittal shall contain material pertaining to no more than one equipment or material item and shall have the Specification Section and applicable paragraph number clearly identified on the front of the submittal transmittal. Each submittal shall be sequentially numbered starting with the first one delivered. Resubmittals shall include the number of the original submittal plus the suffix ".1" for the first resubmittal, ".2" for the second resubmittal, etc. (e.g., submittals 3.0, 3.1, 3.2, etc.). Submittals not conforming to these requirements will be rejected.

5. Shop drawing submittal and coordination are the responsibility of the Manufacturer.

6. No equipment or material for which listings, drawings, or descriptive material is required shall be fabricated until the Engineer has reviewed and accepted such lists, final shop drawings, or other descriptive material.

7. The Manufacturer shall provide in its schedule the time for District review of each submittal (and resubmittal for major equipment and control systems) in accordance with the allowable time specified herein. This required time for District review shall not be a cause for delay in contract completion nor a reason for an extension of contract time. If the Manufacturer is required by the District to resubmit data, then neither the time required for the Manufacturer to prepare and resubmit such data, nor the required time for District review, shall be a cause for delay in contract completion or for an extension of contract time. Responsibility for time required for preparing and submitting required data shall be assigned solely to the Manufacturer.

8. It is considered reasonable that the Manufacturer shall make a complete and acceptable submittal to the Engineer by the second submission of a submittal item.

9. After a submittal has been reviewed and accepted, no changes or substitutions in that submittal will be allowed without the Engineer's approval. If allowed, the Manufacturer will be responsible for the additional costs for engineering, administrative, clerical, or other work required for additional review.

1.3 PRODUCT HANDLING

A. Submittals shall be accompanied by a letter of transmittal and shall be in strict accordance with the provisions of this section.

B. Compact discs (CDs) or Digital Video Discs (DVDs) shall be packaged in a hard plastic case. The case and media shall be labeled as to content.

PART 2 - PRODUCTS

2.1 PREPARATION

A. General Requirements

1. Shop drawings shall be accurate, distinct, and complete, and shall contain all required information, including satisfactory identification of items, units, and assemblies in relation to the Contract Drawings and Specifications.

2. When the shop drawings have been reviewed by the Engineer, the submittals will be returned to the Manufacturer. If major changes or corrections are necessary, the shop drawing will be rejected and returned to the Manufacturer with the need for such changes or corrections indicated. The Manufacturer shall correct and resubmit rejected shop drawings in the same manner and quantity as specified for the original submittal. If changes are made by the Manufacturer (in addition to those requested by the Engineer) on the resubmitted shop drawings, such changes shall be clearly explained in a transmittal letter accompanying the resubmitted shop drawings.

3. The review of such shop drawings and catalog cuts by the Engineer shall not relieve the Manufacturer from responsibility for correctness of dimensions, fabrication details, coordination with other work, and space requirements, or for deviations from the Contract Drawings or Specifications, unless the Manufacturer has called attention to such deviations in writing by a letter accompanying the shop drawings and the Engineer approves the change or deviation in writing at the time of submission; nor shall review by the Engineer relieve the Manufacturer from the responsibility for errors in the shop drawings.

4. Where contents of submitted literature from manufacturers include data not pertinent to the submittal, clearly show which portions of the contents are being submitted for review Clearly mark the literature with the materials and options being provided to illustrate conformance with the specification details. Provide the complete part number and include the legend containing the descriptive details that define the meaning of each digit of the number.

B. Shop Drawing Requirements: Shop drawings referred to herein shall include shop drawings, catalog cuts and information schematic diagrams, and other submittals for both shop and field-fabricated items. The Manufacturer shall submit, as applicable, the following for all prefabricated or manufactured structural items, material, and equipment:

1. General:

a. Submit all data pertinent to the installation and maintenance of the equipment including shop drawings, anchorage requirements, manufacturer's recommended installation procedure, detailed installation drawings, test data, operation and maintenance manuals, and other details necessary.

b. For shop drawings or equipment drawings, including dimensions, size, and location of connections to other work, and weight of equipment.

c. Complete coating manufacturer's specifications, including materials description and paint system.

d. Installation instructions

e. List of materials and supplies furnished with the equipment.

f. Samples of finish colors for selection

g. Special handling instructions

h. Requirements for storage and protection prior to installation

i. Seismic design calculations and restraint details for equipment. Calculations shall be stamped by a civil or structural engineer registered in the State of California.

C. Final shop drawings to be submitted to District:

1. The Manufacturer shall deliver to the District one complete set of final shop drawings for District records before, or at the time of, delivery of equipment onto the site.

2. The final shop drawings will consist of a set of reproducible drawings of all Manufacturer supplied equipment.

a. The drawings shall be reproducible and at the same dimensional scale as the originals. Electronic files shall be one of the following types:

1) AutoCAD

2) MicroStation Intergraph

3) Adobe Acrobat PDF

b. The legibility and contrast of each reproducible and electronic drawing submitted to the District shall be such that every line, number, letter, and character is clearly readable in a full-size drawing. Minimum text sizes shall be 1/10-inch if typed and 1/8-inch if handwritten.

D. Seismic loading design provisions:

1. All equipment supports that are not specifically detailed on the Drawings or specified herein shall be the responsibility of the equipment manufacturers and shall be designed by a civil or structural engineer registered in the State of California. The design shall be in accordance with the seismic provisions of Section 01 43 11, Seismic Requirements, in addition to all other loading conditions.

E. Submittal of interface information (connection and correlation with other work):

1. Where called for on the Specifications, and as determined necessary by the Engineer to provide proper correlation with other equipment, complete interface information shall be submitted. This interface information shall be accurate and contain all information necessary to allow the completion of detailed design and construction of the interfacing or connecting work.

F. Engineering Calculations or Reports

1. Engineering calculations/reports required by this specification shall be based on well-established engineering theories and principles. Each calculation/report shall be a complete and independent package.

2. The calculations/reports shall be comprehensive for each structure or item, in that all calculations/reports are contained within the individual structure or item’s calculation/report document (i.e., no calculation/report references to other calculation documents).

3. As a minimum, all calculations/reports shall be bound in an appropriately labeled binder, and contain the following elements:

a. Facility title, including substructure number, equipment description, applicable equipment tag number(s), and applicable specification section.

b. Table of Contents

c. Introduction, including description of structure or item, purpose of calculation/report, design assumptions with justification, software utilized for the analysis including the version, and codes/standards used.

d. A list of references used to provide the bases for assumptions, equations, or data used in the calculation/report.

e. Calculations or reports appropriately prepared, including sketches, given, or known information with the source of the data, equations with each variable defined and applicable units, cross-references, code/standard references, annotations and footnotes.

f. Results shall be clearly identified. Summary tables shall be used for large amounts of data (especially if a software application is used).

g. Final design details, ready for transmittal to design drawings or shop drawings.

h. Professional Engineer's Seal or signature, as appropriate, of the individual(s) who prepared the calculations/reports.

i. Appendices, including input and output files from computer design, and photocopies of catalog sheets for any special material or equipment (e.g., manufacturer sheet for equipment, ICBO reports for anchors, etc.), and checker markups.

4. When any part of the calculation/report has been prepared by computer software, a copy of the input and output files, contained in CD +/-R or DVD +/-R, shall be included as part of the final design calculation

5. Shop drawings shall not be submitted until all design calculations/reports have been appropriately reviewed, checked, and signed. The checker markups and comments shall also be included in an appendix to each calculation.

G. Operation and Maintenance (O&M) Manuals:

1. All equipment manufacturers shall be made aware of these requirements and all associated costs shall be included in the costs for furnishing the equipment or system.

2. The manuals shall be furnished to the Engineer upon the delivery of the respective equipment. No payment will be made for equipment or materials or equipment installation before the respective O&M manuals have been approved by the Engineer.

3. Each instruction manual shall include, but not be limited to, the following:

   a. Identification on, or readable through, the front cover stating the District's specification number and title, District facility or facilities where the equipment will be installed, and the system or equipment described in the manual.

   b. Title page including applicable equipment tag numbers and equipment manufacturer's name, address, and telephone number. In addition, provide name, address, and telephone number of the local manufacturer's representative.

   c. Table of contents organized and referenced to manual section dividers.

   d. Complete instructions regarding storage, handling, installation, operation, servicing, and maintenance of all equipment involved.

   e. Diagrams and illustrations

   f. Detailed description of the function of each principal component of the system

   g. Performance and nameplate data

   h. Installation instructions

   i. Test procedures, and field and factory test data.

   j. Procedure for operating

   k. Safety instructions. Material Safety Data Sheets (MSDS).

   l. Copies of all guarantees and warranties issued including the start and end dates for the warranty period or conditions for the initial start date and the duration.

   m. Copies of calculations or reports appropriately prepared including sketches, given or known information with the source of the data, equations with each variable defined and applicable units, cross-references, code/standard references, annotations, and footnotes.

4. The manual shall be complete in all respects for all equipment, controls, accessories, and associated appurtenances.

5. Each copy of the manual shall be assembled in one or more binders, each with title page, typed table of contents, and heavy section dividers with numbered plastic index tabs. Each manual shall be divided into sections

paralleling the equipment specifications. Binders shall be three-ring, hard-back type. All data shall be punched for binding and composition and printing shall be arranged so that punching does not obliterate any data. The project title, Division designation, and manual title printed thereon shall be as furnished by the Engineer.

6. Where more than one binder is required, they shall be labeled "Vol. 1", "Vol. 2", and so on. The table of contents for the entire set, identified by volume number, shall appear in each binder. Submit manual organization and format to the Engineer for approval prior to manual preparation.

7. Manuals shall be transmitted to the Engineer upon delivery of the equipment and all equipment shall be serviced in accordance with the manufacturer's recommendations prior to operation. A service record shall be maintained on each item of equipment and shall be delivered to the Engineer prior to final acceptance of the project.

8. O&M Manual Review Process – Preliminary review of the O&M Manuals shall be performed electronically (OCR searchable document). The preliminary review copies shall be complete in every way including format and content.

   Final O&M Manuals: After the preliminary O&M manual submittal has received an acceptance status, then the Manufacturer shall submit five (5) hardcopies of final O&M Manuals. The final O&M manuals shall incorporate all comments made in the last preliminary O&M manual submittal and otherwise shall be identical in every way to the preliminary O&M manuals.

   In addition to the designated number of hard copies for each required Manufacturer’s O&M Manual, provide an electronic copy. The O&M Manual shall be in Adobe Acrobat Version 10.0 (PDF) format and contain the separate text and drawing files used to create the O&M Manual. Text documents shall be in Microsoft Word 2010 or earlier, and drawings shall be in AutoCAD. An index shall be provided as a separate text file with the name “index” and shall include the file name and detailed description of each individual file. All electronic files shall be on a CD or DVD.

H. Manufacturers' certificates and proper installation:

1. The Manufacturer shall submit manufacturers' certificates of proper installation.

I. Samples and test specimens:

1. Where required in the Specifications, and as determined necessary by the Engineer, test specimens or samples of materials, appliances, and fittings

to be used or offered for use in connection with the work shall be submitted to the Engineer at the Manufacturer's expense, with information as to their sources, with all cartage charges prepaid, and in such quantities and sizes as may be required for proper examination and tests to establish the quality or equality thereof, as applicable.

2. All samples and test specimens shall be submitted in ample time to enable the Engineer to make any tests or examinations necessary, without delay to the work. The Manufacturer will be held responsible for any loss of time due to its neglect or failure to deliver the required samples to the Engineer, as specified.

3. The Manufacturer shall submit additional samples as required by the Engineer to ensure equality with the original approved sample and/or for determination of Specification compliance.

4. Laboratory tests and examinations that the District elects to make in its own laboratory will be made at no cost to the Manufacturer, except that, if a sample of any material or equipment proposed for use by the Manufacturer fails to meet the Specifications, the cost of testing subsequent samples shall be borne by the Manufacturer.

5. All tests required by the Specifications to be performed by an independent laboratory shall be made by a laboratory approved by the Engineer. Certified test results of all specified tests shall be submitted in duplicate to the Engineer. The samples furnished and the cost for the laboratory services shall be at the expense of the Manufacturer and included in the prices bid for the associated work.

J. Material and equipment colors:

1. The Engineer will provide a schedule of selected colors within thirty (30) days after approval of materials and equipment, and after receiving samples of the manufacturers' standard colors for those items requiring District's selection.

K. Certificates of Compliance:

1. A Certificate of Compliance shall be furnished for materials specified to a recognized standard or code prior to the use of any such materials in the work. The Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications. A Certificate of Compliance shall be furnished with each lot of material delivered to the work and the lot so certified shall be clearly identified in the certificate.

2.2 SUBSTITUTIONS

A. Engineer's approval required:

1. The contract is based on the materials, equipment, and methods described in the Contract Documents. Any Manufacturer proposed substitutions are subject to the Engineer's approval.

2. The Engineer will consider proposals for substitution of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data, and all other information required by the Engineer to evaluate the proposed substitution.

3. Where substitutions are proposed for consideration, Manufacturer shall submit a written request for the substitution and shall show that it is equal to the specified item. The proposed substitution shall be identified separately and included with the required submittal for the item. When submitting a variation or substitution the Manufacturer warrants that:

a. The contract has been reviewed to establish that the substitution, when incorporated, will be compatible with other elements of work.

b. The Manufacturer shall perform all necessary work for making substitutions workable and shall bear any additional cost necessary because of the proposed substitution.

4. Substitutions not specifically requested, although accepted through oversight, may be rejected at any stage of the work. The Manufacturer shall, at its own expense, reconstruct all work affected by the later rejection of a substitution that was not specifically requested.

PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW AND APPROVAL

A. Submittal Procedure

1. The Manufacturer shall submit to the Engineer for his/her review electronic copies of each submittal (shop drawings and catalog cuts for fabricated items and manufactured items furnished under this Contract, etc.) via email, or cloud service if file size precludes email.

2. Shop drawings shall be submitted in sufficient time to allow the Engineer no less than seven (7) working days for examining the shop drawings except for designs for turnkey items for which thirty (30) working days will be allowed.

B. Review by District

1. After review by the Engineer of each of the Manufacturer's submissions, the material will be returned to the Manufacturer with actions defined as follows:

a. NO EXCEPTIONS TAKEN: Accepted subject to its compatibility with further submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown in the partial submittal.

b. MAKE CORRECTIONS NOTED: Same as 1.a., except that minor corrections as noted shall be made by the Manufacturer.

c. REVISE AND RESUBMIT: Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Manufacturer prior to subsequent review by the Engineer.

d. REJECTED - RESUBMIT: Submitted material does not conform to Plans and Specifications in major respect, i.e.: wrong item, wrong size, model, capacity, or material.

C. Requests for Information

1. Requests for Information about the Contract Documents shall be directed by the Manufacturer to the Engineer using a Request for Information (RFI) form to be provided by the District.

2. The Engineer will reply to the Manufacturer's Request for Information as soon thereafter as practicable.

3.2 ACCEPTANCE BY DISTRICT

A. Approval of each submittal by the Engineer will be general only and shall not be construed as:

1. Permitting any departures from the contract requirements

2. Relieving the Manufacturer of the responsibility for any errors and omissions in details, dimension, or of other nature that may exist.

3. Approving departures from additional details or instructions previously furnished by the Engineer

3.3 CHANGES TO ACCEPTED SUBMITTALS

A. A resubmittal is required for any proposed change to a submittal that has been accepted. Changes which require resubmittal include, but are not limited to, drawing revisions, changes in materials and equipment, changes to installation procedures and test data. All resubmittals shall include an explanation of the necessity for the change.

B. Minor corrections to an accepted submittal may be accomplished by submitting a "Corrected Copy".

END OF SECTION

SECTION 01 43 09

WIND DESIGN REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Section Includes: Wind design requirements for the following:

1. Anchorage of mechanical and electrical equipment

2. Wind design of tanks and anchorage of tanks.

3. Other structures or items as specified or indicated on the Drawings.

B. Related Sections:

1. Section 01 43 11 – Seismic Requirements

1.2 SYSTEM DESCRIPTION

A. Design Requirements:

1. Wind loads for Structures: In accordance with 2019 California Building Code (CBC), Section 1609 – Wind Loads, with design parameters listed below:

a. Ultimate Design Wind Speed:

- 99 miles per hour for Risk Category III.
- 103 miles per hour for Risk Category IV.

b. Risk Category: III or IV.

c. Exposure Category: C.

d. Load Combinations: In accordance with 2019 CBC:

1) Section 1605.2, Load combinations using strength design or load and resistance factor design; or

2) Section 1605.3, Load combinations using allowable stress design

2. Anchorage to Concrete: In accordance with 2019 CBC Sections 1908, or 1909 with the following:

   a. No one-third increases in the allowable loads of Table 1908.2 are permitted for wind loading.

   b. Post-installed anchors must comply with ICC-ES AC 193 or ICC-ES AC 308.

B. Resistance Requirements:

1. Wind loads must be resisted by assemblies of welded plates, and anchor bolts embedded in concrete or bolts fastened to steel frames. All steel assemblies, anchor bolts and fasteners shall be of Type 316 Stainless Steel, unless otherwise indicated on Drawings.

2. Wind loads must be resisted by direct bearing on anchors. Do not use connections in which wind forces are resisted by friction in any part.

3. Anchor bolts shall have a standard hex bolt head unless otherwise indicated on Drawings

4. Do not use sleeve anchors, flush shells, power actuated fasteners, or screws for resisting wind loads.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00, Submittal Procedures.

B. Refer to Section 01 43 11, paragraph 1.4 B.

PART 2 AND 3 – NOT USED

END OF SECTION

SECTION 01 43 11

SEISMIC DESIGN REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. All products to be furnished under this contract shall be designed in conformance with the seismic requirements contained in the 2019 California Building Code (CBC) and this section. Manufacturer is responsible for the design of:

1. Seismic design of tanks and anchorage of tanks.

B. Related Sections:

1. Section 05 50 10 - Anchor Systems.

C. Reference Standards:

1. ASCE 7 - 2016, American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures.

1.2 STRUCTURAL INTEGRITY AND ANCHORAGE

A. Anchorages shall comply with the requirements of Section 13 of ASCE 7-16, using the following values:

1. Design, 5 percent damped, spectral response acceleration parameter at short periods: S_{DS} = 1.53g.

2. Design, 5 percent damped, spectral response acceleration parameter at a period of 1 second: S_{D1} (See ASCE 7 Section 11.4.8)

3. Seismic Component Importance Factor for Anchorage of Mechanical and Electrical Equipment: I_p = 1.5.

4. Seismic Importance Factor for the Design of Tanks and the Anchorage of Tanks: I_e = 1.25 (unless designated as part of an essential facility or containing highly toxic materials, in which case I_e = 1.50). For this RFQ2301 SHC tank purchase the seismic importance factor shall be 1.25.

5. Component Amplification Factor, a_p: In accordance with Table 13.6-1 of the ASCE 7-16.

6. Component Response Modification Factor, R_p: In accordance with Table 13.6-1 of ASCE 7-16.

B. Determine the governing (maximum) design force for each element considering all possible load combinations including seismic or wind loads where applicable.

C. Do not use friction to resist sliding due to seismic forces.

D. When designing anchors for uplift due to seismic forces, include the vertical seismic load effects (+/- $0.2S_{DS}W_p$) and reduced dead loads as required by the Basic Load Combinations of ASCE 7-16. For example: in Allowable Stress Design use only 60 percent of the equipment or tank dead load for resisting overturning.

E. See Section 05 50 10, Anchor Systems, for approved anchor bolts or concrete anchors. Do not use other anchor types, such as powder actuated fasteners, flush shells, sleeve anchors or screw anchors, unless indicated on the drawings or accepted in writing by the Engineer.

F. Anchor bolts used to resist seismic forces shall have a standard hex bolt head. Do not use anchor bolts fabricated from rod stock with L or J shaped ends.

G. Seismic forces must be resisted by direct bearing on the fasteners. Do not use connections that rely on friction to resist seismic forces.

H. Do not use screws to resist tension unless otherwise noted on the drawings.

I. Structural integrity and anchorage shall be certified by an approved calculation that demonstrates the adequacy of the anchorage system for seismic forces. This calculation may be based on principles of structural analysis and engineering mechanics or based on similarity to approved shake table tests.

1.3 SPECIAL CERTIFICATION FOR SEISMIC FUNCTIONALITY

A. Certain equipment, including all components, shall be certified by the supplier to remain operable following the design earthquake. These items are designated in the technical specifications for each type of equipment. They shall not undergo loss of their intended function after application of the Code prescribed seismic forces. Certification that the equipment is seismically qualified for the above requirements shall be submitted as prescribed in Section 13.2 of ASCE 7-16.

B. For equipment covered by IEEE 693, an acceptable certification is a seismic report prepared by the equipment manufacturer in accordance with IEEE 693. This report shall certify that the equipment meets or exceeds IEEE 693 high seismic qualification level requirements.

1.4 SUBMITTALS

A. Submit in accordance with Section 01 33 00, Submittal Procedures.

B. Submit complete and comprehensible calculations and reference drawings:

1. When evaluating the strength of a structural element, indicate applied stresses compared to strength, or show Demand/Capacity ratios.

2. Evaluating the results by stating “Okay by Inspection” is not acceptable.

3. When spreadsheets are used, provide referenced equations and the formulas used in the calculations.

4. Calculations and details shall be prepared, stamped, and signed by a Civil or Structural Engineer registered in the State of California with a minimum of three (3) years of experience in water or wastewater projects.

a. The Manufacturer shall provide the signing Engineer all necessary reference drawings and data required for completion of the calculations.

5. If the Manufacturer has not provided a complete and acceptable submittal by the second submission, the District, at its discretion, may provide the required seismic design services at the Manufacturer ’s expense. The cost of providing the required seismic design services shall be deducted from the Manufacturer’s payments.

6. Reference Drawings: include plans, sections, details and tank information necessary to understand the seismic calculations. Reference plans shall show the location of all relevant tank and related items for loading calculations.

7. Submittals shall be returned “REVISE AND RESUBMIT” if:

a. Submittals include only calculations without reference drawings.

b. Calculations have no sheet numbers or sheets are missing.

c. Calculations or reference drawings are illegible or insufficient to review.

d. Calculations are based on wrong information, assumptions, or design parameters.

8. No time extension will be allowed for the Contract due to time loss in the review process.

1.5 PROOF OF COMPLIANCE

A. Structural integrity and anchorage.

1. Provide calculations to demonstrate the adequacy of the anchorage system for seismic forces. This calculation may be based on principles of structural analysis and engineering mechanics or based on similarity to approved shake table tests or experience data. Test data for similar equipment types may be accepted subject to District approval. Similar equipment must be constructed of similar materials, have similar dimensions and weight, function similarly and be mounted with similar details.

2. Manufacturer shall submit for review and approval test data or calculations certified, stamped, and signed by a Civil or Structural Engineer registered in the State of California to show compliance with the above requirements.

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Includes: Furnish miscellaneous stainless steel metal fabrications and fasteners.

B. Related Sections:

1. Section 01 33 00 – Submittal Procedures

2. Section 05 50 10 – Anchor Systems

3. Section 06 82 00 – Glass Fiber Reinforced Plastic Fabrications

4. Section 43 41 45 – Fiberglass Reinforced Plastic Tanks

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. A 36/A 36M - Specification for Structural Steel.

2. A 992 – Specification for Structural Steel.

3. A 167 - Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

4. A 269 - Specification for Seamless and Welded Austenitic Stainless-Steel Tubing for General Service.

5. A 276 - Specification for Stainless Steel Bars and Shapes.

B. American Welding Society (AWS):

1. D 1.1, 1.2 & 1.6 - Structural Welding Code – Steel, Aluminum, Stainless Steel.

2. D 10.4 - Recommended Practices for Welding Austenitic Chromium-Nickel Stainless Steel Piping and Tubing.

C. Steel Structures Painting Council (SSPC):

1. SSPC SP3 - Power Tool Cleaning.

D. International Conference of Building Officials (ICBO):

1. California Building Code (CBC).

2. International Building Code (IBC)

E. Occupational Safety and Health Administration (OSHA).

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 – Submittal Procedures.

B. Shop Drawings: Submit complete fabrication and erection drawings for the Engineer's approval prior to cutting or fabrication. Shop drawings shall show the details of fabrication with weld symbols in accordance with AWS A2.4 for all joints to be welded.

C. Welding Procedures and Certification of Welders:

1. Weld Procedure Specification (WSP) for each type of weld and supporting Procedure Qualification Record (PQR).

2. Submit verifiable evidence of initial qualification for each welder.

3. Submit verifiable evidence each welder has maintained current qualification(s).

4. Provide all submittals at least 10 working days prior to commencing welding except that WPS’s and PQR’s shall be submitted at least 20 working days prior to welding.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Stainless Steel welding shall conform to ANSI/AWS D16 latest edition - Structural Welding Code-Stainless Steel.

2. Notify ENGINEER 24 hours minimum before starting shop or field welding.

3. ENGINEER may check materials, equipment, and qualifications of welders.

4. Remove welders performing unsatisfactory work or required to re-qualify.

5. ENGINEER may use gamma ray, magnetic particle, dye penetrant, trepanning, or other aids to visual inspection to examine any part of welds or all welds.

6. MANUFACTURER shall bear costs of retests on defective welds.

7. MANUFACTURER shall also bear costs in connection with qualifying welders.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping: Deliver structural steel free from mill scale, rust, and pitting.

B. Storage and Protection: Until erection and painting, protect from weather items not galvanized or protected by a shop coat of paint.

PART 2 - PRODUCTS

2.1 GENERAL

A. Materials: Unless otherwise specified or indicated on the Drawings, structural and miscellaneous metals shall conform with the standards of the ASTM, including the following:

Item	ASTM Standard No.	Class, Grade Type or Alloy No.
Stainless Steel		
Plate, sheet, and strip	A 240	Type 304L or 316L*
Bars and shapes	A 276	Type 304L or 316L*
Bolts and nuts	F 593	Type 304 or 316*
Nuts	F 594	Type 304 or 316
* Use Type 316L if material will be welded.		

1. Stainless steels are designated by type or series defined by ASTM.

2. Where stainless steel is welded, use low-carbon stainless steel.

2.2 FASTENERS

A. General: Furnish threaded fasteners, except high strength bolts, with flat washers, and self-locking nuts, or lock washers and nuts.

1. Bolt Heads and Nuts: Hex-type

2. Bolts, Nuts, and Washers: Of domestic manufacture

B. All Thread Rods and Assembly Bolts

1. Type 316 stainless steel or as indicated on the Drawings

2.3 MISCELLANEOUS META

A. Miscellaneous Stainless Steel:

1. Provide miscellaneous stainless-steel items not specified herein as indicated on the Drawings or specified elsewhere. Fabricate and install in accordance with the best practices of the trade.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Examine work in place to verify that it is satisfactory to receive the work of this Section. If unsatisfactory conditions exist, do not begin this work until such conditions have been corrected.

3.2 INSTALLATION

A. General: Install products as indicated on the Drawings, and in accordance with shop drawings and manufacturer's printed instructions, as applicable except where specified otherwise.

B. Welding:

1. General: AWS D1.6 for stainless steel; type required for materials being welded.

a. An approved submittal on all types of weld connections is required prior to performing any welding.

b. Make welds full penetration type, unless otherwise indicated on the Drawings.

c. Remove backing bars and weld tabs after completion of weld. Repair defective welds observed after removal of backing bars and weld tabs.

d. Grind all rough weld beads. Welds exposed to view shall be uniformly neat.

2. Welding Stainless Steel:

   a. Perform with electrodes and techniques in accordance with AWS D1.6 and AWS D10.4 as applicable.

   b. Welds shall be abrasive blasted prior to galvanizing. All slag and other weld irregularities shall be removed prior to galvanizing.

END OF SECTION

SECTION 05 50 10

ANCHOR SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Includes: Complete anchoring systems in concrete including, but not limited to, equipment anchors and reinforcement dowels.

1. Adhesive Anchor Systems

B. Related Sections:

1. Section 01 33 00 – Submittal Procedures

2. Section 01 43 09 - Wind Design Requirements

3. Section 01 43 11 - Seismic Design Requirements

1.2 REFERENCES

A. American Concrete Institute (ACI):

1. 355.2-19 Qualification of Post-Installed Mechanical Anchors in Concrete

2. 355.4-11 Qualification of Post-Installed Adhesive Anchors in Concrete

B. American Institute of Steel Construction (AISC):

1. Specification for Structural Steel Buildings

C. American Society for Testing and Materials (ASTM):

1. A 36 - Specification for Structural Steel

2. A123 - Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

3. A 307 - Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength

4. F 593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

D. International Code Council (ICO):

1. 2018 International Building Code (IBC)

E. California Building Standards Commission

1. 2019 California Building Code (CBC)

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 00 Submittal Procedures.

B. Product Data: Fully describe every product proposed for use and manufacturer's installation instructions.

C. Calculations and reference drawings for the anchorage of equipment, or any other items, that Contractor is responsible for the design of. See also Sections 01 43 11 Seismic Design Requirements and 01 43 09 Wind Design Requirements.

D. Qualifications of Installers and Testing Laboratory

1. Submit each Installer's qualifications and training date per Paragraph 1.4 A. 1.

2. Submit Testing Laboratory's qualifications for proof load testing.

E. Test Reports:

1. International Code Council Evaluation Service, Inc. (ICC-ES), Evaluation Service Reports based on the following acceptance criteria:

a. AC308 – Adhesive Anchors and Dowels

b. AC193 – Expansion Anchors and Undercut Anchors

2. Field tension proof load test reports per Paragraph 3.3 C. Include type, manufacturer, model and size of anchors or dowels tested.

1.4 QUALITY ASSURANCE

A. Installer's Qualifications: Adhesive anchors shall be installed by installers who have:

1. A minimum of one year (1) of experience performing similar installations.

2. A thorough training with manufacturer or manufacturer's representative on the project. Training shall consist of a review of complete anchor installation including but not limited to:

a. Hole drilling procedure

b. Hole preparation and cleaning technique

c. Adhesive injection technique and dispenser training

d. Rebar dowel preparation and installation

e. Proof loading and torque tightening

B. Special Inspections and Testing:

1. Comply with 2019 CBC Chapter 17 and Article 3.3 of this Section. Provide adequate notice of all anchor installations to allow District Inspector to perform either periodic or continuous inspection at District's discretion.

2. Independent laboratory testing of anchor systems shall be paid by the Contractor.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping: Deliver bolts free from mill scale, rust, and pitting.

B. Storage and Protection: Until erection and painting, protect from weather items not galvanized or protected by a shop coat of paint.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Adhesive Anchor System:

1. Adhesive (not within tanks or channels):

a. Seismic qualified for 2018 IBC and tested per ICC-ES AC308.

b. Used with all-threaded rods, internally-threaded inserts, or deformed reinforcing bars in cracked and un-cracked concrete per Evaluation Service Report (ESR).

c. Meet requirements of AASHTO specification M235, Type IV, Grade 3, Class A, B, or C except gel times.

d. Injectable two-component epoxy adhesive furnished in containers which keep component A and component B separate. Containers shall be designed to accept static mixing nozzle which thoroughly blends component A and component B and allows injection directly into drilled hole. Use injection tool and static mixing nozzles recommended by manufacturer.

e. Properties:

1) Bond Strength (ASTM C882): 1,690 psi, Min.

2) Compressive Strength (ASTM D695): 12,000 psi, Min.

3) Compressive Modulus (ASTM D695): 0.22 x 10^6 Min.

4) Tensile Strength 7 days (ASTM D638): 6,310 psi, Min.

5) Elongation at Break (ASTM D638): 1.1%

6) Heat Deflection Temperature (ASTM D648): 122ºF

7) Absorption (ASTM D570): 0.06%

8) Linear Coefficient of Shrinkage on Cure (ASTM D2566): 0.004

f. Do not use adhesive with all-threaded rods, internally-threaded inserts, or deformed reinforcing bars to resist tension in overhead position unless otherwise indicated on drawings or specified.

g. Manufacturers: one of the following or equal:

1) Hilti HIT-RE 500 V3

2) Simpson Strong-Tie SET-3G Epoxy Adhesive

2. Anchors:

a. Anchors shall be all-thread rods and shall be Type 316 stainless steel conforming to ASTM F593 (AISI 304/316 SS) condition CW unless otherwise indicated on Drawings.

1) Mechanical Properties:

a) fy = 45 ksi, min.

b) fu = 85 ksi, min.

b. All-thread rods shall be furnished with chamfered ends so that either end will accept a nut and washer. If recommended by the manufacturer, one end shall have a 45-degree chisel point that will be inserted into adhesive-filled hole.

c. All-thread rods shall be free of oil or coatings that may reduce bond.

d. Manufacturers:

1) Hilti, HIT-HAS, 316SS, for all-threaded rods.

2) Or equal.

END OF SECTION

SECTION 06 82 00

GLASS FIBER REINFORCED PLASTIC

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work includes: All labor, materials, equipment, and incidentals required to properly design and furnish all fiberglass reinforced plastic (FRP) grating, plate, structural shapes, guardrails, ladder, cage, treads, and appurtenances as shown on drawings and as specified herein.

1. Design of FRP tank access ladders and platforms shall be performed by the FRP Tank manufacturer. See Section 43 41 45 Fiberglass Reinforced Plastic Tanks. Coordinate required support clips and anchors required for each tank configuration.

B. Related sections:

1. Section 01 33 00 – Submittal Procedures

2. Section 05 50 00 – Metal Fabrications

3. Section 43 06 40.05 – Schedule of Liquid Chemical Properties

4. Section 43 41 45 - Fiberglass Reinforced Plastic Tanks

1.2 SUBMITTALS

A. Submit in accordance with Section 01 33 00 Submittal Procedures.

B. Submit shop drawings of all FRP gratings, plates, shapes, guardrails, ladders, cages, treads, and appurtenances to the Engineer for approval prior to cutting or fabrication. Shop drawing shall show the following:

1. Dimensions of grating, ladders, and structural members

2. Sectional assembly

3. Location and identification mark

4. Size and type of supporting frames required

C. Submit manufacturer’s catalogue data showing:

1. Dimensions, spacings, and construction of grating

2. Design tables showing limits for span length and deflection under various uniform and concentrated loads

3. Materials of construction

1.3 QUALITY ASSURANCE

A. Conform to manufacturer's literature.

1.4 SHIPPING AND STORAGE

A. All systems, sub-systems, and structures shall be shop fabricated and assembled into the largest practical size, suitable for transportation.

B. All materials and equipment necessary for the fabrication and installation of the grating, plate, stair treads, and structural shapes shall be stored before, during, and after shipment in a manner to prevent cracking, twisting, bending, chipping, or damage of any kind to the materials or equipment, including damage due to over exposure to the sun. Any material which has become damaged as to be unfit for use, shall be promptly removed from District property and replaced at no cost to the District.

1. Grating shall be shipped from manufacturer, palletized, and banded with exposed edges protected by cardboard to prevent damage in shipment.

C. Identify and match-mark all materials, items, and fabrications for installation and field assembly.

1. Each grating shall be clearly marked showing manufacturer’s applicable drawing number.

1.5 WARRANTY

A. Warranty all fiberglass products for a period of 10 years against failure due to corrosion.

PART 2 - PRODUCTS

2.1 GENERAL

A. Materials used in the manufacturer of the FRP products shall be new stock of the best quality and shall be free from all defects and imperfections that might affect the performance of the finished product.

B. After fabrication, all cut ends, holes, and abrasions of FRP shapes shall be sealed with a compatible resin coating to prevent intrusion of moisture.

C. All exposed surfaces shall be smooth and true to form.

D. Color shall be a high visibility safety yellow (OSHA safety yellow).

E. FRP products shall also be suitable for outdoor installation and be UV resistant.

F. FRP materials shall be suitable for contact with sodium hypochlorite as detailed in Section 43 06 45.05 Schedule of Liquid Chemical Properties.

G. Attachment hardware:

1. Attachment hardware, including bolts and angles, shall be A316 stainless steel, unless otherwise specified on the drawings.

H. The following minimum mechanical properties shall apply:

FIBERGLASS PULTRUDED MATERIAL PROPERTIES		
MATERIAL PROPERTIES	ASTM TEST METHOD	PSI (MPA)
Ultimate tensile stress in longitudinal direction	D638	30,000 (207)
Ultimate compressive stress in longitudinal direction	D639	30,000 (207)
Ultimate flexural stress in longitudinal direction	D790	30,000 (207)
Ultimate short beam shear in longitudinal direction	D2344	4,500 (31)
Ultimate tensile stress in transverse direction	D638	7,000 (48)
Ultimate compressive stress in transverse direction	D695	15,000 (103)
Ultimate flexural stress in transverse direction	D790	10,000 (69)
Density (lb./in.$^{3)}$ (kg/mm^3)	D792	.060-.070 (0.00166-0.00194)
Water absorption (24-hr immersion)	D570	0.60 max, % by weight
Barcol Hardness	D2583	45

FIBERGLASS PULTRUDED MATERIAL PROPERTIES		
MATERIAL PROPERTIES	ASTM TEST METHOD	PSI (MPA)
Coefficient of thermal 10^{-6} in/in/˚C	D696	8
Thermal conductivity BTU-in/ft^2/hr./˚F	C177	4
FIRE RETARDANT PROPERTIES		
Flame resistance	FTMS 406-2023	55/30 Ign. burn. sec.
Flammability test	D635	Self-extinguishing
Surface burning characteristics	E84	25 maximum
Flammability class	UL 94	VO
Temperature index	UL 94	130˚C

I. Manufacturers:

1. Strongwell Corp., Bristol, VA, (703) 669-1181

2. MFG Water Treatment Products, Co., P.O. Box 250, Ashtabula, OH 44005-0250. Telephone (440) 992-2867

3. Or equal

2.2 GRATINGS AND STAIR TREADS

A. FRP grating and stair treads shall be fabricated from bearing bars and cross rod manufactured by the pultrusion process. The bearing bars shall be 1 inch deep with a 0.6 inch wide top flange, a 0.6 inch wide bottom flange, and a web thickness of 0.16 inch. The glass fiber reinforcement for the bearing bars shall be a core of continuous glass strand rovings wrapped with continuous strand glass mat. A synthetic surface veil shall be the outermost layer covering the exterior surfaces.

B. Fiberglass grating and stair treads shall be made from a premium grade chemical resistant, fire retardant isophthalic polyester or fire retardant vinyl ester resin system with antimony trioxide added to meet the flame rating of 25 or less in

accordance with ASTM E84 testing and meet the self-extinguishing requirements of ASTM D635. UV inhibitors shall be added to the resin.

C. All cut and machined edges, holes, and abrasions shall be sealed with a resin compatible with the resin matrix used in the bearing bars and cross rods.

D. All panels shall be fabricated to the sizes shown on the approved shop drawing.

E. The top surface of all panels shall have a nonskid grit affixed to the surface by a baked epoxy resin followed by a top coat of baked epoxy resin.

F. Hold down clamps shall be Type 316L stainless steel, unless otherwise specified on the drawings. See Section 05 50 00. A minimum of 4 clamps each per panel is required.

G. Acceptable products (for grating):

1. DURADEK or DURAGRID as manufactured by Strongwell, AFC Division, Chatfield, MN

2. MFG Water Treatment Products, Co., P.O. Box 250, Ashtabula, OH 44005-0250. Telephone (440) 992-2867

3. Or equal

2.3 FIBERGLASS REINFORCED PLASTIC (FRP) LADDERS AND CAGES

A. Ladder and ladder cages shall meet the requirements set forth in OSHA 1910.27. The ladder shall be capable of supporting a concentrated vertical load of 1200 pounds applied at the mid span of the rung.

B. The side rails shall be fiberglass reinforced pultruded (isophthalic polyester or vinyl ester) with OSHA safety yellow pigment. An industrial grade polyurethane yellow coating shall be applied to all components or to the finished ladder and cage to a minimum 1 mil thickness for outdoor application.

C. The side rails shall be 2″ square tube with a wall thickness of 0.156″ or greater. The rungs shall be 1″ diameter thermal cure rod with a non-slip grit surface.

D. All joints and rungs shall be epoxied and riveted.

E. Ladders shall be shop assembled, pre-drilled, and prepared for field attachments of standoff clips.

F. Acceptable products:

1. SAFRAIL, as manufactured by Strongwell Corp., Bristol, VA. Telephone (703) 669-1181

2. MFG Water Treatment Products, Co., P.O. Box 250, Ashtabula, OH 44005-0250. Telephone (440) 992-2867

3. Or equal

2.4 GUARDRAILS

A. Guardrails shall meet the requirements set forth in CCR Title 8, Section 3209.

B. The guardrails shall be fiberglass-reinforced, pultruded (isophthalic polyester or vinyl ester) with OSHA safety yellow pigment.

C. The guardrails shall be 2-inch square tube with posts on a maximum 6-foot center to center spacing and a top rail, mid rail and a 4-inch toe plate.

D. All metal assembly components, including but not limited to rivets, nuts, bolts, and washers shall be 316 stainless steel.

E. Acceptable products

1. SAFRAIL, as manufactured by Strongwell Corp., Bristol, VA. Telephone (703) 669-1181

2. MFG Water Treatment Products, Co., P.O. Box 250, Ashtabula, OH 44005-0250. Telephone (440) 992-2867

3. Or equal

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

A. Installation shall be performed by separate contractor. Provide anchorage devices and fasteners where necessary for securing miscellaneous FRP fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, and other connectors as required.

END OF SECTION

SECTION 43 06 40.05

SCHEDULE OF LIQUID CHEMICAL PROPERTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: The Manufacturer shall furnish chemical tanks to receive, store, transfer, and feed the chemicals listed herein.

B. Related Sections:

1. Section 43 41 45 – Fiberglass Reinforced Plastic Tanks

1.2 CHEMICAL DATA

A. The process chemicals that will be used are listed in the tables below. The chemical properties listed below are for the indicated process temperatures and will vary with changing temperatures. Contact chemical manufacturers if additional chemical property details are required.

Sodium Hypochlorite [SHC]:	
Process Fluid	12 - 15% Sodium Hypochlorite (NaOCl)
Boiling Point	212 deg F
Vapor Pressure	12.1 mm-Hg @ 68 deg F
Specific Gravity	1.2 @ 68 deg F
Density	10.0 lb./gal @ 68 deg F
pH	12-14 (1% solution)
Process Temperature	35 deg F – 100 deg F
Viscosity	1.75 – 2.50 cps
Solubility in H2O	100%

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION

SET NO. _____

OAKPORT WET WEATHER FACILITY
SODIUM HYPOCHLORITE FRP TANKS PRE-PURCHASE

CONTRACT DOCUMENTS

DRAWINGS

JULY 2022

RFQ NO. 2301

EBMUD

EAST BAY MUNICIPAL UTILITY DISTRICT
SPECIAL DISTRICT NO. 1
OAKLAND, CALIFORNIA

Recommended _____
Douglas Y. Higashi
Manager of Wastewater Engineering Division
R.P.E. No. C 45081

Approved _____
Eileen M. White
Director of Wastewater
R.P.E. No. C 44607

USER: sdahleh
DATE: 28-JUN-2022 10:17
FILE: J:\SD Projects\SD442 Oakport WWF SCH Tanks NO 1 & 2 Replacement\NF02301cover.cgn

GENERAL NOTES

1. ITEMS SHOWN IN BLACK ON DRAWINGS INDICATE WORK UNDER THIS CONTRACT.

2. ITEMS SHOWN IN GRAY/SCREENED TYPICALLY REFER TO EXISTING FEATURES OR NEW CONSTRUCTION UNDER A DIFFERENT DISCIPLINE. SEE NOTE 7 REGARDING REFERENCE DRAWINGS.

3. NOT ALL EXISTING UTILITIES ARE SHOWN ON THE DRAWINGS, WHICH MAY OR MAY NOT INTERFERE WITH NEW WORK.

4. PROJECT DRAWING NUMBERS ARE DEFINED AS FOLLOWS:
   SDXXX-AAABB-CXXXD WHERE:

   SDXXX = PROJECT NUMBER (3-DIGIT NUMBER FOLLOWING THE LETTERS 'SD')
   (OMITTED WHEN NOT APPLICABLE)
   AAA = AREA CODE (3-DIGIT ALPHA/NUMERIC NUMBER FOR FACILITY OR AREA)
   (OMITTED WHEN NOT APPLICABLE)
   BB = SUBSTRUCTURE NUMBER (NUMBER FOR STRUCTURE WITHIN FACILITY OR AREA)
   (OMITTED WHEN NOT APPLICABLE)
   C = DISCIPLINE CODE LETTER
   A - ARCHITECTURAL I - INSTRUMENTATION (P&ID)
   C - CIVIL L - LANDSCAPE
   E - ELECTRICAL M - MECHANICAL
   G - GENERAL S - STRUCTURAL
   XXX = SERIAL NUMBER (MAY INCLUDE A DECIMAL AND/OR LETTER SUFFIX)
   D = ADDITIONAL INFORMATION CODE LETTER
   D - DEMOLITION DRAWING (OMITTED WHEN NOT APPLICABLE)

5. INCLUDED IN THIS PROJECT ARE THE FOLLOWING AREA CODES:

   W6T - OAKPORT WET WEATHER FACILITY

   SUBSTRUCTURE CODES:
   .40 - CHLORINATION STATION

6. IF A CALL-OUT REFERENCES A DRAWING WITH THE SAME AREA CODE AND SUBSTRUCTURE NUMBER, THE AREA CODE AND SUBSTRUCTURE NUMBER WILL BE OMITTED. ONLY THE DISCIPLINE CODE AND SERIAL NUMBER WILL BE SHOWN.

7. REFERENCE DRAWINGS ARE INCLUDED TO PROVIDE INFORMATION ABOUT EXISTING CONDITIONS. REFERENCE DRAWINGS DO NOT CONTAIN INSTRUCTIONS FOR THIS PROJECT. ADDITIONALLY, ONLY SPECIFIC DRAWINGS/DETAILS CALLED OUT BY THE PROJECT DRAWINGS SHALL BE USED TO EVALUATE EXISTING CONDITIONS; OTHER INFORMATION SHOWN MAY OR MAY NOT BE CURRENT.

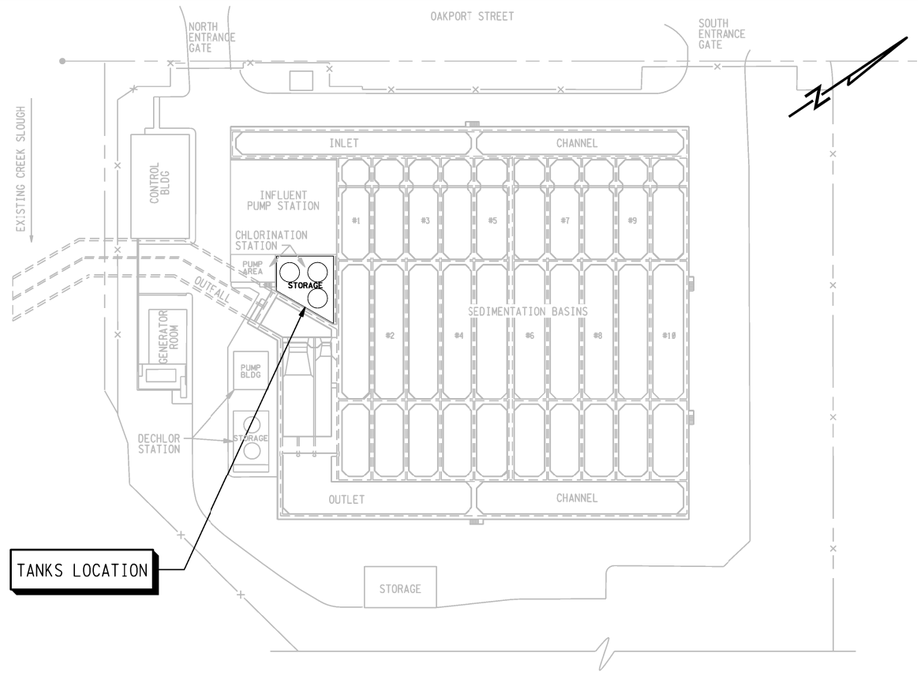
8. SECTIONS AND DETAILS ARE DESIGNATED BY FRACTIONAL SYMBOLS SUCH AS: A/C001; 3/M001

   THE NUMERATOR IDENTIFIES THE SECTION OR DETAIL:
   LETTERS IDENTIFY SECTIONS.
   NUMERALS IDENTIFY DETAILS.

   THE DENOMINATOR IS THE SHEET REFERENCE NUMBER:
   IS A PARENT VIEW, IT IDENTIFIES THE SHEET ON WHICH THE SECTION OR DETAIL VIEW IS SHOWN.
   IN THE CAPTION OF A SECTION OR DETAIL VIEW, IT IDENTIFIES EACH SHEET ON WHICH THE PARENT VIEW IS SHOWN.

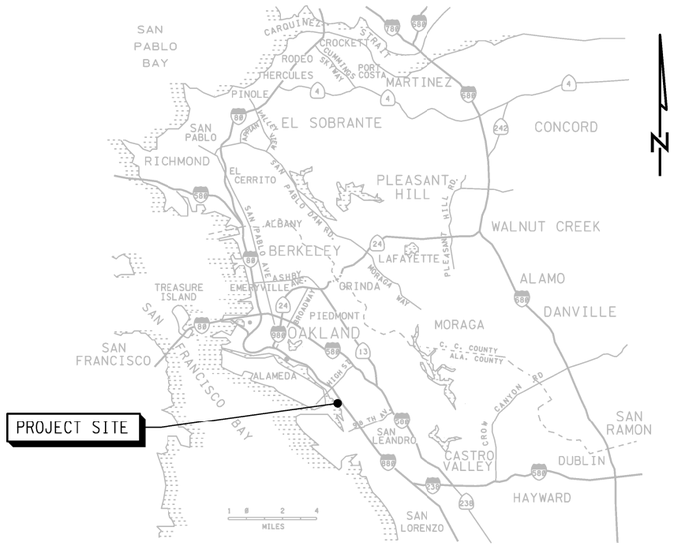
INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	REV. NO.	DRAWING TITLE
	GENERAL		
-	-	-	COVER SHEET
1	RFQ2301-G001	0	DRAWING INDEX, GENERAL NOTES AND LOCATION, VICINITY AND SITE MAPS
	STRUCTURAL		
2	RFQ2301-S001	0	STRUCTURAL NOTES AND TYPICAL DETAILS
3	RFQ2301-W6T40-S101	0	SODIUM HYPOCHLORITE PUMP AND STORAGE AREA FLOOR PLAN
	MECHANICAL		
4	RFQ2301-W6T40-M101	0	SODIUM HYPOCHLORITE PUMP AND STORAGE AREA FLOOR PLAN
5	RFQ2301-W6T40-M202	0	SODIUM HYPOCHLORITE FRP TANKS DETAIL PLANS AND SECTIONS
6	RFQ2301-W6T40-M901	0	SODIUM HYPOCHLORITE FRP TANKS TYPICAL DETAILS 1
7	RFQ2301-W6T40-M902	0	SODIUM HYPOCHLORITE FRP TANKS TYPICAL DETAILS 2
8	RFQ2301-W6T40-M903	0	SODIUM HYPOCHLORITE FRP TANKS TYPICAL DETAILS 3
9	RFQ2301-W6T40-M904	0	SODIUM HYPOCHLORITE FRP TANKS TYPICAL DETAILS 4
	REFERENCE DRAWINGS		
	SD171-S-801	2	OAKPORT WWF CHLORINATION STRUCTURAL PLAN
	SD171-S-802	2	OAKPORT WWF CHLORINATION STRUCTURAL SECTION AND DETAILS
	SD171-S-901	1	OAKPORT WWF CHLORINATION STANDARD DETAILS



OAKPORT WET WEATHER FACILITY SITE MAP

NO SCALE



OAKPORT WET WEATHER FACILITY LOCATION MAP

OAKPORT WET WEATHER FACILITY VICINITY MAP

NO SCALE

3" ON ORIGINAL DOCUMENT
0 1 2 3

NO.	DATE	REVISION	BY	REC.	APP.

REGISTERED PROFESSIONAL ENGINEER
KARL J. YAKICH
No. C37427
CIVIL
STATE OF CALIFORNIA
06/28/2022

RFQ NO. 2301 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

DESIGN	DESIGN BY: R. RUIZ	EAST BAY MUNICIPAL UTILITY DISTRICT
	DRAWN BY: S. DAHLEH	SPECIAL DISTRICT NO. 1
REVIEW	DESIGN CHECKED BY: R.P.E. No. C37427 KARL J YAKICH	OAKLAND, CALIFORNIA
	CONSTRUCTABILITY CHECKED BY: ---	OAKPORT WET WEATHER FACILITY
	ELECTRICAL CHECKED BY: R.P.E. No. ---	GENERAL
	PROJECT ENGINEER R.P.E. No. C37427 KARL J YAKICH	DRAWING INDEX, GENERAL NOTES AND LOCATION, VACINITY AND SITE MAPS
	PROJECT MANAGER R.P.E. No. C37427 KARL J YAKICH	SHEET NO. 01
	RECOMMENDED: SR. ENGINEER R.P.E. No. C65259 GARIN D WARREN	SCALE AS SHOWN / DATE 27JUN2022 / RFQ2301-G001 DRAWING NUMBER / Ø REV.

REF 1: J:\SD Projects\SD442 Oakport WWF SCH Tanks NO 1 & 2 Replacement\REF\D2801.dgn
REF 2:
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REF 9:

USER: sdahleh
DATE: 28-JUN-2022 10:17
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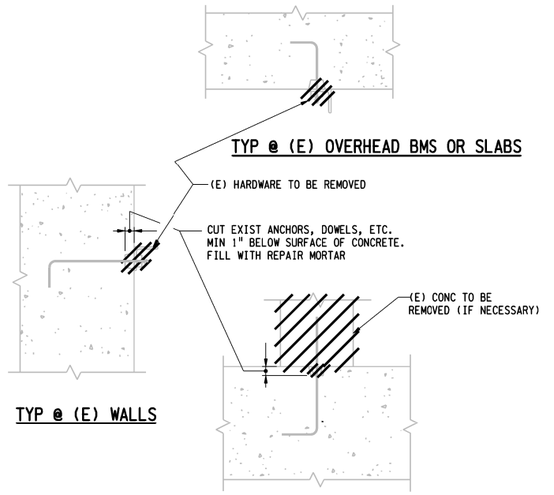


TYP @ (E) OVERHEAD BMS OR SLABS

TYP @ (E) WALLS

TYP @ (E) FLOOR SLABS

EXISTING EMBEDDED STEEL ITEMS DEMOLITION

DETAIL 1/TYP — NTS

STRUCTURAL NOTES:

NOTES

1. THESE NOTES AND TYPICAL DETAILS APPLY TO ALL STRUCTURAL DRAWINGS.
2. CONTRACTOR SHALL VERIFY IN THE FIELD THE LAYOUT, DETAILS, DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH WORK. REPORT ANY DISCREPANCIES TO ENGINEER FOR NECESSARY ADJUSTMENTS.
3. SEE CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS FOR EQUIPMENT, PIPING, CONDUITS AND OTHER PERTINENT INFORMATION.
4. CODE : 2019 CALIFORNIA BUILDING CODE (CBC)

CONCRETE

1. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
2. CEMENT SHALL BE PORTLAND CEMENT ASTM C150 TYPE II OR TYPE V, CONTAINING LESS THAN 0.6 % ALKALIES.
3. MAXIMUM WATER-CEMENT RATIO SHALL BE 0.45.
4. ALL EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE A 3/4" CHAMFER.
5. CONSTRUCTION JOINTS SHALL BE ROUGHENED BY SAND BLASTING OR MECHANICAL MEANS (BUSH HAMMER, SCABBLER OR EQUAL) TO 1/4" AMPLITUDE.
6. HEAT RESISTANCE CONCRETE SHALL BE USED WHEN THE SURFACE IS DIRECTLY EXPOSED TO HEAT SOURCE, FOR EXAMPLE, CONCRETE PEDESTALS, FLOOR AND LOWER WALL. SEE SPEC 03 30 00.

REINFORCEMENT

1. REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60.
2. EXTEND ALL REINFORCING BARS TO FAR FACE OF CONCRETE AT A 90-DEGREE STANDARD HOOK.
3. REINFORCING BARS SHALL BE PROVIDED WITH A MINIMUM CLEARANCE OF 2 INCHES FROM PIPE, FLANGES, OR METAL PARTS EMBEDDED IN CONCRETE, UON.
4. REINFORCING BARS SHALL HAVE CONCRETE COVER AS FOLLOWS, UON:
   A. CONCRETE CAST AGAINST EARTH 3"
   B. ALL OTHER CONDITIONS 2"
5. STAGGER LAP SPLICES. SPLICE NO MORE THAN 50% OF EACH LAYER OF BARS AT ANY SINGLE LOCATION.

STEEL

1. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE STAINLESS STEEL, UON.
2. STAINLESS STEEL SHALL BE TYPE 316 (316L FOR WELDED ITEMS). STAINLESS STEEL MEMEBERS SHALL HAVE A MINIMUM YIELD STRENGTH (Fy) OF 45KSI AND TENSILE STRENGHT (Fu) OF 85 KSI.
3. DO NOT FABRICATE UNTIL ALL DIMENSIONS INCLUDING ANCHOR HOLE LOCATIONS ARE FIELD VERIFIED.

CONNECTIONS

1. ANCHOR BOLTS, AND BOLTS, WASHERS AND NUTS FOR STEEL MEMBER CONNECTIONS SHALL BE STAINLESS STEEL CONFORMING TO ASTM F593 AND F594, UON. STAINLESS STEEL BOLTS SHALL HAVE A MINIMUM YIELD STRENGTH (Fy) OF 45 ksi AND TENSILE STRENGTH (Fu) OF 85 ksi.
2. DETERMINE LOCATION OF REINFORCING BAR, OR OTHER OBSTRUCTIONS WITH NON-DESTRUCTIVE INDICATOR DEVICE AS NECESSARY PRIOR TO SUBMITTING SHOP DRAWINGS. DO NOT DAMAGE OR CUT EXISTING REINFORCING BARS, ELECTRICAL CONDUITS, OR OTHER ITEMS EMBEDDED IN THE EXISTING CONCRETE WITHOUT ACCEPTANCE BY THE DISTRICT.
3. ANCHOR BOLTS IN CONCRETE SHALL BE STAINLESS STEEL AND SHALL HAVE A STANDARD HEAVY HEX BOLT HEAD.
4. ADHESIVE ANCHORS SHALL BE SET IN EXISTING CONCRETE WITH APPROVED ADHESIVE SYSTEM AND STAINLESS STEEL THREADED ROD.
5. REINFORCING STEEL TO BE SET IN EXISTING CONCRETE SHALL BE DOWELED IN CONCRETE WITH APPROVED ADHESIVE SYSTEM.
6. PREPARATION OF THE HOLES AND INSTALLATION OF ADHESIVE ANCHORS AND DOWELS IN EXISTING CONCRETE SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
7. WELDING SHALL CONFORM TO AWS CODE OF ARC WELDING IN BUILDING CONSTRUCTION. FILLER METAL FOR STAINLESS STEEL SHALL BE E316L, ER316L, OR E316-X, HAVING A MINIMUM OF TENSILE STRENGTH (Fu) OF 80 ksi.
8. FIELD WELDS SHALL BE PROTECTED WITH ZINC STICK.

SPECIAL INSPECTIONS AND TESTINGS

1. SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH THE 2019 CBC, CHAPTER 17 AND PROJECT SPECIFICATIONS FOR FOLLOWING ITEMS:
   A. STRUCTURAL AND STAINLESS STEEL WELDING
   B. ANCHOR BOLTS, EXPANSION BOLTS, ADHESIVE ANCHORS, AND DOWELS INSTALLED IN EXISTING CONCRETE
   C. VERIFICATION OF CONCRETE MIX.
2. PROVIDE TENSION TESTS PER SPECS SECTION 05 50 10 FOR ANCHORS AND DOWELS INSTALLED IN EXISTING CONCRETE.
3. COST OF TESTING, INCLUDING REINSTALLED ANCHORS OR DOWELS DUE TO FAILURE SHALL BE BORNE BY THE CONTRACTOR.
4. THE INDEPENDENT TESTING LABORATORY MUST BE APPROVED BY THE DISTRICT PRIOR TO BEGINNING OF WORK, SEE SPECS.

REGISTERED PROFESSIONAL ENGINEER — LINLING DONG — No. S6994 — STRUCTURAL — STATE OF CALIFORNIA

06/28/2022

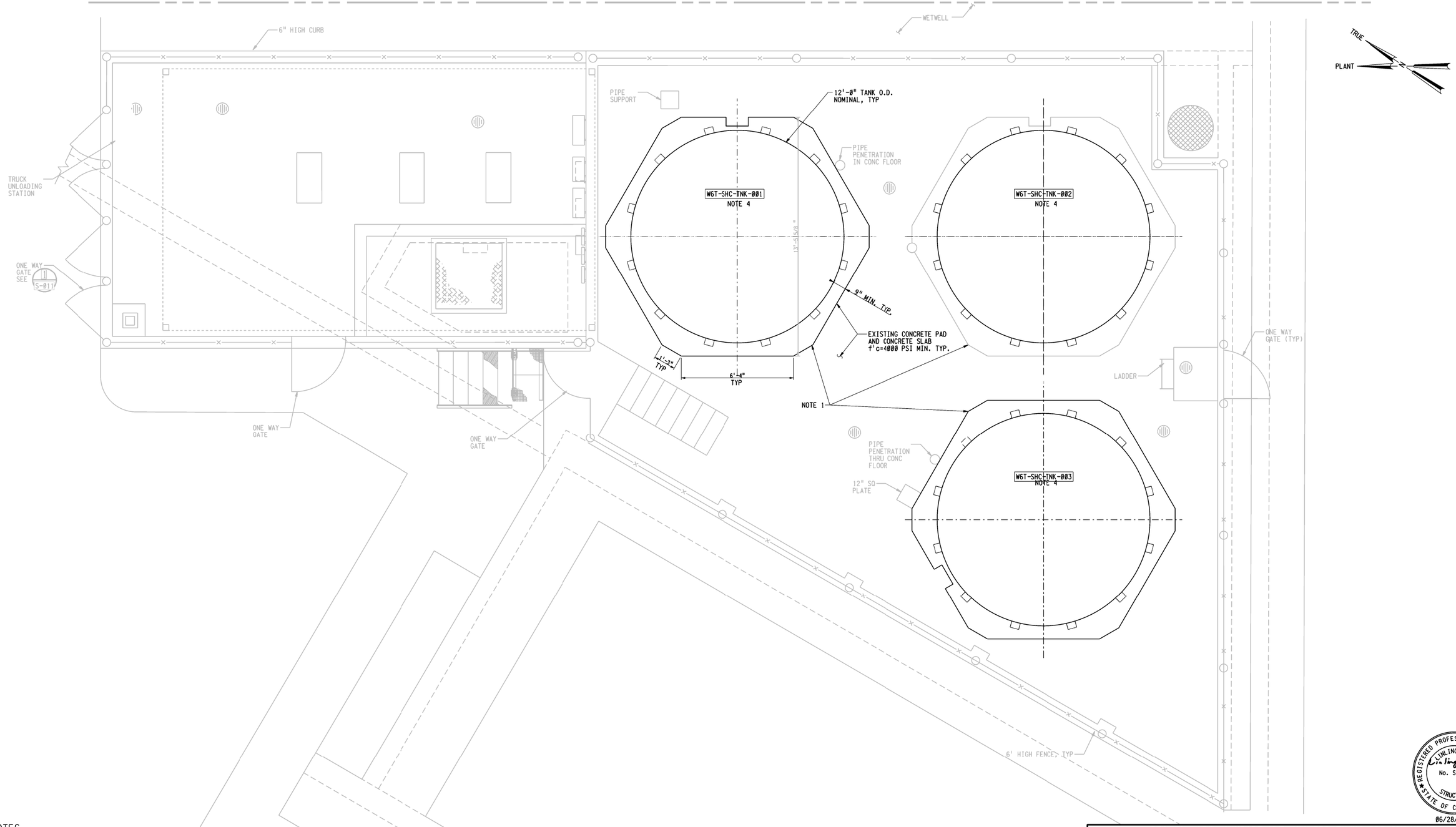
3" ON ORIGINAL DOCUMENT
0 1 2 3

NO.	DATE	REVISION	BY	REC.	APP.

RFQ NO. 2301 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

DESIGN	DESIGN BY: L. DONG	EAST BAY MUNICIPAL UTILITY DISTRICT SPECIAL DISTRICT NO. 1 OAKLAND, CALIFORNIA
	DRAWN BY: S. DAHLEH	
REVIEW	DESIGN CHECKED BY: R.P.E. No. C37427 — KARL J YAKICH	OAKPORT WET WEATHER FACILITY
	CONSTRUCTABILITY CHECKED BY: ---	STRUCTURAL STRUCTURAL NOTES AND TYPICAL DETAILS
	ELECTRICAL CHECKED BY: R.P.E. No. ---	SHEET NO. 02
	PROJECT ENGINEER R.P.E. No. S6994 — LINLING DONG	SCALE AS SHOWN
	PROJECT MANAGER R.P.E. No. C37427 — KARL J YAKICH	DATE 27JUN2022
	RECOMMENDED: SR. ENGINEER R.P.E. No. C65259 — GARIN D WARREN	RFQ2301-S001 — DRAWING NUMBER — REV. 0

MATCH LINE - FOR CONTINUATION SEE DWG W6T.30-S-103



NOTES

1. SEE REFERENCE DRAWINGS FOR EXISTING PAD CONSTRUCTION IN ADDITION TO THE DIMENSIONS SHOWN.
2. CONTRACTOR SHALL INSTALL ANCHORS PER TANK MANUFACTURER'S DESIGN. CONCRETE PAD REBAR SHALL BE SCANNED BEFORE INSTALLATION TO AVOID DAMAGE TO EXISTING REBAR.
3. FOR CONCRETE SURFACE TREATMENT, SEE SECTIONS ON DWG SD442-W6T40-S201.
4. SEE MECHANICAL DRAWINGS FOR FRP TANK CONSTRUCTION AND PLACEMENT.

3" ON ORIGINAL DOCUMENT
0 1 2 3

NO.	DATE	REVISION	BY	REC.	APP.

REGISTERED PROFESSIONAL ENGINEER
LINLING DONG
No. S6994
STRUCTURAL
STATE OF CALIFORNIA
06/28/2022

RFQ NO. 2301 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

DESIGN	DESIGN BY:	L. DONG
	DRAWN BY:	S. DAHLEH
REVIEW	DESIGN CHECKED BY: R.P.E. No. C37427	KARL J YAKICH
	CONSTRUCTABILITY CHECKED BY:	---
	ELECTRICAL CHECKED BY: R.P.E. No.	---
	PROJECT ENGINEER R.P.E. No. S6994	LINLING DONG
	PROJECT MANAGER R.P.E. No. C37427	KARL J YAKICH
	RECOMMENDED: SR. ENGINEER R.P.E. No. C65259	GARIN D WARREN

EAST BAY MUNICIPAL UTILITY DISTRICT
SPECIAL DISTRICT NO. 1
OAKLAND, CALIFORNIA

OAKPORT WET WEATHER FACILITY
CHLORINATION STATION
STRUCTURAL
SODIUM HYPOCHLORITE PUMP AND STORAGE AREA FLOOR PLAN
SHEET NO. 03

SCALE 3/8 "=1'-0" | DATE 27JUN2022 | RFQ2301-W6T40-S101 DRAWING NUMBER | 0 REV.

REF 1: J:\SD Projects\SD442 Oakport WWF SCH Tanks NO 1 & 2 Replacement\Attachments\Border files\Wbdr.dgn
REF 2: J:\SD Projects\SD442 Oakport WWF SCH Tanks NO 1 & 2 Replacement\Attachments\MSI-W6T40-SFlr_SD442.dgn
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REF 4:
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USER: sdahleh
DATE: 28JUN2022 10:18
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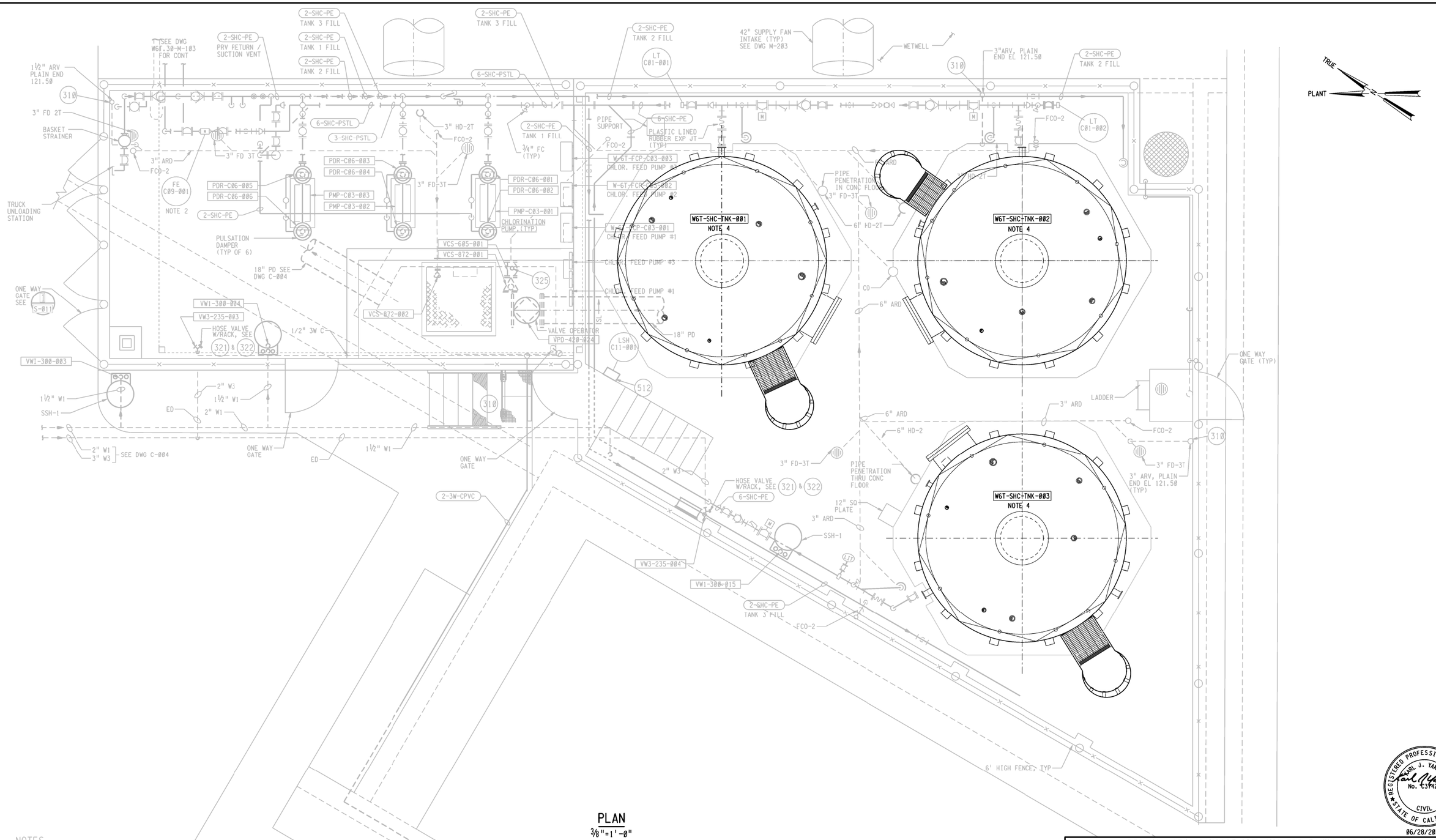


PLAN

3/8"=1'-0"

NOTES

1. SEE SECTION AND ISOMETRIC DRAWINGS FOR ADDITIONAL CLARIFICATION ON PIPING.
2. RELOCATE AND REUSE LT-C01-001 TO 003 AND FE-C09-001.
3. PROVIDE SST PIPE SUPPORT FOR VERTICAL PIPE FROM TANK PAD TO TOP OF TANK.
4. SHC FRP TANK GENERAL LAYOUT PLAN SHOWN FOR REFERENCE. SHC TANK PLACEMENT, ANCHORING AND PIPING CONNECTIONS TO BE PERFORMED BY SEPARATE CONTRACTOR IN COORDINATION WITH THE TANK MANUFACTURER AS SPECIFIED IN THE CONTRACT DOCUMENTS. SEE DETAIL PLANS AND SECTIONS FOR EACH TANK ON DRAWING RFQ2213-W6T40-M202.

SEE DWG W6T.809-M-101 FOR CONTINUATION

3" ON ORIGINAL DOCUMENT
0 1 2 3

NO.	DATE	REVISION	BY	REC.	APP.

REGISTERED PROFESSIONAL ENGINEER
KARL J. YAKICH
No. C37427
CIVIL
STATE OF CALIFORNIA
06/28/2022

RFQ NO. 2301 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

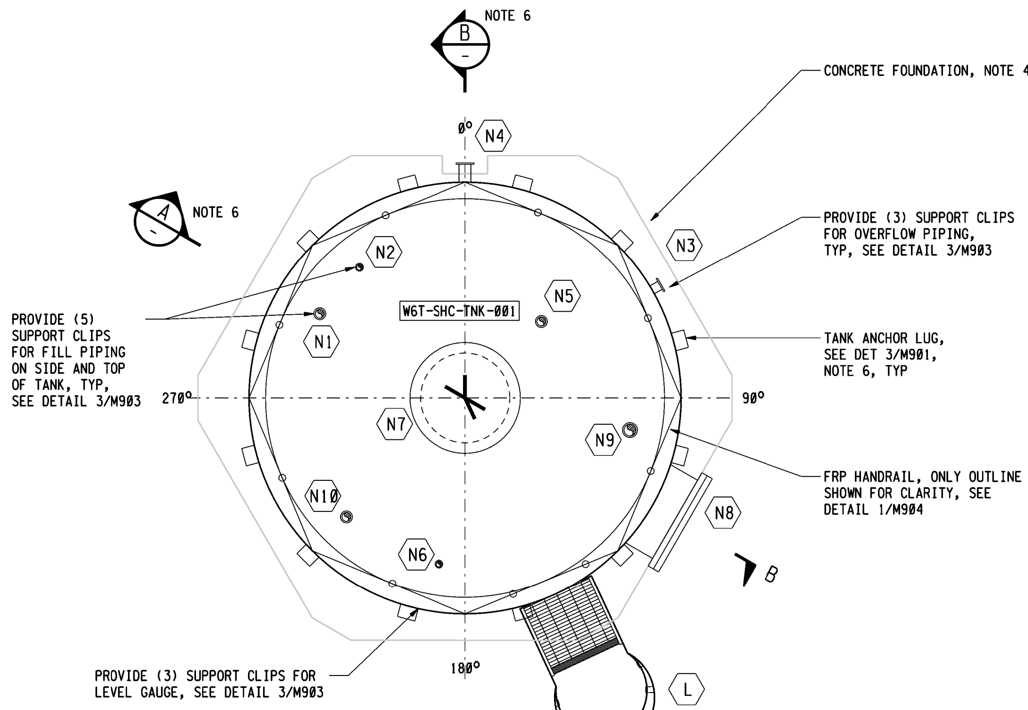
DESIGN	DESIGN BY:	R. RUIZ
	DRAWN BY:	S. DAHLEH
REVIEW	DESIGN CHECKED BY: R.P.E. No. C37427	KARL J YAKICH
	CONSTRUCTABILITY CHECKED BY:	---
	ELECTRICAL CHECKED BY: R.P.E. No.	---
	PROJECT ENGINEER R.P.E. No. C37427	KARL J YAKICH
	PROJECT MANAGER R.P.E. No. C37427	KARL J YAKICH
	RECOMMENDED: SR. ENGINEER R.P.E. No. C65259	GARIN D WARREN

EAST BAY MUNICIPAL UTILITY DISTRICT
SPECIAL DISTRICT NO. 1
OAKLAND, CALIFORNIA

OAKPORT WET WEATHER FACILITY
CHLORINATION STATION
MECHANICAL
SODIUM HYPOCHLORITE PUMP AND STORAGE AREA FLOOR PLAN

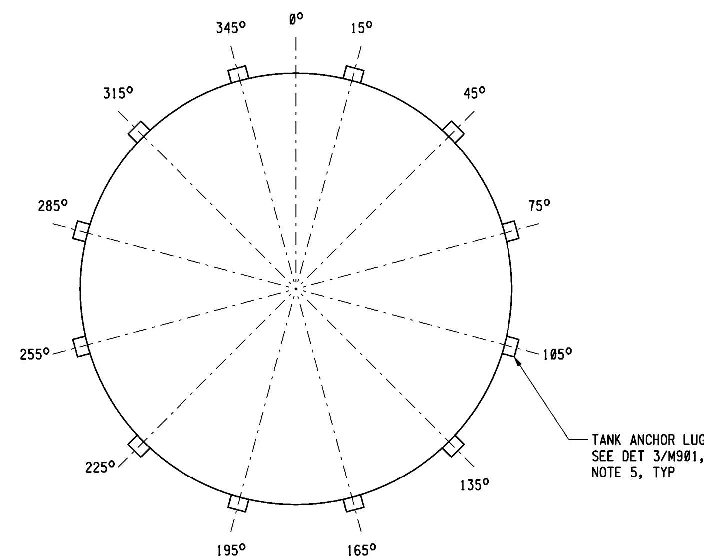
SHEET NO. 04

SCALE	AS SHOWN	RFQ2301-W6T40-M101	Ø
DATE	27JUN2022	DRAWING NUMBER	REV.



TANK PLAN

DETAIL 1
3/8" = 1'-0"



TANK ANCHOR PLAN

DETAIL 2
3/8" = 1'-0"

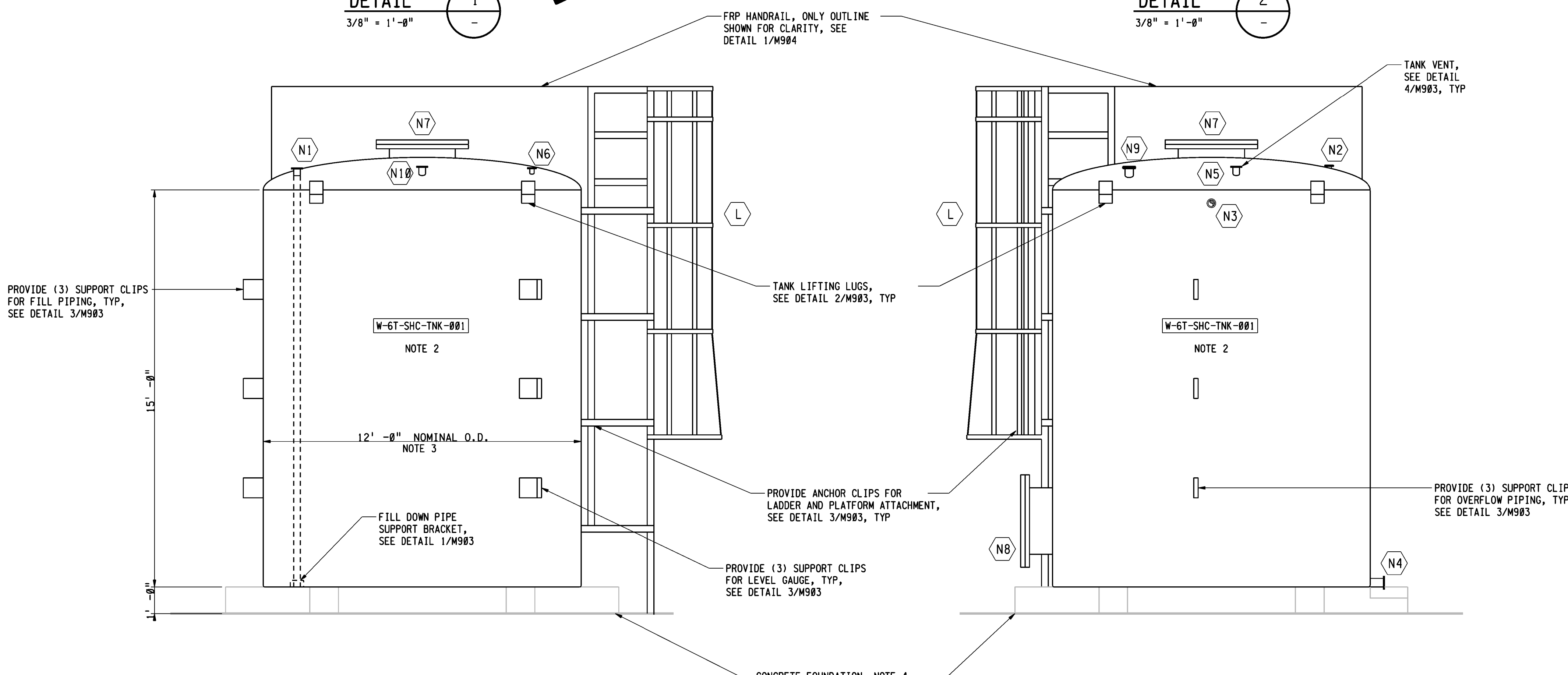
NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 AND TYPICAL TANK DETAILS FOR FABRICATION INFORMATION.
2. SECTION AND DETAILS REFERENCE W-6T-SHC-TNK-001, BUT ARE SIMILAR FOR ALL TANKS. SEE DRAWING RFQ2213-W6T40-M101 AND REFERENCE TABLE FOR NOZZLE AND APPURTENANCES CONFIGURATIONS FOR EACH TANK.
3. TANK O.D. IS NOMINAL AND PRELIMINARY, BASED ON DESIGN THICKNESSES.
4. EXISTING CONCRETE FOUNDATIONS WILL BE RESURFACED AND EPOXY COATED PRIOR TO INSTALLATION OF NEW TANKS. SEE DRAWING RFQ2213-W6T40-S101 AND REFERENCE DRAWINGS FOR FOUNDATION DETAILS.
5. NUMBER OF REQUIRED ANCHOR LUGS IS PRELIMINARY, PRIOR TO FACBICATION, TANK FABRICATOR AND THEIR ENGINEER SHALL VERIFY THE REQUIRED ANCHOR LUGS AND ANCHORS BASED ON DESIGN REQUIREMENT IN SPEC.
6. "A" & "B" ARE NOT TYPICAL SECTION CUTS. THEY ARE FOR ELEVATION VIEWS IN ORDER TO SHOW TANK PROFILE IN A SPECIFIC WAY AS SHOWN ON TANK PLAN.

SODIUM HYPOCHLORITE TANKS REFERENCE TABLE								
DESCRIPTION			W-6T-SHC-TNK-001		W-6T-SHC-TNK-002		W-6T-SHC-TNK-003	
NO.	SERVICE	SIZE	DEG	ELEV/RAD[1]	DEG	ELEV/RAD[1]	DEG	ELEV/RAD[1]
N1	FILL	3"	300°	4'-8" (D)	53°	4'-8" (D)	187°	4'-8" (D)
N2	FILL VACUUM BREAKER	2"	321°	4'-8" (D)	74°	4'-8" (D)	208°	4'-8" (D)
N3	OVERFLOW	3"	60°	14'-6" (S)	290°	14'-6" (S)	300°	14'-6" (S)
N4	DISCHARGE/DRAIN	4"	0°	2-11/32" (S)	0°	2-11/32" (S)	120°	2-11/32" (S)
N5	VENT	3"	45°	3'-0" (D)	180°	3'-0" (D)	90°	3'-0" (D)
N6	LOCAL LEVEL INDICATOR	2"	189°	4'-8" (D)	210°	4'-8" (D)	292°	4'-8" (D)
N7	MANWAY	30"	0°	0'-0" (D)	0°	0'-0" (D)	0°	0'-0" (D)
N8	MANWAY	30"	120°	2'-6" (S)	240°	2'-6" (S)	322°	2'-6" (S)
N9	SPARE	4"	101°	4'-8" (D)	255°	4'-8" (D)	339°	4'-8" (D)
N10	SPARE	3"	225°	4'-8" (D)	120°	4'-8" (D)	45°	4'-8" (D)
L	LADDER AND PLATFORM	---	155°	16'-5" (S)	305°	16'-5" (S)	148°	16'-5" (S)

TABLE NOTES:

1. (D) DENOTES TOP OF TANK DOME AND DIMENSION IS RADIUS FROM TANK CENTER.
   (S) DENOTES TANK SIDEWALL AND DIMENSION IS ELEVATION FROM TANK BOTTOM TO CENTERLINE OF NOZZLE.
2. PROVIDE BLIND FLANGES FOR EACH MANWAY AND SPARE NOZZLE.



ELEVATION VIEW A
3/8" = 1'-0"

ELEVATION VIEW B
3/8" = 1'-0"

RFQ NO. 2301 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

DESIGN	DESIGN BY:	R. RUIZ
	DRAWN BY:	S. DAHLEH
REVIEW	DESIGN CHECKED BY: R.P.E. No. C37427	KARL J YAKICH
	CONSTRUCTABILITY CHECKED BY:	---
	ELECTRICAL CHECKED BY: R.P.E. No.	---
	PROJECT ENGINEER R.P.E. No. C37427	KARL J YAKICH
	PROJECT MANAGER R.P.E. No. C37427	KARL J YAKICH
RECOMMENDED:	SR. ENGINEER R.P.E. No. C65259	GARIN D WARREN

EAST BAY MUNICIPAL UTILITY DISTRICT
SPECIAL DISTRICT NO. 1
OAKLAND, CALIFORNIA

OAKPORT WET WEATHER FACILITY
CHLORINATION STATION

MECHANICAL
SODIUM HYPOCHLORITE FRP TANKS
DETAIL PLANS AND SECTIONS

SHEET NO. 05

SCALE AS NOTED
DATE 27JUN2022

RFQ2301-W6T40-M202 (DRAWING NUMBER) REV. 0

NO.	DATE	REVISION	BY	REC.	APP.

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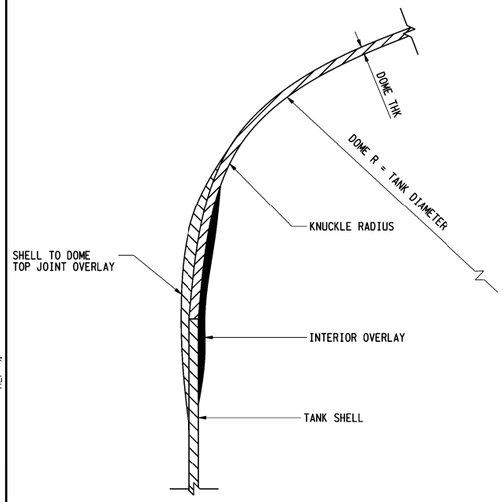


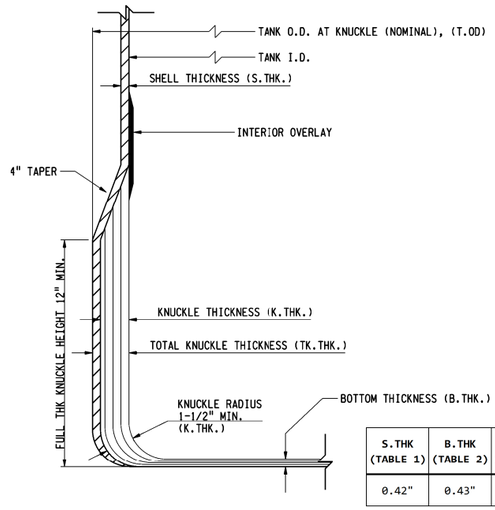
DOME THK (TABLE 2)	EXTERIOR OVERLAY (TABLE 3)	INTERIOR OVERLAY (TABLE 4)
0.43"	0.32" BY 10" WIDE	0.16" BY 6" WIDE

NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. MINIMUM KNUCKLE RADIUS = 1.5". (SHOWN AS 6% OF DOME CROWN RADIUS)

DOME KNUCKLE AND SHELL JOINT

DETAIL 1 TYP — NTS

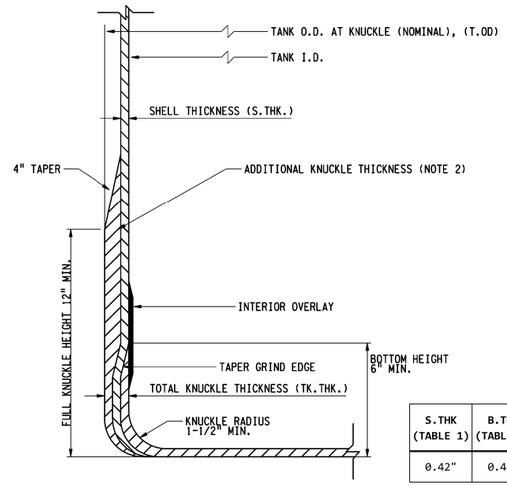


S.THK (TABLE 1)	B.THK (TABLE 2)	K. THK (TABLE 3)	TK.THK	T.OD	INTERIOR OVERLAY (TABLE 4)
0.42"	0.43"	0.81"	1.09"	11'-2 3/16"	0.16" BY 6" WIDE

NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. FLAT BOTTOM AND KNUCKLE TO BE LAID-UP ON MANDREL AND OVERWOUND WITH THE FILAMENT WOUND SHELL. ALL REINFORCEMENT LAYERS TO EXTEND THROUGH RADIUS TO TANGENT POINT OF FLAT BOTTOM.
3. TOTAL KNUCKLE THICKNESS INCLUDES STRUCTURAL PORTION OF FILAMENT WOUND SHELL.
4. OUTER SURFACE IN KNUCKLE AREA TO BE UNIFORM AND VERTICALLY FLAT TO ACCOMMODATE ANCHOR LUGS, SEE DETAIL 3/-.
5. TANK O.D. IS NOMINAL AND PRELIMINARY, BASED ON DESIGN THICKNESSES. TOTAL THICKNESS IN THIS AREA IS TYPICALLY GREATER THAN SPECIFIED MINIMUMS.

INTEGRAL BOTTOM AND KNUCKLE - ALT A



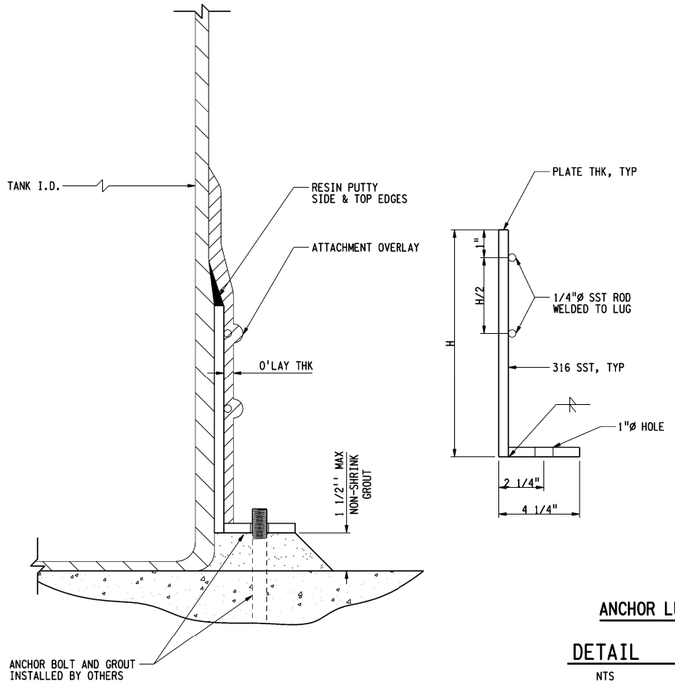
S.THK (TABLE 1)	B.THK (TABLE 2)	TK.THK	T.OD	INTERIOR OVERLAY (TABLE 4)
0.42"	0.43"	1.09"	11'-2 3/16"	0.16" BY 6" WIDE

NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. FILAMENT WOUND SHELL TO OVERWIND MOLDED BOTTOM, WITH ALL LAYERS OF UNIDIRECTIONAL ROVING EXTENDING WITHIN 1" OF BOTTOM.
3. ADDITIONAL KNUCKLE THICKNESS TO BE 0.67" (TABLE 3) ABOVE THE JOINT LINE. REDUCE THICKNESS BELOW JOINT LINE AS NECESSARY TO ACHIEVE VERTICAL FLATNESS AND TOTAL KNUCKLE THICKNESS (TK.THK) ALL REINFORCEMENT LAYERS TO EXTEND THROUGH RADIUS TO TANGENT POINT OF FLAT BOTTOM.
4. OUTER SURFACE OF KNUCKLE BUILD-UP TO BE UNIFORM AND VERTICALLY FLAT TO ACCOMMODATE ANCHOR LUGS, SEE DETAIL 3/-.
5. TANK O.D. IS NOMINAL AND PRELIMINARY, BASED ON DESIGN THICKNESSES. TOTAL THICKNESS IN THIS AREA IS TYPICALLY GREATER THAN SPECIFIED MINIMUMS.

INTEGRAL BOTTOM AND KNUCKLE - ALT B

DETAIL 2 TYP — NTS



QTY. PER TANK	H	W	PLATE THK.	OVERLAY THK. (NOTE 5) (TABLE 3)
12"	12"	6"	5/8"	0.75"

NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. ANCHOR LUG WIDTH "W" IS SHOWN ONLY IN TABLE.
3. ANCHOR LUGS TO BE FABRICATED FROM 316SST.
4. ANCHOR LUG ATTACHMENT LAMINATE TO EXTEND FULL THICKNESS A MINIMUM DISTANCE EQUAL TO "W" PLUS A 4:1 TAPER BEYOND THE SST PLATE ON ALL THREE SIDES. ALTERNATIVELY, ATTACH ANCHOR LUGS WITH 0.38" THICK FILAMENT WOUND BAND OVER FULL HEIGHT OF LUG. APPLY FRP RAMP ADJACENT TO LUG ON BOTH SIDES TO MAINTAIN CONTACT WITH FILAMENT WOUND BAND.
5. ANCHOR BOLTS TO BE LOCATED AFTER TANK FABRICATION AND INSTALLATION.
6. TIGHTEN ANCHOR BOLTS ONLY AFTER SHIM STOCK IS IN PLACE.

ANCHOR LUGS

DETAIL 3 TYP — NTS

3" ON ORIGINAL DOCUMENT
0 1 2 3

NO.	DATE	REVISION	BY	REC.	APP.

REGISTERED PROFESSIONAL ENGINEER — KARL J. YAKICH — No. C37427 — CIVIL — STATE OF CALIFORNIA
06/28/2022

RFQ NO. 2301 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

DESIGN	DESIGN BY: R. RUIZ	EAST BAY MUNICIPAL UTILITY DISTRICT SPECIAL DISTRICT NO. 1 OAKLAND, CALIFORNIA
	DRAWN BY: S. DAHLEH	
REVIEW	DESIGN CHECKED BY: R.P.E. No. C37427 — KARL J YAKICH	OAKPORT WET WEATHER FACILITY CHLORINATION STATION MECHANICAL SODIUM HYPOCHLORITE FRP TANKS TYPICAL DETAILS 1
	CONSTRUCTABILITY CHECKED BY: ---	
	ELECTRICAL CHECKED BY: R.P.E. No. ---	
	PROJECT ENGINEER R.P.E. No. C37427 — KARL J YAKICH	
	PROJECT MANAGER R.P.E. No. C37427 — KARL J YAKICH	SHEET NO. 06
	RECOMMENDED: SR. ENGINEER R.P.E. No. C65259 — GARIN D WARREN	SCALE NONE; DATE 27JUN2022; RFQ2301-W6T40-M901; REV. 0

REF 1: J:\SD Projects\SD442 Oakport WWF SCH Tanks NO 1 & 2 Replacement\RFQ2301-W6T40-M901.dgn
REF 2:
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REF 7:
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USER: sdahleh
DATE: 27 Jun 2022 10:18
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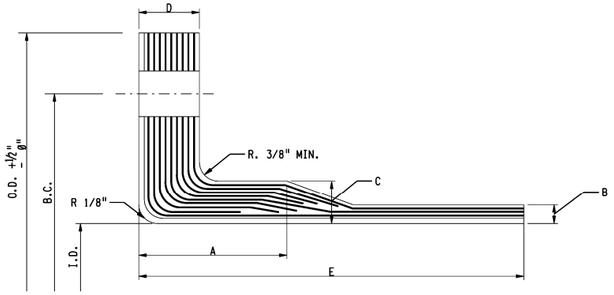


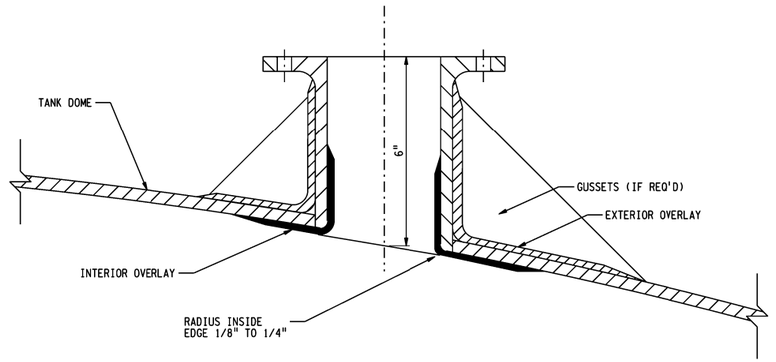
FLANGED NOZZLE								
NOZZLE I.D.	O.D.	B.C.	BOLTHOLE		A	B (TABLE 2)	C	D
			NO.	DIA.		NNMMM		
2"	6"	4-3/4"	4	3/4"	3"	0.35"	5/8"	3/4"
3"	7-1/2"	6"	4	3/4"	3"	0.35"	5/8"	3/4"
4"	9"	7-1/2"	8	3/4"	3-1/4"	0.35"	5/8"	3/4"
6"	11"	9-1/2"	8	7/8"	3-3/4"	0.35"	5/8"	3/4"
30" SIDE MANWAY	38-3/4"	36"	28	1-1/8"	6"	0.43"	7/8"	1-1/8"
30" TOP MANWAY	38-3/4"	36"	28	1-1/8"	6"	0.43"	7/8"	1-1/8"

NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. DIMENSION "E" AS REQUIRED.
3. PROVIDE MANWAY COVER 3/4" THICK TO MATCH MANWAY LAMINATE CONSTRUCTION. PROVIDE TWO HANDLES ON MANWAY COVER.
4. O.D. TOLERANCE OF +1/2", - 0" IS PROVIDED TO ENSURE A MINIMUM EDGE DISTANCE WITH THE BOLT HOLES.

FLANGED NOZZLE CONSTRUCTION

DETAIL 1 / NTS TYP



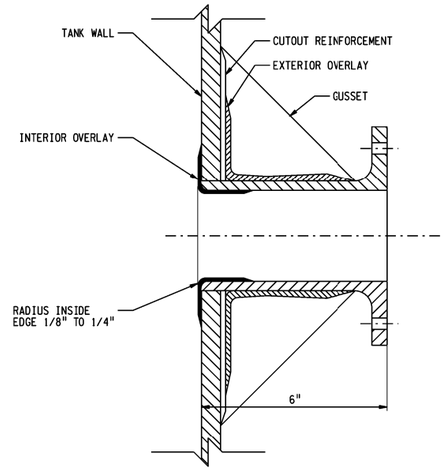
NOZZLE I.D.	EXTERIOR OVERLAY (TABLE 3)
2"	0.32" BY 6' WIDE
3"	0.32" BY 6' WIDE
4"	0.32" BY 6' WIDE
6"	0.32" BY 8' WIDE
30"	0.44" BY 8' WIDE

NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. FLANGED NOZZLE AND MANWAY CONSTRUCTION PER DETAIL 1/-.
3. INSTALL 4 EA GUSSETS ON NOZZLES 6" DIAMETER AND LESS. OVERLAY 1/8" PLATE ON BOTH SIDES WITH 0.14" THICK OVERLAY (TABLE 3).
4. INTERIOR OVERLAY TO BE 0.16" THICK (TABLE 4) BY 6" WIDE.

DOME NOZZLE INSTALLATION

DETAIL 2 / NTS TYP



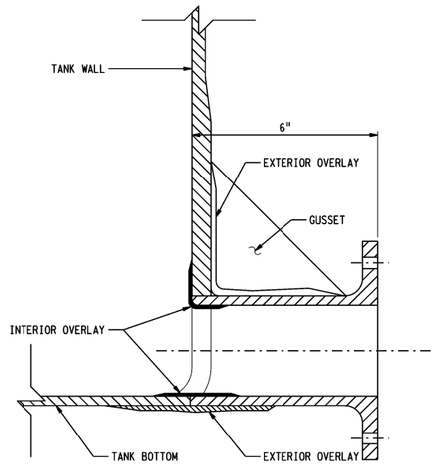
NOZZLE I.D.	EXTERIOR OVERLAY (TABLE 3)
2"	0.32" BY 6" WIDE
3"	0.32" BY 6" WIDE
4"	0.32" BY 6" WIDE
6"	0.32" BY 8" WIDE
30"	0.44" BY 8" WIDE

NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. FLANGED NOZZLE AND MANWAY CONSTRUCTION PER DETAIL 1/-.
3. INSTALL 4 EA GUSSETS ON NOZZLES 6" DIAMETER AND LESS. OVERLAY 1/8" PLATE ON BOTH SIDES WITH 0.14" THICK OVERLAY (TABLE 3).
4. INTERIOR OVERLAY TO BE 0.16" THICK (TABLE 4) BY 6" WIDE.

SIDE NOZZLE INSTALLATION

DETAIL 3 / NTS TYP



NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. FLANGED NOZZLE CONSTRUCTION PER DETAIL 1/- FOR 2", 3", OR 4" DIAMETER.
3. EXTERIOR OVERLAY TO BE 0.32" THICK (TABLE 3), EXTENDING A MINIMUMN OF 4" ONTO NOZZLE NECK AND TANK SHELL ALL AROUND.
4. INTERIOR OVERLAY TO BE 0.16" THICK (TABLE 4) BY 6" WIDE.
5. INSTALL PLATE GUSSETS AT SIDES AND TOP CENTER OF NOZZLE. OVERLAY 1/8" PLATE ON BOTH SIDES WITH 0.14" THICK OVERLAY (TABLE 3).

FULL BOTTOM DRAIN

DETAIL 4 / NTS TYP

3" ON ORIGINAL DOCUMENT
0 1 2 3

NO.	DATE	REVISION	BY	REC.	APP.

REGISTERED PROFESSIONAL ENGINEER
KARL J. YAKICH
No. C37427
CIVIL
STATE OF CALIFORNIA
06/28/2022

RFQ NO. 2301 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

DESIGN	DESIGN BY:	R. RUIZ
	DRAWN BY:	S. DAHLEH
REVIEW	DESIGN CHECKED BY: R.P.E. No. C37427	KARL J YAKICH
	CONSTRUCTABILITY CHECKED BY:	---
	ELECTRICAL CHECKED BY: R.P.E. No.	---
	PROJECT ENGINEER R.P.E. No. C37427	KARL J YAKICH
	PROJECT MANAGER R.P.E. No. C37427	KARL J YAKICH
	RECOMMENDED: SR. ENGINEER R.P.E. No. C65259	GARIN D WARREN

EAST BAY MUNICIPAL UTILITY DISTRICT
SPECIAL DISTRICT NO. 1
OAKLAND, CALIFORNIA

OAKPORT WET WEATHER FACILITY
CHLORINATION STATION
MECHANICAL
SODIUM HYPOCHLORITE FRP TANKS
TYPICAL DETAILS 2

SHEET NO. 07

SCALE	NONE	RFQ2301-W6T40-M902	0
DATE	27JUN2022	DRAWING NUMBER	REV.

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REF 2:
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USER: sdahleh
DATE: 27JUN2022 10:19
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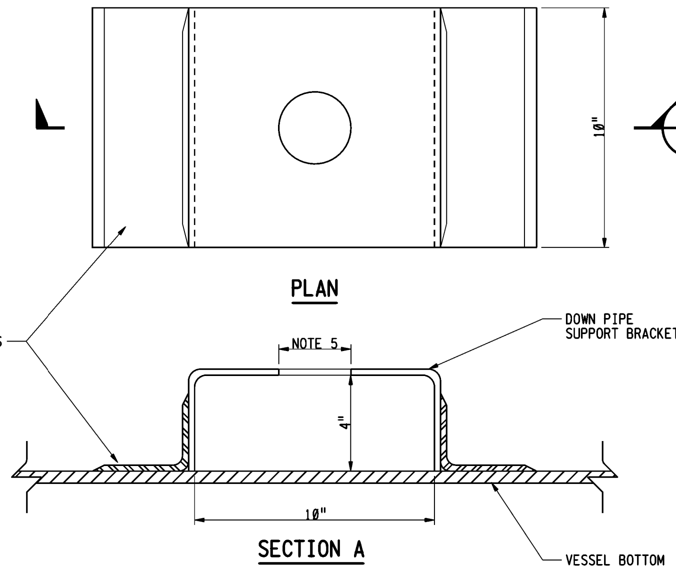
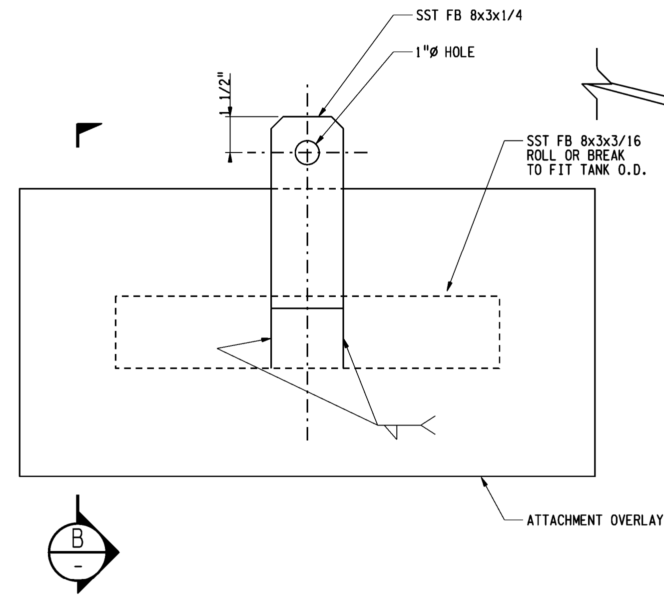


NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. TO BE INSTALLED ON FLOOR OF TANK TO SUPPORT FRP FILL PIPE.
3. FRP TANK MANUFACTURER IS TO PROVIDE THE FRP FILL PIPE ASSEMBLY.
4. BRACKET TO BE 0.33" THICK (TABLE 2).
5. PROVIDE CENTER HOLE TO ACCEPT BASE OF THE FILL PIPE ASSEMBLY.
6. ATTACHMENT OVERLAYS TO BE 0.31" THICK (TABLE 4) BY 6" WIDE.

FILL PIPE SUPPORT BRACKET

DETAIL 1 TYP
NTS

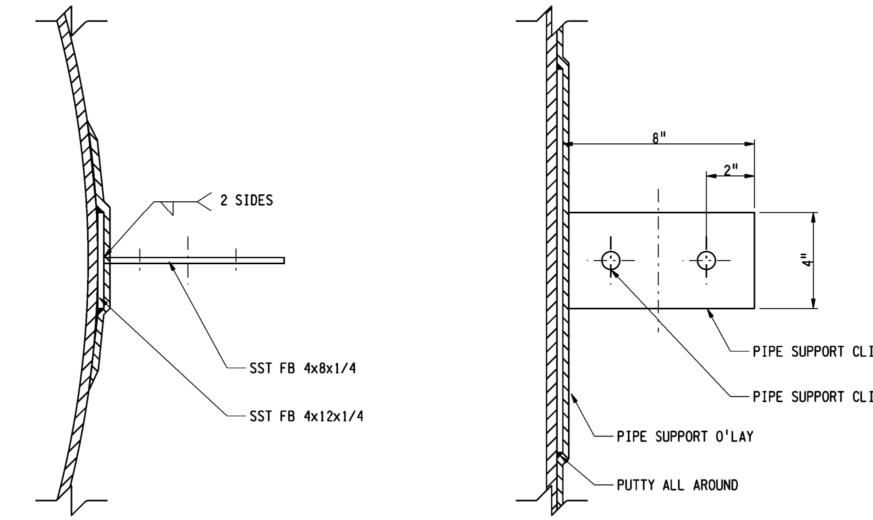


NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. PROVIDE FOUR (4) LIFTING LUGS PER TANK.
3. LIFT LUG ATTACHMENT LAMINATE TO BE 0.32" THICK (TABLE 3), WITH FULL THICKNESS EXTENDING A MINIMUM OF 4" PLUS 1-1/2" TAPER BEYOND SST PLATE ON ALL SIDES.

LIFTING LUG

DETAIL 2 TYP
NTS

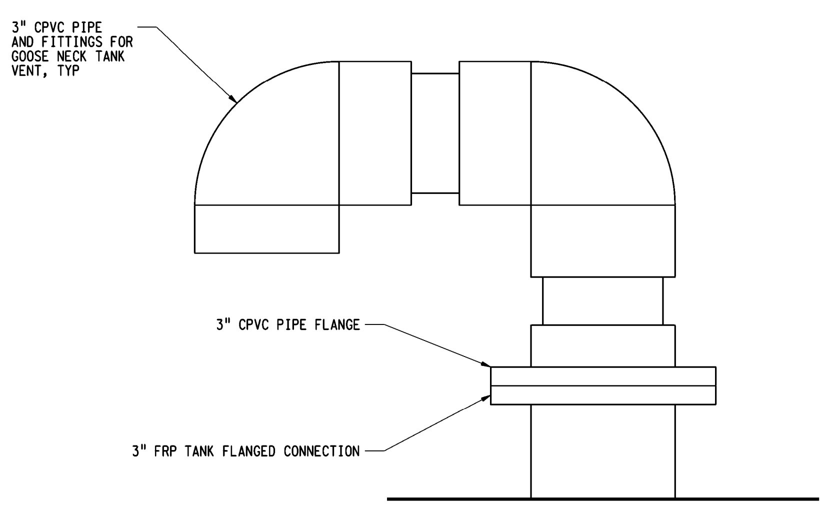


NOTES

1. REFER TO SPECIFICATION SECTION 43 41 45 FOR LAMINATE TABLES.
2. SUPPORT CLIPS ATTACHMENT LAMINATE TO BE 0.32" THICK (TABLE 3), WITH FULL THICKNESS EXTENDING A MINIMUM OF 4" PLUS 1-1/2" TAPER BEYOND SST PLATE ON ALL SIDES.
3. PROVIDE SUPPORT CLIPS IN QUANTITY AND AS LOCATED ON THE DRAWINGS.
4. BRACKETS CONNECTING SUPPORT CLIPS TO ADJACENT PIPING BY OTHERS.

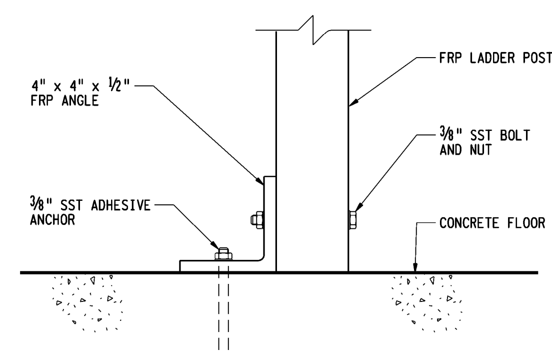
PIPE SUPPORT CLIP

DETAIL 3 TYP
NTS



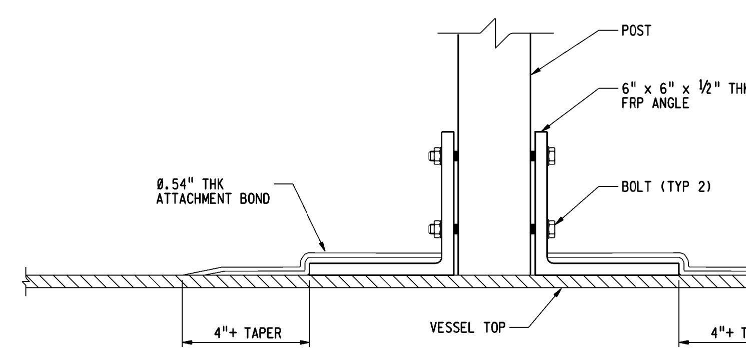
TANK VENT

DETAIL 4 TYP
NTS



FRP LADDER FLOOR CONNECTION

DETAIL 5 TYP
NTS



FRP RAILING POST BASE

DETAIL 6 TYP
NTS

REGISTERED PROFESSIONAL ENGINEER KARL J. YAKICH No. C37427 CIVIL STATE OF CALIFORNIA
06/28/2022

3" ON ORIGINAL DOCUMENT 0 1 2 3

NO.	DATE	REVISION	BY	REC.	APP.

RFQ NO. 2301 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

DESIGN BY:	R. RUIZ
DRAWN BY:	S. DAHLEH
DESIGN CHECKED BY: R.P.E. No. C37427	KARL J YAKICH
CONSTRUCTABILITY CHECKED BY:	---
ELECTRICAL CHECKED BY: R.P.E. No.	---
PROJECT ENGINEER R.P.E. No. C37427	KARL J YAKICH
PROJECT MANAGER R.P.E. No. C37427	KARL J YAKICH
RECOMMENDED: SR. ENGINEER R.P.E. No. C65259	GARIN D WARREN

EAST BAY MUNICIPAL UTILITY DISTRICT
SPECIAL DISTRICT NO. 1
OAKLAND, CALIFORNIA

OAKPORT WET WEATHER FACILITY
CHLORINATION STATION
MECHANICAL
SODIUM HYPOCHLORITE FRP TANKS
TYPICAL DETAILS 3

SHEET NO. 08

SCALE NONE
DATE 27JUN2022
RFQ2301-W6T40-M903 (DRAWING NUMBER)
REV. 0

USER: sdahleh
DATE: 28-JUN-2022 10:19
FILE: J:\SD Projects\SD442 Oakport WWF SCH Tanks NO 1 & 2 Replacement\RFQ2301-W6T40-M903.dgn
PLOT SCALE: 0.166667:1
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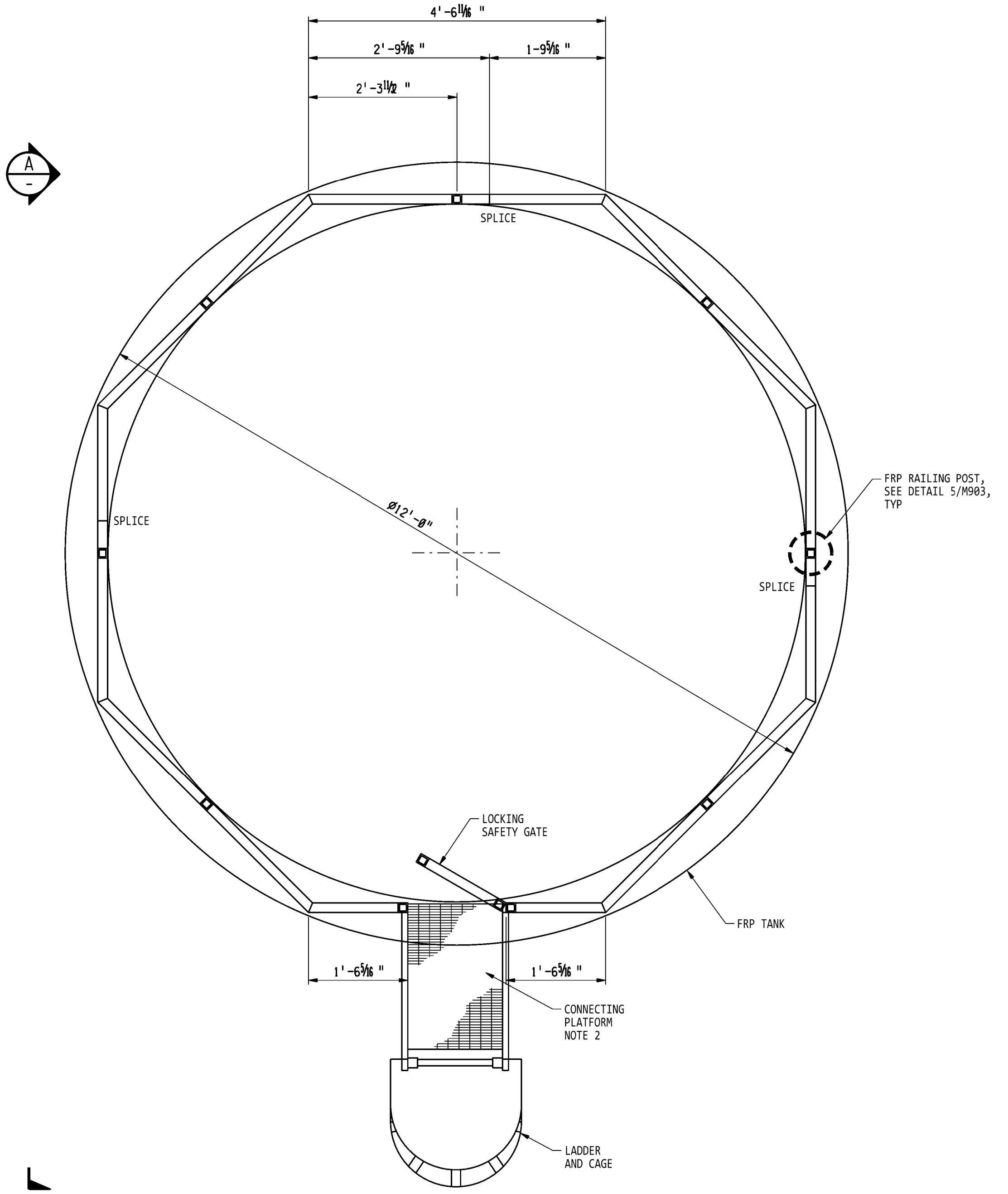
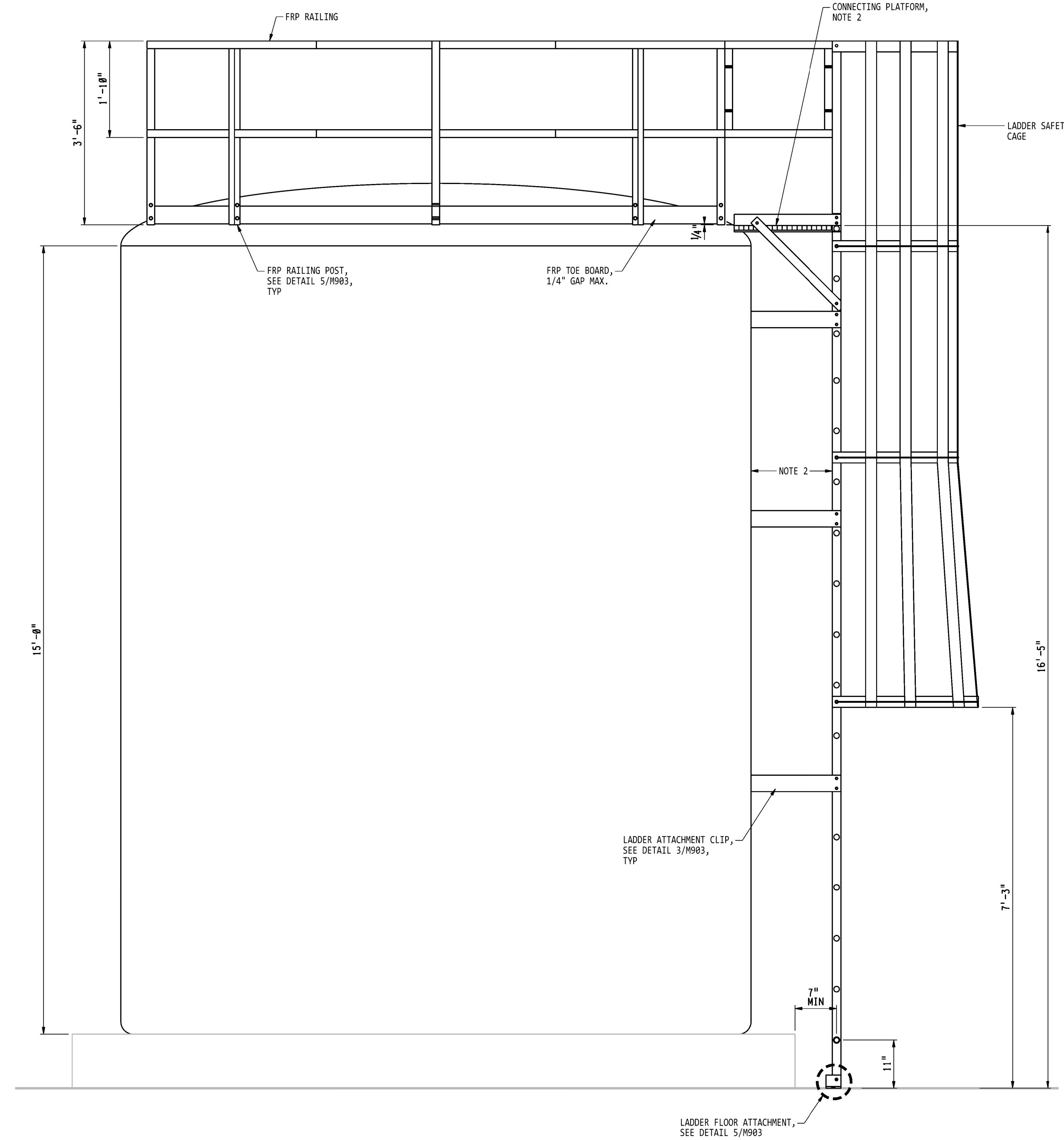


FRP TANK RAILING PLAN

DETAIL 1 TYP
3/4"=1'-0"



ELEVATION A TYP
3/4"=1'-0"

NOTES

1. TANK FRP ACCESS LADDER AND RAILING DETAILS ARE PRELIMINARY. DESIGN SHALL BE PERFORMED BY TANK MANUFACTURER IN ACCORDANCE WITH SPECIFICATION SECTIONS 06 82 00 AND 43 41 45.

2. CONNECTING PLATFORM AND LADDER DISTANCE FROM FRP TANK SHALL VARY BASED ON LADDER LOCATION AND PROXIMITY TO TANK FOUNDATION. LADDER RUNG CENTERLINE SHALL BE 7-INCHES, MINIMUM, FROM THE CONCRETE FOUNDATION. DESIGN FOR THE FOLLOWING TANK TO LADDER FACE DISTANCES:
   W-6T-SHC-TNK-001 --> 2'-0"
   W-6T-SHC-TNK-002 --> 1'-5"
   W-6T-SHC-TNK-003 --> 2'-0"

3. TANK O.D. IS NOMINAL AND PRELIMINARY, BASED ON DESIGN THICKNESS.

3" ON ORIGINAL DOCUMENT
0 1 2 3

REGISTERED PROFESSIONAL ENGINEER
KARL J. YAKICH
No. C37427
CIVIL
STATE OF CALIFORNIA
06/28/2022

NO.	DATE	REVISION	BY	REC.	APP.

RFQ NO. 23Ø1 OAKPORT WWF SHC FRP TANKS PRE-PURCHASE

DESIGN	DESIGN BY:	R. RUIZ
	DRAWN BY:	S. DAHLEH
REVIEW	DESIGN CHECKED BY: R.P.E. No. C37427	KARL J YAKICH
	CONSTRUCTABILITY CHECKED BY:	---
	ELECTRICAL CHECKED BY: R.P.E. No.	---
	PROJECT ENGINEER R.P.E. No.	RAUL RUIZ
	PROJECT MANAGER R.P.E. No. C37427	KARL J YAKICH
RECOMMENDED:	SR. ENGINEER R.P.E. No. C65259	GARIN D WARREN

EAST BAY MUNICIPAL UTILITY DISTRICT
SPECIAL DISTRICT NO. 1
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OAKPORT WET WEATHER FACILITY
CHLORINATION STATION
STRUCTURAL
SODIUM HYPOCHLORITE FRP TANKS
TYPICAL DETAILS 4

SHEET NO.Ø9

SCALE AS SHOWN
DATE 27JUN2022

RFQ23Ø1-W6T4Ø-M9Ø4
DRAWING NUMBER

REV. Ø

USER: sdahleh
DATE: 28-JUN-2022 10:19
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