VALLEJO SANITATION AND FLOOD CONTROL DISTRICT

Solano County, California
December 2010

PROJECT SPECIFIC SUPPLEMENT

Lake Dalwigk
Habitat Enhancement Project
Project No. 063827

NOTE: **This Project Specific Supplement is to be used only in conjunction with the Master Bid Document issued by Vallejo Sanitation and Flood Control District (VSFCD).**

VSFCD Master Bid Document is hereby included by this reference as part of the Contract Documents.

It is the Contractor's responsibility to obtain and read the most current version of the Master Bid Document. By submitting a bid the Contractor acknowledges that it has done so, including but not limited to those sections that apply to this project.

REGISTERED PROFESSIONAL ENGINEER
DOUGLAS T. MOORE
12-23-10
No. 58122
Expires 6-30-2012
CIVIL
STATE OF CALIFORNIA

CONTRACTOR:_____
[NAME]

BY:
[NAME] _____

[TITLE] _____

A Class "A" License is Required For Work Under This Contract

For any questions regarding this project contact the Project Manager, Rolf Ohlemutz VSFCD District Engineer at 707.644.8949x231

VALLEJO SANITATION AND FLOOD CONTROL DISTRICT
LAKE DALWIGK IMPROVEMENTS
HABITAT ENHANCEMENT PROJECT
PROJECT NO. 063827

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*** Project Specific Supplement Specification**

*** Project Specific Supplement Specification**

DOCUMENT 00100

INVITATION TO BID

VALLEJO SANITATION AND FLOOD CONTROL DISTRICT
450 RYDER STREET
VALLEJO, CA 94590

For constructing the **Lake Dalwigk Improvements – Habitat Enhancement Project**
Job No. 063827

1 BID OPENING

1.01 Bids will be received at the office of **Vallejo Sanitation and Flood Control District** and shall be date and time stamped before **2:00 P.M. on March 3rd** local time, at which time they will be opened and read aloud.

1.02 Bidders are required to complete Document 00451, Construction Contractor's Qualification Statement, attached to the Bid Form.

***1.03 "Pre-Bid Conference"* will be held at Vallejo Sanitation and Flood Control District office - 450 Ryder Street, Vallejo CA, at 10:00 A.M. on Tuesday February 1. Attendance at the pre-bid conference is a mandatory condition for submitting a bid.**

2 DESCRIPTION OF THE PROJECT

2.01 You are invited to bid on work comprising the construction of the flood control improvements in and around Lake Dalwigk in Vallejo, CA for the Vallejo Sanitation and Flood Control District. This project includes:

- construction of a new low flow outlet structure, slide gate, bar rack, hand rails, and pipeline
- replacement of an existing bar rack with a new bar rack on the existing Lake Dalwigk outlet structure
- replacement of the existing hand rails with new hand rails on the existing Lake Dalwigk outlet structure
- removal of vegetation from the lake bed
- excavation and grading within the lake bed
- construction of storm drain piping and a headwall
- placement of rock rip rap
- Repair of concrete sidewalk

- construction of piles and booms
- and miscellaneous work for a complete and operational system.

2.02 The Engineers cost estimate is $1.1 million to $1.3 million.

3 BIDDING DOCUMENTS

The full set of Bidding Documents consist of the Master Bid Document and the Project Specific Supplement, which are available for examination at the office of the Vallejo Sanitation and Flood Control District, 450 Ryder Street, Vallejo CA.

Copies of the Master Bid Document may be obtained from the District at the address indicated herein. A charge of **$100** will be assessed for each copy of the Master Bid Document. Copies of the Project Specific Supplement may be obtained from the District at the address indicated herein. A charge of **$20** will be assessed for each copy of the Project Specific Supplement. Charges are not refundable.

4 BID SECURITY

4.01 Each Bid shall be accompanied by cash, a certified or cashier's check, or Bid Bond in the amount of **10 percent** of the total bid price, payable to the **Vallejo Sanitation and Flood Control District**.

4.02 The Bidder shall guarantee the Total Bid Price pursuant to Article 8 of Instructions to Bidders.

5 OWNER'S RIGHTS

5.01 OWNER reserves the right after opening Bids to reject any or all Bids, to waive any informality (non-responsiveness) in a Bid, or to make award to the lowest responsive, responsible Bidder and reject all other Bids, as it may best serve the interest of the OWNER.

6 SUBSTITUTION OF SECURITIES FOR RETENTION

6.01 Pursuant to Section 22300 of the California Public Contract Code, CONTRACTOR shall have the option to deposit securities with an escrow agent as a substitute for retention of earnings required to be withheld by OWNER. The Escrow Agreement is set forth in Document 00602.

7 LAWS AND REGULATIONS

7.01 Prevailing Wage Rates: Pursuant to Section 1770, California Labor Code, the successful Bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of California Department of Industrial Relations. A copy of such prevailing rate is on file at the offices of the OWNER, which copy will be made available for examination during business hours to any party on request.

7.02 Contractor's License Classification: In accordance with the provisions of California Public Contract Code, Section 3300, OWNER has determined that CONTRACTOR shall possess a valid Class A Contractor License at the time of Bid opening and for the duration of the contract.

7.03 The Contractor's State License Board may be contacted at 9835 Goethe Road, Sacramento, CA 95827; P.O. Box 26000, Sacramento, CA 95826; (800) 321-2752.

BY ORDER OF _____

Date _____

VALLEJO SANITATION AND FLOOD CONTROL DISTRICT

By _____

Rudolf E. Ohlemutz
District Engineer

****END OF DOCUMENT****

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DOCUMENT 00410

BID FORM

PROJECT IDENTIFICATION:

Vallejo Sanitation and Flood Control District
Lake Dalwigk Habitat Enhancement Project
Project No. 063827
All Drawing sets dated December 2010

THIS BID IS SUBMITTED BY:

_____
(Bidder)

_____

_____
(Bidder Address)

THIS BID IS SUBMITTED TO:

Vallejo Sanitation and Flood Control District
450 Ryder Street
Vallejo, CA 94590

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents within the specified time and for the price indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2.01 Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 60 calendar days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

ADDENDA

No.	_____	Dated	_____
No.	_____	Dated	_____
No.	_____	Dated	_____
No.	_____	Dated	_____
No.	_____	Dated	_____

B. Bidder has visited the site and become familiar with and satisfied itself as to the general, local, and site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Federal, State, and local Laws and Regulations and Permits that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all of the following:

(1) Reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) as referenced in paragraph 4.02 of the General and Supplementary Conditions, and are identified below:

(2) Reports and drawings of a Hazardous Environmental Condition, if any, which as referenced in paragraph 4.06 of the General Conditions and are identified below:

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

K. In accordance with Section 1861, California Labor Code, the Bidder states the following as its certification:

"I am aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work."

4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following prices. Owner may delete any bid item from the work.

Item	Description	Unit	Estimated Quantity	Unit Bid Price	Extended Bid Price
1	Mobilization and Demobilization	LS	1	$_____	$_____
2	Sheeting, Shoring, and Bracing	LS	1	$_____	$_____
3	Storm Water Pollution Prevention Program	LS	1	$_____	$_____
4	Potholing for Utilities	LS	1	$_____	$_____
5	Surveying and Field Engineering	LS	1	$_____	$_____
6	Site Preparation	LS	1	$_____	$_____
7	Dewatering / Desilting / Ground Water Disposal	LS	1	$_____	$_____
8	Lake Dalwigk Existing Outlet Structure Bar Rack and Hand Rail Replacement	LS	1	$_____	$_____
9	Lake Dalwigk Low Flow Outlet Improvements, 48-inch Pipe and Connection to Existing Structure	LS	1	$_____	$_____
10	Mass Excavation of Soils from Lake Dalwigk	CY	35,000	$_____	$_____
11	Removal, Handling and Disposal of Clearing, Grubbing and Stripping Debris and Excess Excavated Soil Material	CY	12,300	$_____	$_____
12	Piles and Booms	LS	1	$_____	$_____
13	Rock Rip Rap	TON	42	$_____	$_____
14	36-Inch Storm Drain	LS	1	$_____	$_____
15	24-Inch Storm Drain and Headwall	LS	1	$_____	$_____
16	Sidewalk Repair	CY	1	$_____	$_____
17	Dispose of Arundo (leaves, stems, root wads) and other man made trash, garbage, litter, debris, etc. at a landfill.	TON	10	$_____	$_____
18	All Work in Accordance with the Contract Documents, with the Exception of the Work Included in Bid Items 1 through 17	LS	1	$_____	$_____

TOTAL OF ALL ESTIMATED PRICES ITEMS 1 THROUGH 20 INCLUSIVE

$ _____

(Price in figures)

_____

(Price in words)

Unit Prices have been computed in accordance with paragraph 11.03 of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

7.01 Bidder agrees that the Work will be substantially completed, and, completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in Article 4, Document 00520, Agreement.

7.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in Article 4, Document 00520, Agreement.

8.01 The following documents are to be considered a part of, and made a condition of, this Bid. Refer also to article 15, Instructions to Bidders, for a schedule for submitting the following documents:

A. Required Bid security in the form of cash, a certified or bank check, or a Bid Bond issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions;

B. List of Subcontractors, and other individuals and entities required to be identified in this Bid;

C. Required Construction Contractor's Qualification Statement with supporting data;

D. Non-Collusion Affidavit**;**

E. Affirmative Action Program Certificate; and

F. Certification of Drug-Free Workplace Requirements.

G. VSFCD Safety Program Criteria Sheets 1 through 3.

9.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

SUBMITTED on _____

State Contractor License Number: _____. (If applicable)

If Bidder is:

An Individual

Name (typed or printed):_____

By: _____ (SEAL)

(Individual's signature)

Doing business as:_____

Business address:_____

_____

Phone Number: (___)_____ FAX Number: (___)_____

A Partnership

Partnership Name:_____ (SEAL)

By:_____

(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed):_____

Business address:_____

_____

Phone Number: (___)_____ FAX Number: (___)_____

A Corporation

Corporation Name:_____ (SEAL)

State of Incorporation:_____

Type (General Business, Professional, Service, Limited Liability):_____

By:_____

(Signature -- attach evidence of authority to sign)

Name (typed or printed):_____

Title:_____

(CORPORATE SEAL)

Attest_____

(Signature of Corporate Secretary)

Business address:_____

_____

Phone Number: (___) _____ FAX Number: (___) _____

Date of Qualification to do business is_____

A Joint Venture

Joint Venturer Name:_____ (SEAL)

By:_____

(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed):_____

Title:_____

Business address:_____

_____

Phone Number: (___) _____ FAX Number: (___) _____

Joint Venturer Name:_____ (SEAL)

By:_____

(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed):_____

Title:_____

Business address:_____

_____

Phone Number: (___) _____ FAX Number: (___) _____

Phone and FAX Number, and Address for receipt of official communications:

_____

_____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

****END OF DOCUMENT****

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DOCUMENT 00432
BID BOND

PENAL SUM FORM

BIDDER *(Name and Address)*:

_____

_____

_____

SURETY *(Name and Address of Principal Place of Business)*:

_____

_____

_____

OWNER *(Name and Address)*:
Vallejo Sanitation and Flood Control District
450 Ryder Street
Vallejo, CA 94590

BID

Bid Due Date: _____ **at 3:00 PM**
Project: **Lake Dalwigk Habitat Enhancement Project**
Job No. 063827, Vallejo, California.

BOND

Bond Number: _____
Date: (Not later than Bid Due Date): _____
Penal Sum: _____

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER	SURETY
_____ (SEAL)	_____ (SEAL)
(Bidder's Name and Corporate Seal)	(Surety's Name and Corporate Seal)
By: _____	By: _____
(Signature and Title)	(Signature and Title) (Attach Power of Attorney)
Attest: _____	Attest: _____

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.
3. This obligation shall be null and void if:
    a. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents, or
    b. All Bids are rejected by OWNER, or
    c. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced in a court of competent jurisdiction located in the state in which the Project is located.
8. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a bid, offer or proposal as applicable.

****END OF DOCUMENT****

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DOCUMENT 00434

LIST OF SUBCONTRACTORS

The Bidder shall list below the names and location of place of business of each subcontractor who will perform work or labor or who will render service to the prime CONTRACTOR in or about the construction of the Work or improvement, or a subcontractor duly licensed who, under subcontract to the prime CONTRACTOR, specially fabricates and installs a portion of the Work or improvement according to detailed drawings contained in the Contract Documents, in an amount in excess of one-half of one percent of the prime CONTRACTOR's total Bid or, in the case of Bids or offers for the construction of streets or highways, including bridges, in excess of one-half of one percent of the prime CONTRACTOR's total Bid or $10,000, whichever is greater. After the opening of Bids, no changes or substitutions will be allowed except as otherwise provided by law. The listing of more than one subcontractor for each item of Work to be performed with the words "and/or" will not be permitted. The Bidder's attention is directed to the provisions of section 1050-1.03 FIELD ENGINEERING, if a licensed Land Surveyor is required for this project. CONTRACTOR shall perform, with CONTRACTOR's own organization, work amounting to not less than **51** percent of the combined value of all items of the Work covered by the Contract (Refer also to section 6.06B-1 SUBCONTRACTING of the General Conditions). Failure to comply with these requirements may render the Bid as non-responsive and may cause its rejection.

Work to be Performed	Contractor License Number	Percent of Total Contract	Subcontractor's Name, Address, and Contact Person
1.			
2.			
3.			
4.			
5.			
6.			

Add additional sheets, if necessary.

BIDDER:

_____

_____

(Signature)

_____

(Date)

****END OF DOCUMENT****

DOCUMENT 00451

CONSTRUCTION CONTRACTOR'S QUALIFICATION STATEMENT FOR ENGINEERING CONSTRUCTION

The Bidder shall furnish the following information. Additional sheets shall be attached as required. Failure to complete the Items listed below and meet the minimum requirements listed in Items Nos. 6 and 8 may cause the Bid to be rejected as non-responsive. In any event, no award will be made until all of the Bidder's General Information (i.e. Items 1 through 9, inclusive) is provided to the Vallejo Sanitation and Flood Control District.

The Undersigned declares under penalty of perjury that all of the prequalification information submitted with this form is true and correct and that this Declaration was executed in

_____ County, California on _____.

_____
_____
(Signature and Title)

_____ _____
(Typed Name and Title)

_____ _____
(Firm Name)

_____ _____
(Address)

_____ _____
(City and State)

_____ _____
(Telephone Number)

All information submitted for qualification evaluation will be considered official information acquired in confidence and the Vallejo Sanitation and Flood Control District will maintain its confidentiality to the extent permitted by law. This includes the Contractor's Statement of Experience and Financial Condition to be submitted with this Questionnaire.

References contained in this Qualification Statement are an intricate part of Bidder's qualifications. References must be accurate. Bidder authorizes Vallejo Sanitation and Flood Control District's representative to verify any and all information contained in the Qualification Statement from references contained herein and hereby releases all those concerned providing information as a reference from any liability in connection with any information they give.

1. Statement of Financial Condition

Provide evidence that the proposed contractor has sufficient financial resources to provide all work necessary to complete the project including construction, startup and warranty services. Please indicate contractor's bond capacity and value of current work load. Provide a statement of litigation including record of judgments against proposed contractor within the past five (5) years. Provide the approximate dollar value that is in dispute. Provide a list of all current and past projects within the last five (5) years where liquidated damages and/or payments were withheld and explain why.

2. Construction Experience

List at least three (3) engineered construction projects of similar type, complexity, and size, completed by your organization in the past five (5) years in. Use the same format as described below for Current Projects. The projects described may be listed as part of the same list of Current Projects described below. (If joint venture, list each participant's projects separately.)

3. Current Projects

Type-written, or neatly printed on your company letterhead, list any current projects your company is actively involved in. Include the following data for each project:

Project Name
Contract Price
Project Description
Pipe Quantities and Diameter
Name, Address and Telephone Number of Owner's Project Representative

(If joint venture, list each participant's projects separately.)

4. Personnel Experience

On a type written, or neatly printed form from your company, details of the qualifications, experience and availability of Bidder's key personnel who will be directly involved in this project. Include the experience resume of the person who will be designated as General Construction Superintendent or on-site Construction Supervisor for the Contractor. The Construction Superintendent/Manager shall meet the applicable requirements of the Contract Documents including, but not limited to, Section 2160-1.05 CONTRACTOR'S SUPERVISOR.

5. License

Bidder must be licensed by the State of California as a General Contractor and hold a Class A General Contractor's License in good standing. Submit the following information:

A. Name of license holder, exactly as on file with the State of California License Board

_____

B. License Classification:

_____

C. License Number:

_____

D. Expiration Date:

_____

E. Citations:

_____

6. Minimum Insurance Requirements

A. Workers' Compensation and Employers' Liability Insurance: The liability limits as required by state law, shall not be less than:

Workers' compensation:	Statutory
Employers' liability:	$1,000,000 each occurrence

B. Comprehensive Automobile Liability Insurance: The liability limits shall be not less than:

Bodily injury and Property damage	$1,000,000 combined single limit for each occurrence

C. Commercial General Liability Insurance: The liability limits shall be not less than:

Bodily injury and Property damage	$1,000,000 combined single limit for each occurrence
	$1,000,000 general aggregate

D. Umbrella Liability Insurance: The liability limits shall be not less than:

Bodily injury and	$2,000,000 combined single limit
Property damage	for each occurrence
	$2,000,000 general aggregate

E. Property Insurance: CONTRACTOR shall purchase and maintain property insurance coverage for the Work at the site in the amount of the full replacement cost thereof. This insurance shall be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, Work in transit including ocean transit, and Work in storage at the project site or at another location acceptable to OWNER, and shall insure against at least the following perils: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and damage caused by frost and freezing.

7. Department of Industrial Relations History S.B. 198 Compliance

Does your company have an Injury and Illness Prevention Program on file with the Department of Industrial Relations?

Yes _____ No _____

If yes, provide a copy of the "Table of Contents."

In accordance with the California Labor Code (Sections 1770 et seq.) the Director of Industrial Relations has ascertained the general prevailing rate of per diem wages in the locality in which the work is to be performed for each craft, classification, or type of workman or mechanic needed to execute the contract. A copy of said determination is available in the office of the District Clerk. All parties to the contract shall be governed by all provisions of the California Labor Code relating to prevailing wage rates (Sections 1770-7981 inclusive). The Contractor shall be responsible for compliance with Section 1777.5 of the California Labor Code for all apprenticeable occupations.

8 Additional Organization Background Information

A. Other or former names under which your organization has operated?

_____

_____

_____

_____

B. How many years of experience in construction work does your organization have:

(1) as General Contractor? _____ (2) as a Subcontractor? _____

C. How many years' experience in the proposed type and size of construction work has your organization had as a general contractor?

_____

D. Has any officer or partner of your Organization, failed to complete a Contract?

Yes ( ) No ( )

If Yes, give details, including dates.

E. In what other lines of business do you or your organization or any partner thereof, have financial interest?

_____

_____

_____

_____

F. Name the persons with whom your company has associated in business as partners of business associates during the past five (5) years:

_____

_____

_____

_____

G. Has your organization been assessed any penalties for noncompliance violations of the Federal or State labor laws and/or regulations within the past five (5) years?

Yes ( ) No ( )

If yes, give details, including dates.

H. Does your organization have any ongoing investigations by any agency regarding violations of the State Labor Code, California Business and Professions Code, or State licensing laws?

Yes ( ) No ( )

If yes, give details, including dates.

I. Has your organization been cited for violations of OSHA Standards and Requirements within the past five (5) years?

Yes ( ) No ( )

If yes, give details, including dates.

J. Please explain all questions answered "yes" in questions D, G, H and I above on a separate sheet of paper along with this document.

****END OF DOCUMENT****

DOCUMENT 00452
AFFIRMATIVE ACTION PROGRAM CERTIFICATE

The Bidder hereby certifies that Bidder is in compliance with the Civil Rights Act of 1964, Executive Order No. 11246, and all other applicable Federal and State laws and regulations relating to equal opportunity employment.

BIDDER

_____
(Signature)

_____
(Date)

Bidder's Name: _____
Address: _____
_____
_____

(The above certification of the Bidder regarding its affirmative action program shall be filled out completely, signed, and submitted by each Bidder and shall be a part of the Contract Documents.)

****END OF DOCUMENT****

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DOCUMENT 00456
NON-COLLUSION AFFIDAVIT

The undersigned states that this Bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the Bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other Bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the Bid are true; and, further, that the Bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

BIDDER

_____
(Signature)

_____
(Date)

State of _____)
ss.
County of _____)

On _____ before me, _____

Notary Public, personally appeared _____
[ ] personally known to me OR [ ] proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.
WITNESS my hand and official seal.

_____ (seal)
(Signature of Notary Public)

****END OF DOCUMENT****

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DOCUMENT 00458
CERTIFICATION OF DRUG-FREE WORKPLACE REQUIREMENTS

I. The Bidder certifies that it will or will continue to provide a drug-free work place by:

A. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Bidder's work place and specifying the actions that will be taken against employees for violation of such prohibition;

B. Establishing an ongoing drug-free awareness program to inform employees about:

1. The dangers of drug abuse in the work place;

2. The Bidder's policy of maintaining a drug-free work place;

3. Any available drug counseling, rehabilitation, and employee assistance programs; and

4. The penalties that may be imposed upon employees for drug abuse violations occurring in the work place;

C. Making it a requirement that each employee to be engaged in the performance of the contract be given a copy of the statement required by Paragraph A;

D. Notifying the employee in the statement required by Paragraph A that, as a condition of employment under the Contract, the employee will:

1. Abide by the terms of the statement; and

2. Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the work place no later than five calendar days after such conviction;

3. Notify the employee that in the event of a major accident/incident resulting in loss of life, injury or damage to the facility, or equipment, all personnel involved shall be required to submit to substance testing as soon as possible after the incident, but not more than 4 hours after the incident.

E. Notifying the OWNER in writing within 10 calendar days after receiving notice under subparagraph D.2. from an employee or otherwise receiving actual notice of such conviction.

F. Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph D.2., with respect to any employee who is so convicted:

1. Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of Federal and State law; or

2. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purpose by a Federal, State or local health, law enforcement, or other appropriate agency;

G. Making a good faith effort to continue to maintain a drug-free work place through implementation of Paragraphs A, B, C, D, E, and F.

II. The Bidder may insert in the space provided below the site(s) for the performance of work done in connection with this Contract:

Place(s) of Performance: (Street address, city, county, state, zip code)

_____

_____

_____

BIDDER

_____

(Signature)

_____

(Date)

****END OF DOCUMENT****

DOCUMENT 00460

VALLEJO SANITATION AND FLOOD CONTROL DISTRICT SAFETY PROGRAM QUALIFICATION CRITERIA

For VSFCD projects, each bidder shall set forth in his bid, as described on the attached forms provided, the Safety Qualification Criteria for his company and his sub-contractors. The four criteria are the Experience Modification Rate (EMR), the Recordable Incident Rate (RIR), the Lost Time Incident Rate (LTIR), and descriptions of any citations and/or penalties issued from Cal/OSHA. The bidder must submit forms for all the criteria.

If a bidder does not meet the criteria, as stated in this section, then the District may determine that the bidder is not responsible and the District may reject the bid from that bidder.

Each of the forms in this document shall be completed and submitted by the primary contractor as required in section 00200-15 INSTRUCTIONS TO BIDDERS, SUBMITTAL OF BID. If the forms are not completed and submitted, the bid may be deemed non-responsive.

After Bid Opening: Within three business days after the bid opening, the apparent low bidder is required to submit all forms in this document completed with information for each of his first-tier subcontractors.

Within three business days after the bid opening, the apparent low bidder shall submit a copy of the following documents, covering the past three years, in order to substantiate the information provided for his company, and for each of the first-tier subcontractors:

- OSHA 300 logs
- Certification of Contractor's Experience Modification Rate issued by the Worker's Compensation Insurance Rating Bureau of California.

The criterion for first-tier subcontractors is described in document 00434 (List of Subcontractors).

Contractor Safety Program Qualification Forms:

- EMR - Experience Modification Rate
- RIR - Recordable Incident Rate
- LTIR - Lost Time Incident Rate
- Cal/OSHA citations and penalties

These forms are on the following pages:

VSFCD SAFETY PROGRAM QUALIFICATION CRITERIA
Criteria 1 of 4 – Experience Modification Rate (EMR)

To the Bidding Contractor: The following information will be used to determine if you meet the suggested safety criteria for this project. You should not have a three-year average Workers' Compensation Experience Modification Rate greater than 1.1 (110%). If the EMR is greater than the stated value, or an EMR is not available for the company, the Bidder shall provide a signed statement (50-100 words) describing why the EMR is not available, or is above the stated standard.

Enter your Experience Modification Rate for the last three complete years (available from your insurance carrier).

20_____ EMR = _____

20_____ EMR = _____

20_____ EMR = _____

Three-Year Average = _____

Bidders Company_____

Contact Name_____ Telephone_____

To verify the above information, you are to submit the appropriate documentation from your insurance carrier. Refer to page 1, "After Bid Opening." The District may also contact your workers' compensation insurance carrier. Please authorize your carrier to release this information if requested by the District. Failure to do so may result in your bid being deemed non-responsive.

Workers' Compensation Insurance Company_____

_____

Contact Person_____Telephone_____

Do not write in this space
Qualified [ ] Not qualified [ ] EMR information verified [ ]

VSFCD SAFETY PROGRAM QUALIFICATION CRITERIA
Criteria 2 of 4 – Recordable Incident Rate (RIR)

To the Bidding Contractor: The following information will be used to determine if you meet the suggested safety criteria for this project. You should not have a three-year average RIR greater than the latest published national average rate for the construction industry. If the Bidder's RIR is greater than this standard, the District may request that the Bidder provide a signed statement describing why his value is above the stated standard. Incident rate information is on your OSHA Log 300 and available from your insurance carrier. Please calculate the RIR for the last three years as follows:

$$\text{RIR} = \frac{\text{Total number of recordable incidents} \times 200{,}000}{\text{Total employee hours worked}}$$

Recordable Incidents	
Year	Number
20_____	_____
20_____	_____
20_____	_____

Total Employee Hours Worked	
Year	Hours
20_____	_____
20_____	_____
20_____	_____

Enter your Total Recordable Incident Rate for each of the last three complete years.

20_____ RIR = _____
20_____ RIR = _____
20_____ RIR = _____

Three-Year Average = _____

Bidders Company _____

Contact Name_____Telephone_____

To verify the above information, you are to submit the appropriate documentation. Refer to page 1, "After Bid Opening." The District may also contact your workers' compensation insurance carrier. Please authorize your carrier to release this information if requested by the District. Failure to do so may result in your bid being deemed non-responsive.

Workers' Compensation Insurance Company_____

_____

Contact Person_____Telephone_____

Do not write in this space
Qualified [ ] Not qualified [ ] RIR information verified [ ]

VSFCD SAFETY PROGRAM QUALIFICATION CRITERIA
Criteria 3 of 4 – Lost Time Incident Rate (LTIR)

To the Bidding Contractor: The following information will be used to determine if you meet the suggested safety criteria for this project. You should not have a three-year average LTIR greater than the latest published national average rate for the construction industry. If the Bidder's LTIR is greater than this standard, the District may request that the Bidder provide a signed statement describing why his value is above the stated standard. Incident rate information is on your OSHA Log 300 and available from your insurance carrier. Please calculate the LTIR for the last three complete years as follows:

$$\text{LTIR} = \frac{\text{Total number of lost time incidents} \times 200{,}000}{\text{Total employee hours worked}}$$

Lost Time Incidents	
Year	Number
20_____	_____
20_____	_____
20_____	_____

Total Employee Hours Worked	
Year	Hours
20_____	_____
20_____	_____
20_____	_____

Enter your Total Lost Time Incident Rate for each of the last three complete years.

20_____ LTIR = _____

20_____ LTIR = _____

20_____ LTIR = _____

Three-Year Average = _____

Company Name_____

Contact Name_____Telephone_____

To verify the above information, you are to submit the appropriate documentation. Refer to page 1, "After Bid Opening." The District may also contact your workers' compensation insurance carrier. Please authorize your carrier to release this information if requested by the District. Failure to do so may result in your bid being deemed non-responsive.

Workers' Compensation Insurance Company_____

_____

Contact Person_____Telephone_____

Do not write in this space
Qualified [ ] Not qualified [ ] LTIR information verified [ ]

VSFCD SAFETY PROGRAM QUALIFICATION CRITERIA
Criteria 4 of 4 – Cal/OSHA Citations and Penalties

To the Bidding Contractor: The following information will be used to determine if you meet the suggested safety criteria for this project. Describe any Cal/OSHA citations and penalties that you have received in the last three years.

For each occurrence state whether the action by Cal/OSHA resulted in a citation, or a penalty, or both. Describe the activities that led to the action by Cal/OSHA. Provide dates, citation numbers, penalty amounts, and any other relevant information regarding the action by Cal/OSHA. Responses shall be machine written or neatly printed on company letterhead and signed by an officer of the company.

****END OF SECTION****

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DOCUMENT 00520

AGREEMENT FORM

THIS AGREEMENT is by and between the **Vallejo Sanitation and Flood Control District**

(hereinafter called OWNER) and_____

(hereinafter called CONTRACTOR).

Notwithstanding the specifications of the duties and authority of the ENGINEER in the Contract Documents, it is the intent of the parties to this contract that, as between CONTRACTOR and OWNER, OWNER shall perform the duties and possess the authority ascribed to ENGINEER in the Contract Documents. CONTRACTOR SHALL DEAL DIRECTLY WITH OWNER on all matters including but not limited to all submittals and applications for payment.

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

1 THE PROJECT

1.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows**:**

Lake Dalwigk Habitat Enhancement Project
Project No. 063827

1.02 You are invited to bid on work comprising the construction of the flood control improvements in and around Lake Dalwigk in Vallejo, CA for the Vallejo Sanitation and Flood Control District. This project includes:

- construction of a new low flow outlet structure, slide gate, bar rack, hand rails, and pipeline
- replacement of an existing bar rack with a new bar rack on the existing Lake Dalwigk outlet structure
- replacement of the existing hand rails with new hand rails on the existing Lake Dalwigk outlet structure
- removal of vegetation from the lake bed
- excavation and grading within the lake bed
- construction of storm drain piping and a headwall
- placement of rock rip rap
- construction of piles and booms

- repair of concrete sidewalk
- and miscellaneous work for a complete and operational system.

2 WORK

2.01 CONTRACTOR shall complete all work as specified or indicated in the Contract Documents for completion of the Project.

3 ENGINEER

3.01 The OWNER is the ENGINEER on this project.

4. CONTRACT TIMES

4.01 Time of the Essence:

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Days to Achieve Substantial Completion and Final Payment:

A. The Work will be substantially completed within **120 calendar days** after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within **150 calendar days** after the date when the Contract Times commence to run.

B. The contract time does not include a weather day allowance.

4.03 Liquidated Damages:

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize that it will be impracticable to determine actual damages which OWNER will sustain in the event of or by reason of the delay. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER **$1000** for each day that expires after the specified time in paragraph 4.04 for the accomplishment of Contract Milestones until such Milestones have been attained. Additionally, Contractor shall pay owner **$1000** for each day that expires after the time specified in paragraph 4.02 for substantial completion until the Work is substantially complete. After substantial completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the contract time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER an additional **$1000** for each day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment. It is further agreed that the amount stipulated for liquidated damages per day of delay is a reasonable estimate of the damages that would be sustained by OWNER, and CONTRACTOR agrees to pay such liquidated damages as herein provided. In case the liquidated damages are not paid, CONTRACTOR agrees that OWNER may deduct the amount thereof from any money due or that may become due to CONTRACTOR by progress payments or otherwise under the Agreement, or if said amount is not sufficient, recover the total amount.

5 CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 5.01.A below:

A. For all Work, at the prices stated by CONTRACTOR in the Bid Form attached hereto as an exhibit.

6 PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments:

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by the Owner's representative as provided in the General Conditions.

6.02 Progress Payments; Retainage:

A. Pursuant to Section 20104.50 of California Public Contract Code, OWNER shall make progress payments within 30 days after receipt of CONTRACTOR's undisputed and properly submitted Application for Payment less amounts which are authorized to be reserved or retained by state law and in accordance with paragraphs 6.02.A.1 and 6.02.A.2 below and paragraph 14.02.D of the General Conditions. All such payments will be measured by the schedule of values established in paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER may determine or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions:
    a. **90 percent** of Work completed (with the balance being retainage), and;
    b. **90 percent** of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
2. Upon Substantial Completion, OWNER may pay an amount sufficient to increase total payments to CONTRACTOR to 95 percent of the Work completed, less such amounts as ENGINEER shall determine in accordance with paragraph 14.02.B.5 of the General Conditions.
3. Upon final completion, OWNER may pay an amount sufficient to increase total payments to CONTRACTOR to 100 percent of the work completed, less such amounts as ENGINEER shall determine in accordance with paragraph 14.02.B.5 of the General Conditions and less up to 150 percent of ENGINEER's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of completion or alternatively, in dispute.

B. Pursuant to Section 22300 of California Public Contract Code, CONTRACTOR has the option to deposit securities with an Escrow Agent as a substitute for retention of earnings required to be withheld by OWNER. For Escrow Agreement see Document 00602.

6.03 Final Payment:

A. Upon final completion and acceptance of the Work, OWNER shall pay the remainder of the Contract Price in accordance with paragraph 14.07 of the General Conditions.

7. INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the legal rate unless otherwise specified according to California law.

8 CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.

E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.

F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.

H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. CONTRACTOR has given OWNER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by OWNER is acceptable to CONTRACTOR.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

9 CONTRACT DOCUMENTS

9.01 Contents:

A. The Contract Documents consist of the following:

1. This Agreement, Document 00520;
2. Performance Bond, Document 00612;
3. Labor and Materials Bond, Document 00614;
4. Guaranty Bond, Document 00618;
5. General Conditions, Document 00700;
6. Supplementary Conditions, Document 00800;
7. Specifications;

8. Drawings;

9. Addenda: District issued Bid Addenda numbered _____to _____, inclusive);

10. Exhibits to this Agreement (enumerated as follows):

    a. CONTRACTOR's Bid Form, Document 00410;

    b. Escrow Agreement for Security Deposits in Lieu of Retention, Document 00602;

    c. Construction Contractor's Qualification Statement, Document 00451;

11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

    a. Notice to Proceed letter

    b. Written Amendments;

    c. Work Change Directives;

    d. Field Order(s).

12. All permits required for the work.

B. There are no Contract Documents other than those listed above in this Article 9.

C. The Contract Documents may only be amended, modified, or supplemented as provided in paragraph 3.04 of the General Conditions.

D. The District will prepare 5 copies of the Contract Documents for the successful bidder. The contract documents will not contain referenced to the Master Bid Document.

10 MISCELLANEOUS

10.01 Terms:

A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

10.02 Assignment of Contract:

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns:

A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability:

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 In accordance with Section 1775, California Labor Code, CONTRACTOR shall forfeit to OWNER, as a penalty, not more than $50 for each day, or portion thereof, for each worker paid, either by CONTRACTOR or any subcontractor, less than the prevailing rates as determined by the Director of California Department of Industrial Relations for the Work.

10.06 In the performance of the Work, a day's work shall be eight (8) hours of labor in any workday and forty (40) hours in any work week and any other work as required by Section 510, California Labor Code, and CONTRACTOR shall further conform to the requirements of Section 1813, California Labor Code, or forfeit to OWNER, as a penalty, the sum of $25 for each worker employed in the execution of the Work by CONTRACTOR or any subcontractor, for each day during which any worker is required or permitted to labor more than eight (8) hours in any workday or more than forty (40) hours in any one calendar week in violation of Section 510.

10.07 CONTRACTOR shall carry workers' compensation insurance and require subcontractors to carry workers' compensation insurance as required by Section 3700, California Labor Code.

10.08 Excavation of any trench or trenches 5 feet or more in depth, involving estimated expenditures in excess of $25,000 shall require, in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping or other provisions to be made for worker protection prepared by a registered civil or structural engineer.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on _____, 2007 (which is the Effective Date of the Agreement).

OWNER:	CONTRACTOR:
By:	By:
Attest	Attest
Address for giving notices:	Address for giving notices:
	License No. (Where applicable)
	Agent for service of process:
Designated Representative:	Designated Representative:
Name:	Name:
Title:	Title:
Address:	Address:
Phone Number: ( )	Phone Number: ( )
Facsimile Number: ( )	Facsimile Number: ( )

Approved as to form:

DISTRICT COUNSEL: FAVARO, LAVEZZO, GILL, CARETTI &HEPPELL

BY: _____

****END OF DOCUMENT****

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DOCUMENT 00602

ESCROW AGREEMENT FOR
SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between Vallejo Sanitation and Flood Control District whose address is 450 Ryder Street, Vallejo, CA 94590**,** hereinafter called "OWNER,"

_____
whose address is _____
hereinafter called "CONTRACTOR," and _____
whose address is _____
hereinafter called "Escrow Agent."

For the consideration hereinafter set forth, the OWNER, CONTRACTOR, and Escrow Agent agree as follows:

(1) Pursuant to Section 10263 of the Public Contract Code of the State of California, the CONTRACTOR has the option to deposit securities with the Escrow Agent as a substitute for retention earnings required to be withheld by the OWNER pursuant to the construction contract entered into between the OWNER and CONTRACTOR for _____ in the amount of _____ dated _____ (hereafter referred to as the "contract"). Alternatively, on written request of the CONTRACTOR, the OWNER shall make payments of the retention earnings directly to the Escrow Agent. When the CONTRACTOR deposits the securities as a substitute for the contract earnings, the Escrow Agent shall notify the OWNER within ten days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the contract between the OWNER and CONTRACTOR. Securities shall be held in the name of the _____and shall designate the CONTRACTOR as the beneficial owner.

(2) The OWNER shall make progress payments to the CONTRACTOR for those funds which otherwise would be withheld from progress payments pursuant to the contract provision, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the OWNER makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the CONTRACTOR until such time as the escrow created under this contract is terminated. The CONTRACTOR may direct the investment of the payments into securities. All terms and conditions of this Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the OWNER pays the Escrow Agent directly.

(4) The CONTRACTOR shall be responsible for paying all fees for the expenses incurred by the Escrow Agent in administering the escrow account. These expenses and payment terms shall be determined by the CONTRACTOR and Escrow Agent.

(5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on the interest shall be for the sole account of CONTRACTOR and shall be subject to withdrawal by CONTRACTOR at any time and from time to time without notice to the OWNER.

(6) The CONTRACTOR shall have the right to withdraw all or any part of the principal in the escrow account only by written notice to the Escrow Agent accompanied by written authorization from the OWNER to the Escrow Agent that the OWNER consents to the withdrawal of the amount sought to be withdrawn by CONTRACTOR.

(7) The OWNER shall have a right to draw upon the securities in the event of default by the CONTRACTOR. Upon seven days' written notice to the Escrow Agent from the OWNER of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the OWNER.

(8) Upon receipt of written notification from the OWNER certifying that the contract is final and complete, and that the CONTRACTOR has complied with all requirements and procedures applicable to the contract, the Escrow Agent shall release to the CONTRACTOR all securities and interest on deposit less escrow fees and charges of the escrow account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) The Escrow Agent shall rely on the written notifications from the OWNER and the CONTRACTOR pursuant to Sections (1) to (8), inclusive, of this Agreement and the OWNER and CONTRACTOR shall hold the Escrow Agent harmless from the Escrow Agent's release, conversion, and disbursement of the securities and interest as set forth above.

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the OWNER and on behalf of the CONTRACTOR in connection with the foregoing, and exemplars of their respective signatures are as follows:

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

On behalf of the OWNER:	On behalf of the CONTRACTOR:
Title	Title
Name	Name
Signature	Signature
Address	Address

On behalf of the Escrow Agent:

Title

Name

Signature

Address

At the time the escrow account is opened, the OWNER and CONTRACTOR shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

OWNER	CONTRACTOR
Title	Title
Name	Name
Signature	Signature

****END OF DOCUMENT****

DOCUMENT 00612
CONSTRUCTION PERFORMANCE BOND

Any singular reference to CONTRACTOR, Surety, OWNER or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

_____
_____
_____

SURETY (Name and Address of Principal Place of Business):

_____
_____
_____

OWNER (Name and Address):

_____
_____
_____

CONSTRUCTION CONTRACT

Date: _____
Amount: _____
Project (Name and Location): _____
_____
_____
_____

BOND

Date (Not earlier than Construction Contract Date): _____
Amount: _____
Modifications to this Bond Form: _____
_____
_____

CONTRACTOR AS PRINCIPAL	SURETY
Company: _____ (Corp. Seal)	Company: _____ (Corp. Seal)
Signature: _____	Signature: _____
Name and Title:	Name and Title:

CONTRACTOR AS PRINCIPAL		SURETY	
Company:	(Corp. Seal)	Company:	(Corp. Seal)
Signature:		Signature:	
Name and Title:		Name and Title:	

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the CONTRACTOR performs the Construction Contract, the Surety and the CONTRACTOR shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.a.
3. If there is no OWNER Default, the Surety's obligation under this Bond shall arise after:
   a. The OWNER has notified the CONTRACTOR and the Surety at its address described in Paragraph 10 below, that the OWNER is considering declaring a CONTRACTOR Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the OWNER's right, if any, subsequently to declare a CONTRACTOR Default; and
   b. The OWNER has declared a CONTRACTOR Default and formally terminated the CONTRACTOR's right to complete the contract. Such CONTRACTOR Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in Subparagraph 3.a; and
   c. The OWNER has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the OWNER.
4. When the OWNER has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
   a. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Construction Contract; or
   b. Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or
   c. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the OWNER the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR's Default; or

d. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

(1) After investigation, determine the amount for which it may be liable to the OWNER and, as soon as practicable after the amount is determined, tender payment therefor to the OWNER; or

(2) Deny liability in whole or in part and notify the OWNER citing reasons therefor.

5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the OWNER to the Surety demanding that the Surety perform its obligations under this Bond, and the OWNER shall be entitled to enforce any remedy available to the OWNER. If the Surety proceeds as provided in Subparagraph 4.d, and the OWNER refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER.

6. After the OWNER has terminated the CONTRACTOR's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.a, 4.b, or 4.c above, then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Construction Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

   a. The responsibilities of the CONTRACTOR for correction of defective work and completion of the Construction Contract;

   b. Additional legal, design professional and delay costs resulting from the CONTRACTOR's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

   c. Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the CONTRACTOR.

7. The Surety shall not be liable to the OWNER or others for obligations of the CONTRACTOR that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the OWNER or its heirs, executors, administrators, or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after CONTRACTOR Default or within two years after the CONTRACTOR ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

    a. Balance of the Contract Price: The total amount payable by the OWNER to the CONTRACTOR under the Construction Contract after all proper adjustments have been made, including allowance to the CONTRACTOR of any amounts received or to be received by the OWNER in settlement of insurance or other claims for damages to which the CONTRACTOR is entitled, reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Construction Contract.

    b. Construction Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all the Contract Documents and changes thereto.

    c. CONTRACTOR Default: Failure of the CONTRACTOR, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

    d. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY — Name, Address and Telephone)	
AGENT OR BROKER:	OWNER'S REPRESENTATIVE:

****END OF DOCUMENT****

DOCUMENT 00614

(On Surety Letterhead)

LABOR AND MATERIALS BOND
(CONSTRUCTION)

KNOW ALL PERSONS BY THESE PRESENTS, that **Vallejo Sanitation and Flood Control District** ("OWNER") a municipal corporation located in the County of Solano, State of California, by Resolution No. _____, has awarded a contract to and has entered into an agreement with_____, hereinafter designated as "CONTRACTOR" whereby CONTRACTOR agrees to complete the improvements more particularly described in all documents forming the complete contract entitled, **Lake Dalwigk Habitat Enhancement Project Job No. 063827** ,which said agreement is hereby referred to and made a part hereof; and

WHEREAS, said CONTRACTOR is required to furnish a bond in connection and with said contract, provided that if said CONTRACTOR, or any of his/her/its contractors, shall fail to pay for any materials, provisions, provender or other supplies or teams used in, upon, for or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, the Surety of this bond will pay the same to the extent hereinafter set forth.

NOW, THEREFORE, we the CONTRACTOR and

_____, as surety, are held and firmly bound unto the OWNER in the penal sum of $_____, lawful money of the United States, being not less than one hundred percent (100%) of the estimated contract cost of the work, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said CONTRACTOR, his/her/its heirs, executors, administrators, successors or assigns, or its subcontractors, shall fail to pay any of the persons named in Section 3181 of the Civil Code, or to pay for any materials, provisions, provender, or other supplies or teams used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind or for amounts due under the Unemployment Insurance Code with respect to such work or labor, then said Surety will pay the same in or to an amount not exceeding the amount hereinabove set forth, and also will pay in case suit is brought upon this bond a reasonable attorney's fee in such suit, which fee shall be fixed by the Court.

AS FURTHER TERMS OF THIS BOND, IT IS UNDERSTOOD AS FOLLOWS:

1. This bond and all its provisions shall inure to the benefit of and all persons named in Section 3181 of the Civil Code so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

2. This bond is given to comply with the provisions of Chapter 7, Part 4, Division 3, of the Civil Code. The liability of the CONTRACTOR and Surety hereunder is governed by the provisions of said Chapter, all acts amendatory thereof, and all other statutes referred to therein.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this _____ day of _____ the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

NOTE: To be signed by CONTRACTOR and Surety and acknowledgment and notarial seal attached.

(SEAL)

_____

CONTRACTOR AS PRINCIPAL

By: _____

Title: _____

_____

SURETY COMPANY

_____

By: _____

Title: _____

_____

****END OF DOCUMENT****

DOCUMENT 00618
GUARANTY BOND

Any singular reference to CONTRACTOR, Surety, OWNER or other party shall be considered plural where applicable.

GUARANTY FOR PROJECT NAMED: _____

_____

DATE OF CONTRACT: _____

CONTRACTOR (Name and Address):

_____

_____

_____

SURETY (Name and Address of Principal Place of Business):

_____

_____

_____

OWNER (Name and Address):

_____

_____

_____

CONSTRUCTION CONTRACT AMOUNT (including Change Orders):

_____

FACE VALUE OF THIS GUARANTY BOND: _____

Bond Amount must be in an amount equal to, or greater than, ten percent (10%) of the total contract price including change order(s).

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

CONTRACTOR AS PRINCIPAL		SURETY	
Company: _____	(Corp. Seal)	Company: _____	(Corp. Seal)
Signature: _____		Signature: _____	
Name and Title:		Name and Title:	

CONTRACTOR AS PRINCIPAL	SURETY
Company: _____ (Corp. Seal)	Company: _____ (Corp. Seal)
Signature: _____	Signature: _____
Name and Title:	Name and Title:

We hereby guarantee that all Work performed for the Contract Documents entitled: _____

_____

(Description of Work)

which we have constructed, have been done in accordance with the Contract Documents, and that the work as constructed will fulfill the requirements of CONTRACTOR's general warranty and guaranties included in the Contract Documents. We agree to perform all work necessary to correct deficiencies, errors or omissions in the workmanship or materials within a period of one (1) year from the date of final acceptance of the above-named work by the OWNER, pursuant to paragraph 13.07.A of Document 00700, General Conditions, without any expense whatsoever to said OWNER, ordinary wear and unusual abuse excepted.

For the purpose of this guaranty bond, the date of final acceptance shall be determined by the following order of precedence:

1. The date of final acceptance shown in the NOTICE OF COMPLETION signed and recorded by the District.
2. The date of final payment made by the District.

As part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by OWNER.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the agreement or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the agreement or to the work or to the specifications.

In the event of our failure to comply with the above-mentioned conditions within ten (10) calendar days after being notified in writing by the OWNER, we collectively or separately, do hereby authorize the OWNER to proceed to have said defects repaired and made good at our expense and we will honor and pay the costs and charges therefore upon demand. When correction work is started, it shall be carried through to completion.

DATED:_____

****END OF DOCUMENT****

DOCUMENT 00622
INSURANCE CERTIFICATE

Certificate Holder: _____
(OWNER, its officials, employees, agents, and Consultant)

Address: _____
(OWNER's address)

This is to certify that the following described policies have been issued to the Insured named below and are in force at this time.

Insured: _____

Address: _____

Description of operations/locations/products insured (show contract name and/or number, if any): _____

Type of Insurance	Policy Number & Insurance Co.	Effective Date	Expiration Date	Limits
General Liability ___Claims Made ___Occurrence				General Aggregate $_____ Products/Compl. Ops. $_____ Each Occurrence $_____
Automobile Liability ___Any Auto ___All Owned Autos ___Scheduled Autos ___Hired Autos ___Non-Owned Autos				Combined Single Limit $_____ Bodily Injury Per person $_____ Per accident $_____ Property Damage $_____
Excess Liability ___Umbrella From ___Excess Form				Each Occurrence $_____ Aggregate $_____
Workers' Compensation and Employer's Liability				Statutory Limits Each Accident $_____ Disease Policy Limit $_____ Each Employee $_____

The following coverages or conditions are in effect as required by	**YES**	**NO**

Contract, Section 00700, General Conditions:		
The Certificate Holder shall be named on all liability policies described above as additional insureds as respects (a) activities performed for the Certificate Holder by or on behalf of the named insured, and (b) products and completed operations of the Named Insured.		
The undersigned will mail to the Certificate Holder 30 days' written notice of cancellation or reduction of coverage or limits.		
Cross Liability Clause (or equivalent wording).		
Personal Injury, Perils A, B and C		
Broad Form Property Damage		
X, C, U Hazards included		
Contractual Liability Coverage applying to this Contract		
Builder's Risk - Limit: $		
Coverage afforded the Certificate Holder as additional insured is primary and not excess or contributing to any insurance issued in the name of the Certificate Holder.		
Waiver of subrogation from Workers' Compensation Insurer.		

AUTHORIZED REPRESENTATIVE:_____
DATE:_____

INSURANCE ENDORSEMENT

POLICY NUMBER:_____COMMERCIAL GENERAL LIABILITY

ADDITIONAL INSURED -- OWNERS, LESSEES OR CONTRACTORS (FORM B)

This endorsement modifies insurance provided under the following:
COMMERCIAL GENERAL LIABILITY COVERAGE PART.

SCHEDULE

Name of Person or Organization:

BLANKET - CERTIFICATE HOLDERS AS REQUIRED BY CONTRACT
(OWNER, its officials, employees, agents, and Consultant)

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

WHO IS AN INSURED (Section II) is amended to include as an insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or for you.

This insurance is primary with respect to the additional insured. Any other insurance available to that person or organization is excess and noncontributing.

INSURANCE ENDORSEMENT

POLICY NUMBER:_____BUSINESS AUTO LIABILITY

ADDITIONAL INSURED -- DESIGNATED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:
BUSINESS AUTOMOBILE COVERAGE FORM

SCHEDULE

Name of Person or Organization:

BLANKET - CERTIFICATE HOLDERS AS REQUIRED BY CONTRACT

(OWNER, its officials, employees, agents, and Consultant)

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)
WHO IS AN INSURED (Section II) is amended to include as an insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or for you.
This insurance is primary with respect to the additional insured. Any other insurance available to that person or organization is excess and noncontributing.

****END OF DOCUMENT****

DOCUMENT 00823

ESCROW BID DOCUMENTS

1. SCOPE

The apparent Successful Bidder shall submit, within the specified time after receipt of Bids, one copy of all documentary information generated in preparation of Bid prices for this Project. This material is hereinafter referred to as "Escrow Bid Documents." The Escrow Bid Documents of the Successful Bidder will be held in escrow for the duration of the contract.

The Successful Bidder agrees, as a condition of award of the contract, that the Escrow Bid Documents constitute the complete, only, and all documentary information used in preparation of his Bid. No other Bid preparation information shall be considered in resolving disputes.

Nothing in the Escrow Bid Documents shall change or modify the terms or conditions of the Contract Documents.

2. OWNERSHIP

The Escrow Bid Documents are, and shall always remain, the property of CONTRACTOR, subject only to joint review by OWNER and CONTRACTOR, as provided herein.

OWNER stipulates and expressly acknowledges that the Escrow Bid Documents, as defined herein, constitute trade secrets. This acknowledgment is based on OWNER's express understanding that the information contained in the Escrow Bid Documents is not known outside the Bidder's business, is known only to a limited extent and only by a limited number of employees of the Bidder, is safeguarded while in Bidder's possession, is extremely valuable to Bidder, and could be extremely valuable to Bidder's competitors by virtue of it reflecting Bidder's contemplated techniques of construction. OWNER acknowledges that the Bidder expended substantial sums of money in developing the information included in the Escrow Bid Documents and further acknowledges that it would be difficult for a competitor to replicate the information contained therein. OWNER further acknowledges that the Escrow Bid Documents and the information contained therein are made available to OWNER only because such action is an express prerequisite to award of the contract. OWNER further acknowledges that the Escrow Bid Documents include a compilation of information used in the Bidder's business, intended to give the Bidder an opportunity to obtain an advantage over competitors who do not know of or use the contents of the documentation. OWNER agrees to safeguard the Escrow Bid Documents, and all information contained therein, against disclosure to the fullest extent permitted by law.

3. PROGRAM

Escrow Bid Documents will be used to assist in the negotiation of price adjustments and Change Orders and in the settlement of disputes, claims, and other controversies. They will not be used for pre-award evaluation of CONTRACTOR's anticipated methods of construction or to assess CONTRACTOR's qualifications for performing the Work.

4. FORMAT AND CONTENTS

The apparent Successful Bidder may submit Escrow Bid Documents in their usual cost estimating format. It is not the intention of this section to cause the Bidder extra work during the preparation of the Bid, but to ensure that the Escrow Bid Documents will be adequate to enable complete understanding and proper interpretation for their intended use. The Escrow Bid Documents shall be in the language of the Specifications.

It is required that the Escrow Bid Documents clearly itemize the estimated costs of performing the work of each Bid item contained in the Bid schedule. Bid items should be separated into subitems as required to present a complete and detailed cost estimate and allow a detailed cost review. The Escrow Bid Documents shall include all quantity takeoffs; crew; equipment; calculations of rates of production and progress; copies of quotations from equipment manufacturers, Subcontractors, and Suppliers; and memoranda, narratives, consultants' reports, add/deduct sheets, and all other information used by the Bidder to arrive at the prices contained in the Bid Form. Estimated costs should be broken down into the Bidder's usual estimate categories, such as direct labor, repair labor, equipment operation, equipment ownership, expendable materials, permanent materials, and subcontract costs as appropriate. Plant and equipment and indirect costs should be detailed in the Bidder's usual format. CONTRACTOR's allocation of plant and equipment, indirect costs, contingencies, markup, and other items to each Bid item shall be included.

All costs shall be identified. For Bid items amounting to less than $10,000, estimated unit costs are acceptable without a detailed cost estimate, provided that labor, equipment, materials, and subcontracts, as applicable, are included, and provided that indirect costs, contingencies, and markup, as applicable, are allocated.

Bidding Documents provided by the OWNER should not be included in the Escrow Bid Documents unless needed to comply with the requirements of this section.

5. SUBMITTAL

The Escrow Bid Documents shall be submitted in a sealed container within 48 hours after the time of receipt of Bids. The container shall be clearly marked on the outside with the Bidder's name, date of submittal, project name, and the words "Escrow Bid Documents."

The Escrow Bid Documents shall be accompanied with the Bid Documentation Certification, signed by an individual authorized by the Bidder to execute the Bid Form, stating that the material in the Escrow Documentation constitutes the complete, only, and all documentary information used in preparation of the Bid and that he has personally examined the contents of the Escrow Bid Documents container and has found that the documents in the container are complete.

Prior to award, Escrow Bid Documents of the apparent Successful Bidder will be unsealed, examined, organized, and inventoried by representatives of OWNER, together with members of CONTRACTOR's staff who are knowledgeable in how the Bid was prepared.

This examination is to ensure that the Escrow Bid Documents are authentic, legible, and complete. It will not include review of, and will not constitute approval of, proposed construction methods, estimating assumptions, or interpretations of Contract Documents. This examination is subject to the condition that, as trade secrets, the Escrow Bid Documents are proprietary and confidential as described in Paragraph 2. Examination will not alter any condition(s) or term(s) of the contract.

If all the documentation required in Paragraph 4, "Format and Contents," has not been included in the original submittal, additional documentation shall be submitted, at OWNER's discretion, prior to award of the contract. The detailed breakdown of estimated costs shall be reconciled and revised, if appropriate, by agreement between CONTRACTOR and OWNER before making the award.

If the contract is not awarded to the apparent Successful Bidder, the Escrow Bid Documents of the Bidder next to be considered for award shall be processed as described above.

Timely submission of complete Escrow Bid Documents is an essential element of the Bidder's responsibility and a prerequisite to contract award. Failure to provide the necessary Escrow Bid Documents will be sufficient cause for OWNER to reject the Bid.

If the Bidder's proposal is based on subcontracting any part of the Work, each Subcontractor whose total subcontract price exceeds 5 percent of the total Contract Price proposed by the Bidder shall provide separate Escrow Bid Documents to be included with those of the Bidder. These documents will be opened and examined in the same manner and at the same time as the examination described above for the apparent Successful Bidder.

If CONTRACTOR subcontracts any portion of the Work after award, OWNER retains the right to require CONTRACTOR to submit Escrow Bid Documents from the Subcontractor before the subcontract is approved.

6. STORAGE

The Escrow Bid Documents of the Successful Bidder will be placed in escrow prior to award of the contract, for the life of the contract, in a mutually agreeable institution. The cost of storage will be paid by OWNER.

7. EXAMINATION AFTER AWARD OF CONTRACT

The Escrow Bid Documents shall be examined by both OWNER and CONTRACTOR, at any time deemed necessary after award of the contract by either OWNER or CONTRACTOR, to assist in the negotiation of price adjustments and Change Orders, or the settlement of disputes.

Examination of the Escrow Bid Documents after award of the contract is subject to the following conditions:

a. As trade secrets, the Escrow Bid Documents are proprietary and confidential as described in Paragraph 2.

b. OWNER and CONTRACTOR shall each designate, in writing to the other party and a minimum of 10 days prior to examination, representatives who are authorized to examine the Escrow Bid Documents. With the consent of both OWNER and CONTRACTOR, members of the Disputes Review Board may examine the Escrow

Bid Documents if required to assist in the settlement of a dispute. No other person shall have access to the Escrow Bid Documents.

c. Access to the Escrow Bid Documents will take place only in the presence of duly designated representatives of both OWNER and CONTRACTOR.

8. FINAL DISPOSITION

The Escrow Bid Documents will be returned to CONTRACTOR at such time as the contract has been completed and final settlement has been achieved.

BID DOCUMENTATION

---- CERTIFICATION ----

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THE BID DOCUMENTATION CONTAINED HEREIN CONSTITUTES THE COMPLETE, ONLY, AND ALL DOCUMENTARY INFORMATION USED IN PREPARATION OF THE BID AND THAT I HAVE PERSONALLY EXAMINED THESE CONTENTS AND HAVE FOUND THAT THIS BID DOCUMENTATION IS COMPLETE.

BY: _____

TITLE: _____

FIRM: _____

DATE: _____

****END OF DOCUMENT****

SECTION 01025

MEASUREMENT AND PAYMENT

1.0 MEASUREMENT AND PAYMENT

1.1. GENERAL

Measurements of the completed work shall be in accordance with, and by instruments and devices calibrated to United States Standard Measures and the units of measurement for payment, and the limits thereof, shall be made as shown on the Plans, Specifications, General Requirements, and Supplementary Conditions.

1.2 UNITS OF MEASUREMENT

Measurements shall be in accordance with U.S. Standard Measures. A pound is an avoirdupois pound. A ton is 2,000 pounds avoirdupois. The unit of liquid measure is the U.S. gallon.

1.3 CERTIFIED WEIGHTS

When payment is to be made on the basis of weight, the weighing shall be done on certified platform scales, or when approved by the Construction Manager, on a completely automated weighing and recording system. The Contractor shall furnish the Construction Manager with duplicate licensed weighmaster's certificates showing the actual net weights. The District will accept the certificates as evidence of the weights delivered.

1.4 METHODS OF MEASUREMENT

Materials and items of work which are to be paid for on the basis of measurement shall be measured in accordance with the method stipulated in the particular sections involved. In determining quantities, all measurements shall be made in a horizontal plane unless otherwise specified.

Material not used from a transporting vehicle shall be determined by the Construction Manager and deducted from the certified tag.

When material is to be measured and paid for on a volume basis and it would be impractical to determine the volume, or when requested by the Contractor in writing and approved by the Construction Manager in writing, the material will be weighed and converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Construction Manager and shall be agreed to by the Contractor before such method of measurement of pay quantities will be adopted.

Full compensation for all expense involved in conforming to the above requirements for measuring and weighing materials shall be considered as included in the unit prices paid for the materials being measured or weighed and no additional allowances will be made therefor.

Payment for the various items of work shall include full compensation for the furnishing of all overhead, labor, material, tools, equipment, and appurtenances necessary to complete the work as indicated on the Drawings and as specified. Each item shall be complete with all necessary connections and appurtenances for the satisfactory use and operation of said item. All connections, testing, cleanup, and related work must be completed to provide a complete operable system. No additional payment will be made for work related to each item unless specifically noted or specified. Measurement will be for in-place completed work with no allowance for waste.

Quantities of material wasted or disposed of in a manner not called for under the Contract; or rejected loads of material, including material rejected after it has been placed by reason of failure of the Contractor to conform to the provisions of the Contract; or material not unloaded from the transporting vehicle; or material placed outside the lines indicated on the plans or given by the Construction Manager; or material remaining on hand after completion of the Contract, will not be paid for and such quantities will be deducted from the final total quantities. No compensation will be allowed for hauling rejected material.

1.5 ESTIMATED QUANTITIES

All estimated quantities stipulated in the bid form are approximate and are to be used only as a basis for estimating the probable cost of the work and/or for the purpose of comparing the bids submitted for the work. The actual amounts of work completed under unit price items may differ from estimated quantities. The basis of payment for unit price work will be the actual amount of work completed. Contractor agrees to make no claim for damages, anticipated profits, or otherwise on account of any difference in the amounts of work actually performed, and estimated amounts therefore.

2.01 BID ITEMS

The Bid Amounts for each Bid Item will be used for comparative bid analysis. The Bid amounts will also form the basis of monthly progress payments. Each Lump Sum bid amount will undergo further breakdown as described later in this section. Bid Item 2 will also demonstrate the Contractor's compliance with the California Labor Code relating to the price for sheeting, shoring, and bracing of excavations. Bid items are not intended to be exclusive descriptions of work categories and the Contractor shall determine and include in its pricing all materials, labor, and equipment necessary to complete each Bid Item (work phase) as shown and specified.

BID ITEM 1. MOBILIZATION AND DEMOBILIZATION

BID ITEM 1 shall not exceed 5 percent of total bid price and shall include payment for the tasks indicated in Section 01505 of the VSFCD Master Bid Document, and the following tasks: obtaining of all bonds, permits, and licenses; moving onto the site of all plant and equipment including office trailer and set up of Contractor's staging area/yard; furnishing and erecting plants and other construction facilities, project sign, and all work as required for the proper performance and completion of the project, including work items not identified in a separate bid item. Mobilization shall conform to Section 11 of California Specifications except items D and E shall be deleted. The remaining retention for mobilization may be included for payment in the last progress payment. Payment shall be "Lump Sum" for all that which is necessary for this item. Seventy percent of this item will be considered mobilization; thirty percent of this item will be considered demobilization.

BID ITEM 2. SHEETING, SHORING, AND BRACING

BID ITEM 2 includes payment for design, installation, and removal of sheeting, shoring, and bracing; abandonment of sheeting and shoring where required; and other excavation supports in place necessary to complete all work under the Contract in conformance with federal and California Safety and Health Standards, Sections 6700 – 6708 of the Labor Code and these Specifications. Payment shall be "Lump Sum" for all that which is necessary for this item.

BID ITEM 3. STORM WATER POLLUTION PREVENTION PROGRAM

BID ITEM 3 includes payment for all work and materials necessary to set up and maintain storm water pollution prevention program (SWPPP) conforming to the requirements of Section 01560.1.07 including but not limited to preparation of a project-specific SWPPP prepared by a qualified SWPPP developer for District review, approval and submission to the State; furnish and install SWPPP measures and facilities; maintaining SWPPP measures throughout the duration of the project; removal of SWPPP measures and restoration of surfaces; providing a qualified SWPPP practitioner to implement all BMP's and all incidentals.

BID ITEM 4. POTHOLING FOR UTILITIES

BID ITEM 4 includes payment for labor , equipment, and materials to field locate horizontally and vertically all existing utilities within the project area. Work under this item shall include notification of Underground Service Alert, excavate and expose existing utilities; field measure utility size, depth and horizontal location; reporting any discrepancy to the Construction Manager; and all incidentals.

BID ITEM 5. SURVEYING AND FIELD ENGINEERING

BID ITEM 5 includes payment for all labor, equipment, and materials necessary for or involved in establishing lines and grades necessary to lay out and install all Work in accordance with the Contract Documents including surveyor services, contractor layout, field quality control and record drawings.

BID ITEM 6. SITE PREPARATION

BID ITEM 6 includes payment for all labor, equipment, and materials necessary for site preparation including clearing and grubbing the project site as indicated on the Drawings. The work shall include but not necessarily be limited to removal of all trash, rubbish and junk, vegetation or other organic material; including stumps buried logs and roots to a depth of 6 inches below finished or sub grade; and all incidentals required by these Specifications and Drawings. Disposal and hauling of all clearing and grubbing debris is included in Bid Item 11.

BID ITEM 7. DEWATERING/DESILTING/GROUND WATER DISPOSAL

BID ITEM 7 includes payment for all materials, labor and equipment to continuously control water during the course of construction as indicated on the Drawings and required by the Specifications including but not limited to: controlling surface and groundwater, providing sufficient redundancy, obtaining discharge permit for water disposal, treating water, disposing of water, maintaining dewatering and treatment facilities, and all incidentals required by these Specifications and Drawings.

BID ITEM 8. LAKE DALWIGK EXISTING OUTLET STRUCTURE BAR RACK REPLACEMENT AND HAND RAIL REPLACEMENT

BID ITEM 8 includes payment for all labor, equipment, and materials necessary to remove and dispose of the existing bar rack and chain railings; furnish and install new bar rack and appurtenance; furnish and install new removable hand railing; and all incidentals.

BID ITEM 9. LAKE DALWIGK LOW FLOW OUTLET IMPROVEMENTS, 48-INCH PIPE AND CONNECTION TO EXISTING STRUCTURE

BID ITEM 9 includes payment for all labor, equipment and materials necessary to excavate for the new low flow outlet structure; handle and dispose of surplus spoils; construct new concrete low flow outlet structure including bar rack, slide gate, removable hand railing, and appurtenances; construct new 48-inch low flow outlet storm drain pipe including the connection to the existing structure in place; safety provisions; surface restoration; and all incidentals.

BID ITEM 10. MASS EXCAVATION OF SOILS FROM LAKE DALWIGK

BID ITEM 10 includes payment for all labor, equipment, and materials necessary for doing all the work involved to excavate the site, including excavation, surveying and grade measurements; subexcavation and subgrade preparation, placement of fill material, compaction, and finished grading, as shown on the Plans; and all incidentals required by these Specifications and Drawings. Disposal and hauling of excess soil material is included in Bid Item 11.

BID ITEM 11. REMOVAL, HANDLING, AND DISPOSAL OF CLEARING, GRUBBING AND STRIPPING DEBRIS AND EXCESS EXCAVATED SOIL MATERIAL

BID ITEM 11 includes payment for all labor, equipment, and materials necessary for doing all the work involved to remove natural debris from the site clearing, grubbing and stripping and excess soil material; from the mass excavation including handling, transporting and legal disposal of debris and soil, as shown on the Plans; and all incidentals required by these Specifications and Drawings.

BID ITEM 12. PILES AND BOOMS

BID ITEM 11 includes payment for all labor, equipment, and materials necessary to remove existing piles and booms and furnish and install new piles and booms and as shown on the Plans and required by the Specifications and all incidentals required by these Specifications and Drawings.

BID ITEM 13. ROCK RIP RAP

BID ITEM 13 includes payment for all labor, equipment, and materials necessary furnish and install rock rip rap as indicated on the Drawings and required by the Specifications, including but not limited to: base preparation, excavation, filter fabric, rock rip rap; and all incidentals required by these Specifications and Drawings.

BID ITEM 14. 36-INCH STORM DRAIN

BID ITEM 14 includes payment for all labor, equipment, and materials necessary furnish and install the 36-inch storm drain pipe as indicated on the Drawings and required by the Specifications, including but not limited to: excavation, backfill, compaction, fine grading, connect to existing structure, appurtenances; and all incidentals required by these Specifications and Drawings.

BID ITEM 15. 24-INCH STORM DRAIN PIPE AND HEADWALL

BID ITEM 15 includes payment for all labor, equipment, and materials necessary furnish and install the 24-inch storm drain pipe and headwall as indicated on the Drawings and required by the Specifications, including but not limited to: excavation, backfill, compaction, fine grading, appurtenances; and all incidentals required by these Specifications and Drawings.

BID ITEM 16. SIDEWALK REPAIR

BID ITEM 16 includes payment for all labor, equipment, and materials necessary repair concrete sidewalk as indicated on the Drawings and required by the Specifications, including but not limited to: excavation, backfill, compaction, fine grading, appurtenances; and all incidentals required by these Specifications and Drawings.

BID ITEM 17. DISPOSE OF ARUNDO (LEAVES, STEMS, ROOT WADS) AND MAN MADE TRASH, GARBAGE, LITTER, DEBRIS, ETC AT A LANDFILL

BID TIEM 17 includes all labor, equipment, materials necessary for the excavation and disposal at a landfill of Arundo, include all leaves, stems, root wads, and soil within 1 foot of the roots of the Arundo. It also includes all labor, equipment, materials necessary to collection and disposal of all man made trash, garbage, litter, debris, etc from all areas within the top of the banks of Lake Dalwigk and from the staging areas.

BID ITEM 18. ALL WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, WITH THE EXCEPTION OF THE WORK INCLUDED IN BID ITEMS 1 THROUGH 16

BID ITEM 18 includes payment for all labor, equipment and material necessary for a complete and operable system as shown on the plans or required in the contract except for the work included in bid items 1 through 17.

3.0. SCHEDULE FOR ESTIMATING PROGRESS PAYMENTS

Bid Item	Estimated Progress Payment
Mobilization and Demobilization	Mobilization may be applied for after 5 percent of the work is complete. Demobilization may be applied for after substantial completion provided that other retainage exceeds value of punch list work. Record drawings must accompany application for demobilization payment.
Sheeting, Shoring, And Bracing	Based on percent of overall job completed.
Storm Water Pollution Prevention Program	Based on percent of overall job completed.
Potholing For Utilities	Based on percent of overall job completed.
Surveying and Field Engineering	Based on percent of work completed for this item.
Site Preparation	Based on percent of work completed for this item.
Dewatering/Desliting/Ground	Based on percent of overall job completed.

Bid Item	Estimated Progress Payment
Water Disposal	
Lake Dalwigk Existing Outlet Structure Bar Rack Replacement and Handrail Replacement	Based on percent of work completed for this item.
Lake Dalwigk Low Flow Outlet Improvements, 48-inch Pipe and Connection to Existing Structure	Based on percent of work completed for this item.
Mass Excavation of Soils from Lake Dalwigk	Based on cubic yards of soils excavated from Lake Dalwigk following Site Preparation. This item will be measured in the field by the Engineer.
Removal, Handling and Disposal of Clearing, Grubbing and Stripping Debris and Excess Excavated Soil Material	Based on tons of debris and soil removed from Lake Dalwigk. This item will be measured based on weight tickets from a scale approved by the Engineer.
Piles and Booms	Based on percent of work completed for this item.
Rock Rip Rap	Based on tons of placed rock measured from the bottom of the prepared subgrade.
36-Inch Storm Drain	Based on percent of work completed for this item.
18-Inch Storm Drain and Headwall	Based on percent of work completed for this item.
Sidewalk Repair	Based on percent of work completed for this item.
Dispose of Arundo (leaves, stems root wads) and Man Made Trash, Garbage, Litter, Debris, etc. at a Landfill	Based on Tons of materials removed and disposed of. This item will be measured based on weight tickets from a scale approved by the engineer.
All work in accordance with the contract documents, except the work included in bid items 1 through 40	Based on percent of overall job completed.

Adjustment downward may be made based on field observations. Retention has not been included in the above payment schedule. Percentage of the progress payments will be retained in accordance with General Conditions, Section 00700, unless other arrangements are made in accordance with the Contract Documents.

****END OF SECTION****

SECTION 01561

ENVIRONMENTAL CONTROLS

PART 1 – GENERAL

1.01 STORM WATER QUALITY CONTROLS

A. GENERAL

1. Dischargers whose projects disturb 1 or more acres of soil or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ adopted on September 2, 2009. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation.

2. The appropriate Regional Water Quality Control Board (RWQCB) enforces the General Permit. Coverage under a General Permit requires the electronic filing of all Permit Registration Documents (PRDs), Notices of Termination (NOT), changes of information, annual reporting and other compliance documents through the State Water Board's Storm water Multi-Application and Report Tracking System (SMARTS) website.

3. Construction activity includes, but is not limited to: clearing, grading, demolition, excavation, construction of new structures, pipelines and reconstruction of existing facilities involving removal and replacement that results in soil disturbance. This includes construction access roads, staging areas, storage areas, stockpiles, and any off-site areas which receive run-off from the construction project such as discharge points into a receiving water.

4. While the City will be responsible to the RWQCB for compliance with the permit, the City will require the Contractor to provide the detailed planning and compliance activities required insofar as they would potentially affect the Contractor's methods and means of performing the Work.

5. If a violation of the permit is due to the Contractor's actions or inactions and a fine is assessed, the Contractor shall be responsible for the fine.

6. A copy of the Fact Sheet for the General Permit is available on the SWRCB website at: http://www.swrcb.ca.gov/water_issues/programs/stormwater/.

B. DISTRICT RESPONSIBILITIES

1. A District staff person will be the Legally Responsible Person (LRP) who will electronically file Permit Registration Documents (PRDs) prior to commencement of construction activity.

2. PRDs will be filed by the District but may be prepared by others. PRDs consist of:

    a. Notice of Intent (NOI)
    b. Risk Assessment
    c. Site Map
    d. Storm Water Pollution Prevention Plan (SWPPP)
    e. Annual Fee
    f. Signed Certification Statement

3. A District staff person will be the Legally Responsible Person (LRP) who will electronically file the following documents which may be prepared by others:

    a. Notices of Termination (NOT)
    b. Changes of Information
    c. Annual Reporting
    d. Other Compliance Documents

4. District will pay fees associated with filing NOI and annual reports.

5. District will furnish the Contractor with base maps of a suitable scale in order to prepare required documents.

C. CONTRACTOR'S RESPONSIBILITIES

1. Comply with the SWRCB, RWQCB, County, City and other local agency requirements regarding stormwater management, inspection and monitoring.

2. Be responsible for meeting the requirements of the General Permit except as specifically noted herein.

3. Submit documents and reports in electronic format suitable for the District to upload to the SMARTS website.

4. Prepare a SWPPP and submit the SWPPP for District review at least 30 days prior to any soil disturbing construction. The SWPPP shall meet the following requirements:

    a. SWPPP shall be prepared by a Qualified SWPPP Developer (QSD) as defined in Section VII of the General Permit.
    b. The SWPPP and each amendment to the SWPPP must be signed by the QSD.
    c. The District has determined the project is Risk Level 2. SWPPP shall meet all the requirements for Risk Level 2
    d. SWPPP shall meet the requirements of Section XIV of the General Permit and meet the following objectives:

        i. All pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled;

ii. Where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;

iii. Site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology/Best Control Technology (BAT/BCT) standard;

iv. Calculations and design details as well as BMP controls for site run-on are complete and correct.

v. Stabilization BMPs installed to reduce or eliminate pollutants after construction are completed.

vi. Identify post-construction BMPs, which are those measures to be installed during construction that are intended to reduce or eliminate pollutants after construction is completed.

vii. Identify and provide methods to implement BMP inspection, visual monitoring, Rain Event Action Plan (REAP) and Construction Site Monitoring Program (CSMP) requirements to comply with the General Permit.

e. Amend and update the SWPPP whenever there is a change in construction or operations which may affect the discharge of pollutants to storm water. All changes to be made by a Qualified SWPPP Developer.

5. Provide information to the Engineer as necessary to complete the NOI.

6. Make the SWPPP available at the construction site during working hours, and make it available upon request by a State or Municipal worker.

7. Designate a Qualified SWPPP Practitioner (QSP)

   a. Ensure all BMPs are implemented by a QSP.

   b. QSP is responsible for non-storm water and storm water visual observations, sampling and analysis.

   c. QSP shall meet the certification requirements of Section VII of the General Permit. .

8. Install, construct, implement, monitor, maintain and remove upon completion all of the BMPs and other pollution prevention measures.

9. Implement the Rain Event Action Plan identified in the SWPPP 24 hours in advance of any the predicted precipitation event.

10. Implement the Construction Site Monitoring Plan (CSMP) developed in the SWPPP for the specific Risk Level of the project. Retain records of all monitoring information and copies of all reports and submit to the District.

11. Submit to the District all Non-Compliance reporting required by the General Permit including but not limited to:

    a. Numeric Action Level (NAL) exceedances.

    b. Numeric Effluent Limitation (NEL) Violation Report.

    c. Self-reporting of any other discharge violations

d. Discharges which contain a hazardous substance in excess of reportable quantities established in 40 CFR §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

12. Prepare the annual compliance report and submit to the District 15 days prior to September 1 of each year. Annual report shall comply with the requirements of Section XVI – Annual Reporting Requirements of the General Permit including but not limited to:

    a. Sampling and analysis results including laboratory reports, analytical methods and reporting limits and chain of custody forms (Risk Levels 2 and 3);

    b. Corrective actions and compliance activities, including those not implemented;

    c. Violations of the General Permit;

    d. Date, time, place, and name(s) of the inspector(s) for all sampling, inspections, and field measurement activities;

    e. Visual observation and sample collection exception records; and

    f. Training documentation of all personnel responsible for General Permit compliance activities.

13. Provide the Engineer the names and 24-hour phone numbers for parties responsible for implementing, monitoring, inspecting and maintaining the SWPPP.

14. Contractor shall be bound to the conditions on the Notice of Intent (NOI) that will be filed by the District and will be responsible for all costs associated with the implementation of the Plan including all fines, damages and job delays incurred due to failure to implement the requirements of the General Permit.

15. Notify the Engineer immediately following a request from any regulatory agency to enter, inspect, sample, monitor or otherwise access the Project Site or its records.

16. Take the proper actions to prevent stormwater coming into contact with contaminants and sediments from migrating offsite or entering storm sewer drainage systems. Take immediate action if directed by the Engineer or if the Contractor observes contaminants and/or sediments entering the storm drainage system, to prevent further stormwater from entering the system.

SECTION 02050

DEMOLITION, SALVAGE AND ABANDONMENT

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Demolition, salvage and abandonment of existing facilities.

1.02 SUBMITTALS

A. Description of removal procedures for careful removal of materials and equipment and the protection of facilities which are to remain undisturbed.

B. Time schedule for demolition work. Show demolition in relation to new construction, including any temporary facilities.

1.03 EXISTING CONDITIONS

A. Prior to the submittal of Bids, Contractor shall visit the site and inspect all facilities to become familiar with existing conditions and utilities.

1.04 REGULATORY REQUIREMENTS

A. Dispose of debris in accordance with the requirements of jurisdictional agencies.

B. Comply with applicable air quality control regulations.

C. Obtain necessary permits for building demolition, transportation of debris to disposal site(s) and dust control.

D. Erect appropriate safety devices to protect the general public, Owner's operations personnel, and workers from the hazards of demolition activities. Install barriers, guard rails and fences, and provide appropriate warning signs.

1.05 BURNING

A. The use of burning at the project site for the disposal of refuse, debris, and waste materials will not be permitted.

PART 2 – NOT USED

PART 3 – EXECUTION

3.01 GENERAL

A. The Drawings identify the major equipment and facilities to be demolished, salvaged or abandoned. Auxiliary utilities such as water, air, drainage, lubrication oil, electrical wiring, controls, and instrumentation are not necessarily shown. Remove auxiliary utilities, as well as equipment and pipe supports and associated instrumentation devices pertaining to piping or equipment designated to be removed.

3.02 PROTECTION OF EXISTING FACILITIES

A. Before beginning any cutting, trenching, or demolition work, carefully survey the existing work and examine the Contract Documents to determine the extent of the Work.

B. Take precautions to prevent damage to facilities which are to remain in place or are to be salvaged, and be responsible for any damages to these facilities resulting from this work. Repair or replace damages to such work to return the facilities to its pre-existing condition at no additional cost to the Owner.

3.03 DEMOLITION

A. Demolish structures and equipment in an orderly and safe manner.

B. Dispose of all material not identified for salvage or re-installation at a new location.

C. Minimize dust by sprinkling with water.

D. Backfill excavations caused by demolition in accordance with Section 02200.

3.04 SALVAGE – Not Used

3.05 BURIED PIPELINES

A. Where buried pipelines are shown to be removed on the Drawings, they may be plugged and abandoned in place if there is no conflict with proposed construction and they are not located under or within 10 feet of any proposed structure.

3.06 ASBESTOS CEMENT PIPE – NOT USED

3.07 DISPOSAL OF DEMOLISHED MATERIALS

A. Concrete, site debris, rubbish, and other materials resulting from demolition operations, as well as mechanical and electrical equipment designated to be demolished, shall be the property of the Contractor and shall be legally disposed of at the Contractor's expense.

3.08 CLEANING

A. During and upon completion of the demolition operations, promptly remove unused tools and equipment, surplus materials, rubbish, debris, and dust and shall leave work areas in a clean condition.

B. Do not sweep, grade, or flush surplus materials, rubbish, or debris into storm drains, channels, lakes, or streams.

END OF SECTION

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SECTION 02080

SHEETING, SHORING AND BRACING

PART 1 – GENERAL

1.01 WORK INCLUDED

A. This section includes design and construction parameters for Contractor designed temporary shoring as necessary for trenches or structures where such systems are not shown on the Drawings.

B. Shoring refers to providing all components of the excavation support system, including, but not limited to, bracing, steel soldier piles or sheet piles, struts, wales, or any other support including internal bracing, where applicable. Use other methods of support only when approved by the Engineer. Shoring shall be designed, provided, maintained, and where applicable, removed by the Contractor, in accordance with this Section and the Construction Documents.

C. As required by Section 6705 of the California Labor Code and in addition thereto, whenever work under the contract involves the excavation of any trench or trenches 5 feet or more in depth, including temporary construction excavations and manhole excavations, the Contractor shall submit to the Engineer a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plans vary from the shoring system standards established by the Construction Safety Orders of the Division of Industrial Safety, in Title 8, Subchapter 4, Article 6, California Code of Regulations, the plans shall be prepared and signed by a registered civil or structural engineer licensed in the State of California and employed by the Contractor. Shoring system plans for large excavations in excess of 5 feet or more in depth, shall be prepared and signed by a registered civil or structural engineer licensed in the State of California and employed by the Contractor. All costs therefore shall be included in the bid price named in the contract for completion of the Work as set forth in the contract documents. Nothing in this section shall be deemed to allow the use of a shoring, sloping or other protective system less effective than that required by the Construction Safety Orders. Nothing in this section shall be construed to impose tort liability on the Owner, Engineer, Design Consultant, or any of their officers, agents, representatives, or employees.

The sheeting shoring and bracing system shall be designed to assure worker safety and optimal conditions for the construction required and to minimize damage to adjacent pavement and utilities.

The sheeting, shoring, and bracing system shall be designed and constructed to meet all of the following minimum requirements:

1. Protect personnel that enter excavations.
2. Protect adjacent existing utilities, pipelines, pavements, and structures.
3. Installation of support system should not cause settlement or heave of the ground surface nor produce construction vibrations that could damage adjacent utilities or structures.
4. Prevent flowing running, caving, raveling, and sloughing of excavation walls and associated loss of adjacent ground and adjacent ground surface settlement.

5. Prevent heave and/or piping (boiling) of the excavation bottom.
6. Resist lateral earth pressures, hydrostatic pressures, lateral loads from traffic, construction equipment, and spoils.
7. When removal is permitted, allow for the removal of support system in a manner that does not damage the pipeline, cause settlement or heave of the ground surface, nor produce construction vibrations that cause damage adjacent utilities or structures.
8. Provide a stable work platform for the construction in the excavation.

Speed shores and trench box shoring in flowing ground conditions shall not be allowed.

Removal of shoring (where permitted) must not cause loosening of the pipeline embedment material, either by gaps formed upon shoring removal or by disturbance on vibration.

1.02 SYSTEM DESCRIPTION

A. The shoring system as described in the Specifications shall be comprised of some or all of the following major items. This list is not all inclusive or limiting. It does not relieve the Contractor of design of responsibility.

1. Steel sheet piles - sheet piles- (Interlocked Vertical Steel sheets driven or vibrated into the ground with water-tight corners.)
2. Steel wales- Horizontal steel member consisting of steel wide flange, "WF", or steel "H" pile, installed across the inside face of the braced excavation.
3. Steel cross bracing or struts- (Horizontal steel member consisting of steel wide flange, "WF", or steel "H" or pipe pile, installed across open excavation from wale to wale to brace shoring wall and reduce horizontal wale spans, where necessary.)

B. DESIGN REQUIREMENTS:

The Contractor shall employ a licensed civil engineer registered in the State of California to design the shoring system in accordance with OSHA requirements for excavations over 20 feet in depth as well as all applicable codes, and in accordance with the specific requirements described herein.

The Contractor shall at all times furnish, install, and maintain sufficient shoring and bracing in trenches and excavations to insure safety of the workmen and to protect and facilitate the work. The Contractor shall:

1. Design each member or support element to support the maximum loads that can occur during construction with appropriate safety factors.
2. Design the support system to limit total horizontal and vertical movements of the shoring to less than 1 inch and to protect adjacent utilities from damage. Design support system to maintain the stability of the excavation and provide a factor of safety of at least 2.0 against sliding or bottom heave. Design support system to be watertight and leakfree. Design support system to protect against base piping (boiling) with a safety factor of at least 2.0. Design the support system to prevent raveling, running, and flowing of excavation walls and associated loss of adjacent ground and adjacent ground surface settlement. Design the support system to retain noncohesive granular soils subject to raveling, flowing, and/or running upon vibration from construction equipment including compaction of backfill.

3. Employ wales, struts, beams, and tiebacks for lateral support as required for excavation faces supported by interlocked sheeting systems. Provide struts with intermediate vertical and horizontal supports as required to prevent buckling. Provide steel sheeting as required to retain all soil between supports.
4. Design the sheet pile length with sufficient depth of toe embedment to provide lateral stability at the base of the shoring system and prevent heave and boiling through the base of the excavation.
6. Design a groundwater control system for excavations to control groundwater inflows, prevent piping or loss of ground, and maintain stability of the excavation. No visible running water shall be observed entering the excavation through the shoring system. Contractor shall stop work in excavation and immediately repair shoring system to stop water flow.
7. See Section 02200, Earthwork, for other limitations.
8. Provide temporary fencing around all excavations.
9. Removal of shoring that is not specified to be cut and abandoned in place shall not damage the structure or pipeline, cause settlement or heave of the pipeline or the structures or settlement or heave of the ground surface.
10. Design excavation support systems in accordance with all CAL/OSHA, and OSHA, requirements.
11. Contractor shall take into account all surcharge loadings. Surcharge loadings can be due to such things as, but are not limited to: material or soil stockpiles, sloping ground adjacent to shoring, equipment and traffic loads, and adjacent building foundations. Contractor shall assure that his assumed conditions and loadings are not exceeded in the field during construction.
12. The Contractor shall design shoring to withstand any construction loading.
13. Contractor shall install a sufficient number of wales and struts to satisfy the requirement that the shoring system be stiff and keep deflections to a practical minimum; Contractor shall balance this requirement with the need to keep enough clear opening to allow safe and sufficient access for excavation of soil within shoring system and construction of the applicable pipe/structures.
14. The design of shoring shall conform to accepted engineering practice in this field. The Engineers approval of the Contractor's plans and methods of construction does not relieve the Contractor of his responsibility for the adequacy of this support.

C. PERFORMANCE CRITERIA:

1. The Contractor shall be solely responsible for, and bear the sole burden of cost for, any and all damages resulting from improper shoring or failure to shore.
2. The safety of workmen, the protection of adjacent structures, property and utilities, and the installation of adequate supports for all excavations shall be the sole responsibility of the Contractor.
3. The design, planning, installation, (and removal, if required) of all shoring shall be accomplished in such a manner as to maintain stability of the required excavation and to prevent movement of soil and rock that may cause damage to adjacent shoring systems, structures and utilities, damage or delay the work, or endanger life and health.

1.04 SUBMITTALS

A. SHOP DRAWINGS:

Submit plans for shoring to the Engineer for review at least 30 days prior to commencement of work. No excavations shall be started until the Engineer has reviewed the Contractor's shoring design. The shoring and bracing system plans shall be prepared in such a way to permit the Engineer to review the overall completeness and effectiveness of the proposed system. Review of the shoring and bracing plans by the Engineer in no way relieves the Contractor of complete responsibility for providing effective and safe shoring and bracing of the construction area and/or pipeline under construction. Shoring and bracing submittals shall demonstrate coordination with the dewatering method and submittal.
Include:

1. Design assumptions, analyses, calculations, and information on Contractor's proposed method of installation (and removal, if required) of all shoring. The design and calculations shall be performed by, sealed and signed by a professional engineer licensed in the State of California and experienced in the design of earth retaining structures.
2. The maximum design load to be carried by the various members of the support system.
3. Detailed excavation support drawings, showing all pertinent dimensions, spacings, and relationships among the components of the shoring, as well as construction sequence and scheduling.
4. The method of bracing.
5. The full excavation depth and depth(s) below the main excavation to which the support system will be installed.
6. Detailed sequence of construction and bracing removal.
7. Detailed drawings and descriptions of the method to be used by the Contractor to monitor shoring and adjacent ground/structure movements.
8. Demonstrate coordination with interior (sump pumps) and exterior (dewatering wells) dewatering methods and dewatering submittal.
9. Calculations demonstrating that shoring has been designed for hydrostatic pressures if external dewatering wells are not planned to fully draw down the groundwater level behind the shoring to below the excavation bottom.

B. QUALITY CONTROL SUBMITTALS:

Submit proof of experience and qualifications required in this section:

C. PERMITS:

Contractor shall obtain appropriate permits.

1.05 QUALITY ASSURANCE

A. QUALIFICATIONS: DESIGNER AND INSTALLER:

Work of this Section shall be performed by an individual or firm of established reputation (or, if newly organized, whose personnel have previously established a reputation in the same field) for at least 5 years, which is regularly engaged in, and which maintains a regular force of workmen skilled in design, installation and maintenance of shoring:

B. WELDING REQUIREMENTS:

All welding shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the type of materials to be used. Welders shall be qualified under the provisions of ANSI/AWS D1.1 by an independent local approved testing agency not more than six (6) months prior to commencing work; unless having been continuously employed in similar welding jobs since last certification. Machines and electrodes similar to those used in the work shall be used in qualification tests. The Contractor shall furnish all material and bear the expense of qualifying welders.

1.06 PROJECT CONDITIONS

A. EXISTING GROUND AND GROUNDWATER CONDITIONS:

1. A geotechnical investigation and report was prepared for the purposes of design of the VSFCD Lake Dalwigk Habitat Enhancement Project. A copy of this report may be obtained from the District.

2. The Contractor may at his own expense engage a geotechnical engineer to conduct supplemental investigations required for the design of the shoring systems to be used on this project.

B. EXISTING UTILITIES:

Contract Drawings do not show all utilities. Contractor shall notify the Underground Service Alert (USA) and field-check locations of utilities prior to commencing work. The shoring shall protect from damage any overhead wires and any sewer, water, gas, electric or other pipelines or conduits uncovered during work.

1. Where utilities are anticipated or encountered unexpectedly, excavate by hand or other excavation methods acceptable to the utility owner.
2. If existing utilities identified interfere with Contractor's proposed method of support, any required modification or relocation shall be performed at no additional cost to the Owner.

PART 2 – PRODUCTS

To be selected by the Contractor within the guidelines described in this section.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify Surface Conditions and utility locations. Protect utilities and improvements, as called for in the Contract Documents, or required by the Utility Company(s).

B. FIELD MEASUREMENTS:

Verify field measurements indicated on Drawings.

C. LAYOUT:

Verify layout of work before beginning installation.

D. EXISTING CONDITIONS:

Examine the available boring data before beginning design and installation of the shoring system.

3.02 EXCAVATION

A. Protect or repair utilities damaged by operations of this Section. Protect adjacent structures and property from damage and disfiguration.

B. Provide necessary groundwater control and drainage in accordance with Section 02240. Contractor should expect that dewatering will be required to allow placement of shoring in soil under "dry" conditions and to prevent running of soil, prior to shoring placement.

C. The methods of constructing the temporary shoring are at the option of the Contractor and subject to review and approval by the Engineer. Excavations shall be made to the lines, grade, and dimensions shown on the Contractor's Shop Drawings. If the excavation is found to be deviating from the true lines and grade, the Contractor shall immediately make the necessary changes in operation to bring the operation back to the correct position. Any excess deviation beyond that specified herein shall be remedied by the Contractor at their own expense.

D. Excavation shall be done in such manner as to provide adequate support at all times. Bracing and shoring shall be substantial and safe, and all work shall be done in full conformity and subject to the inspection of all affected parties. If and when required and to the degree necessary, the Contractor shall provide additional support as may be necessary at no additional cost.

E. Every precaution shall be taken to prevent the entry of water, mud and foreign matter into the excavation at all times. It is the intention of these Specifications that all construction work described herein shall be carried out under dry conditions. The Contractor shall promptly and continuously control water inflow and dispose of all water from any source that may accumulate in the excavation. This shall include all necessary pumping, bailing, draining and sedimentation prior to discharge.

F. Any and all excess excavation or over-excavation performed by the Contractor for any purpose or reason, except as may be ordered in writing by the Engineer, shall be at the expense of the Contractor. Any damage done to the work by the Contractor's operations shall be repaired by and at the expense of the Contractor and in a manner approved by the Engineer.

3.03 MONITORING

A. Monitor and record daily readings on the shoring to detect any vertical or horizontal movement. Measurements shall be referenced from an initial position of the shoring, as jointly established and agreed upon by the Contractor and the Engineer.

B. Should deflections become excessive and jeopardize worker safety and/or the structural integrity of the system or adjacent systems, the Contractor shall stop the excavation work until corrective measures have been taken and the deflections have been reduced to acceptable limits.

C. Where surface structures or utilities exist adjacent to the excavation, monitor adjacent ground and structures on all sides of excavations to verify that no settlement is occurring or has occurred as a result of the Contractor's construction activities.

3.05 BACKFILL

A. Backfill all open cut excavations in accordance with Section 02220 and 02320 and the Contract Drawings.

****END OF SECTION****

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SECTION 02100

SITE PREPARATION

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes: Site preparation work, as follows:

1. Installation of safety and protective barriers.
2. Construction of temporary access roads, work areas and storage areas.
3. Clearing, grubbing, stripping, and other initial work required for earthwork and trenching operations.

1.02 DEFINITIONS

A. Clearing: Consists of removal of natural obstructions and man-made objects and features including foundations, buildings, fences, lumber, stumps, debris, rubbish, brush, trees, boulders, organic matter, whether alive, dead or decaying, and other items that interfere with construction operations or are specifically designated for removal.

B. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs and roots greater than 2 inches caliper to a depth of 6 inches below subgrade.

C. Stripping: Removal of the top 6-inches of soil after clearing and grubbing have occurred.

D. Project Limits: Areas as shown or specified within which Work is to be performed.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 LOCATING EXISTING FACILITIES

A. Review the design drawings, maps, and other sources of information and identify existing facilities at the site to determine and mark the approximate locations of underground facilities.

B. Follow rules adopted by USA regarding locating and marking existing buried utilities and contact owners of existing underground utilities prior to beginning work in the vicinity of their utilities. Comply with requirements of Section 01030.

C. As necessary the location of each underground utility shall be determined by exploratory excavations after field marking by the utility agencies and prior to any excavations in the affected areas.

1. Survey the location of the exposed utility and provide information to the Engineer.
2. Replace and compact soil removed to expose the utility.
3. When existing asphalt is disturbed, install an asphalt patch and replace to original condition.

3.02 SAFETY AND PROTECTIVE BARRIERS

A. Along Public Roadways:

1. Install appropriate barriers such as temporary fencing, plastic drums, or concrete traffic barriers to protect public from construction areas and to protect workers and existing facilities from danger of passing vehicles.

B. Temporary Fences:

1. Maintain work activities within the confines of the temporary fences where public access abuts the work area.
2. Remove temporary fences when work in the vicinity is substantially complete.

C. Existing Trees: Erect temporary fences around trees at the drip line that are adjacent to the Work and may be subject to damage unless protected. Maintain work activities outside of protected areas.

D. Provide protective concrete slabs, steel plates or encasements for existing buried facilities that may be damaged by Contractor's equipment and vehicles.

3.03 PRIMARY SITE ACCESS, WORK AND STORAGE AREAS

A. Develop primary access routes, work areas and storage areas as indicated on the Drawings. Mow areas as necessary.

B. Clean up areas at the conclusion of the project and return the areas to their original condition. Repair damage to irrigation systems.

3.04 CLEARING

A. Clear construction areas within the Project Limits that will be affected by construction and site grading operations.

B. Cut stumps to within 4-inches of the ground surface.

C. Cut off shrubs, brush weeds and grasses to within 2 inches of the ground surface.

D. Dispose of material from clearing operations in an acceptable off-site location.

E. Costs for other natural cleared materials is included in Bid Item11. Costs for disposal of Arundo, include all leaves, stems, root wads, and soil within 1 foot of the roots of the Arundo and the collection and disposal of all man made trash, garbage, litter, debris, etc from all areas within the top of the banks of Lake Dalwigk and from the staging areas is included in Bid Item 17.

3.05 GRUBBING

A. Grub area within Project Limits that will be affected by construction and site grading operations.

B. Costs for disposal of grubbed materials is included in Bid Item 17.

3.06 STRIPPING

A. Remove the top layer of soil containing sod, grass, weeds and other vegetation to a depth of 6 inches from areas that will be affected by construction and site grading operations.

B. Dispose of stripped material in an acceptable off-site location

C. Costs for disposal of stripped materials is included in Bid Item 11.

3.07 REMOVAL OF EROSION CONTROL DEVICES

A. Remove erosion control devices when bare soils are sufficiently revegetated to prevent on-site or off-site soil erosion.

3.08 DISPOSAL

A. Dispose of debris offsite.

B. Burning of debris onsite will not be allowed

C. Limit of offsite disposal to areas that are approved by Federal, State and local authorities.

****END OF SECTION****

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SECTION 02200

EARTHWORK

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Earthwork, including excavation, fill, grading and compaction; import of material; and disposal of surplus and unsuitable materials.

1.02 GEOTECHNICAL INFORMATION

A. Geotechnical information for the project is contained in the report entitled, Geotechnical Engineering Investigation Report, prepared by DCM Engineering.

B. Contractor shall note the presence of Bay Mud soils in and around Lake Dalwigk.

1.03 QUALITY ASSURANCE

A. In-place Density of Compacted Fill Material: Density determined in the field in accordance with ASTM D2922 – Test Methods for Density of Soil and Soil Aggregate by Nuclear Methods (shallow depth) or ASTM D 1556 – Test Method for Density of Soil in Place by the Sand-Cone Method.

B. Maximum Density of Compacted Material: determined in the laboratory in accordance with Method C of ASTM D 1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 10 lb Rammer and 18" Drop, for cohesive soils, or ASTM D 4253 Test Methods for Maximum Index Density of Soils Using a Vibratory Table and D 4254 - Test Methods for Maximum Index Density of Soils and Calculation of Relative Density, for cohesionless, free draining soils.

C. Particle size analysis of soils and aggregates: ASTM D 422 - Method for Particle-Size Analysis of Soils.

D. Determination of sand equivalent value: ASTM D 2419 - Test Method for Sand Equivalent Value of Soils and Fine Aggregate.

E. Liquid limit, plastic limit, and plasticity index: ASTM D4318 – Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

F. The testing for organic matter: ASTM D2974 – Standard Test methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.

G. References in this section to soil classification types and standards shall have the meanings and definitions indicated in ASTM D 2487 - Classification of Soils for

Engineering Purposes. Contractor shall be bound by all applicable provisions of ASTM D 2487 in the interpretation of soil classifications.

1.04 SUBMITTALS

A. Prepare submittals and submit in accordance with Section 01300.

B. For imported materials, provide certification and source.

C. Work plan for grading in Lake Dalwigk that demonstrates how excavation will be performed to minimize disturbance of Bay Mud. Work plan shall include use of low ground pressure equipment/crain mats with long reach excavators.

1.05 SOIL TESTING AND COMPACTION TESTING

A. Engineer or their Representative

1. Takes samples and perform moisture content, gradation, compaction and density tests during placement of backfill materials.
2. Checks for compliance with these specifications.

B. Contractor

1. Removes surface material at locations designated by the Engineer.
2. Constructs inspection trenches, including trench support and groundwater removal, in compacted or consolidated backfill as requested by Engineer.
3. Provides such assistance to Engineer as necessary for sampling and testing.
4. Performs remedial work by: removing and replacing backfill at proper density or bringing density up to specified level by other means acceptable to the Engineer if compaction fails to meet specified requirements.
5. Bears cost for conducting additional tests that may be required to confirm and verify that remedial work has brought compaction within specified requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Fill, backfill, and embankment materials: Selected or processed clean earth, rock, or sand, free from grass, roots, brush, other vegetation, corrosive and hazardous materials, manmade objects, and debris.

B. Suitable materials:

1. Selected and obtained from onsite excavations and designated borrow areas.
2. Processed on-site materials.
3. Imported from offsite borrow areas and processing plants.

a. If imported materials are required by this Section, or to meet the quantity requirements of the Project, provide the imported materials at no additional expense to Owner, unless a unit price item is included for imported materials in the Bidding Schedule.

C. The following types of suitable materials are defined.

1. Drainage Rock: Clean angular gravel or crushed rock of one-inch (1") maximum size, with no material passing a No. 4 sieve.

2. Rock Rip Rap: Rock Rip Rap shall comply with the State of California Department of Transportation Standard Specifications requirements for Facing Class rock slope protection.

3. Foundation Material: Clean, durable, natural crushed (i.e., angular) aggregate graded within the following requirements:

Sieve Size	Percentage Passing
2-inch	100
1-1/2-inch	90-100
¾ inch	5-30
3/8 inch	0-5
No. 200	0-2

4. Aggregate Base: Caltrans Class 2 ¾ inch Maximum. Aggregate base material should be of such nature that it can be compacted readily by watering and rolling to form a firm, stable base. Sand Equivalent per California Method 217 of no less than 22. Resistance or R-value per California Method 301 of no less than 78. The aggregate base material shall meet the following gradation requirements:

Sieve Size	Percentage Passing
1-inch	100
¾ inch	90-100
No. 4	35-60
No. 30	10-30
No. 200	2-9

5. Light Weight Aggregate: Processed, naturally occurring volcanic cinder or an expanded shale/clay/slate (ESCS) material produced by the rotary kiln process. No by-product slag, cinders, or by-products of coal combustion shall be used. Lightweight aggregate shall be durable, non-corrosive and meet the following gradation requirements

Sieve Size	Percentage Passing
1-1/2-inch	100
1 inch	95-100
¾-inch	90-100
3/8 inch	15-85
No. 200	0-9

Light weight aggregate shall have durability index per California Method 229B of no less than 35. Resistance or R-value per California Method 301 of no less than 50. Light weight aggregate shall have a maximum calculated saturated surface dry unit weight of 60 pounds per cubic foot.

6. Sand Backfill: Sand with 90% to 100% passing a No. 4 sieve, and not more than 5% passing a No. 200 sieve.

7. Geotextile: Non–woven material consisting of polyester, nylon or polypropylene filaments formed into a stable network. The geotextile fabric should be permeable, not act as a wicking agent, be inert to commonly encountered chemicals, be rot-proof, be resistant to ultra violet light and conform to the following physical properties:

Property	Test Value	Test Method
Weight	8.2 oz/yd^2 (min.)	ASTM D5261
Grab tensile strength	205 lb (min.)	ASTM D4632
Elongation at break	50% (max.)	ASTM D4632
Puncture strength	130 lb (min.)	ASTM D4833
Burst strength	380 psi (min.)	ASTM D3786
Apparent opening size	#80 (max.)	ASTM D4751
Permittivity	1.2 sec^{-1} (min.)	ASTM D4491
UV resistance	70% (min.)	ASTM D4355

Seams in geotextile fabric shall be overlapped by 24 inches.

8. Gravel Surfacing: Crushed rock aggregate base material of such nature that it can be compacted readily by watering and rolling to form a firm, stable base for vehicle traffic. The material shall meet the following gradation requirements:

Sieve Size	Percentage Passing
1-inch	100
¾ inch	90-100
½ inch	30-60
3/8 inch	0-20
No. 4	0-2
No. 30	-

9. Island Fill:

   a. Excavated on site soils compacted to 80% relative compaction.

10. Structure Backfill

   a. Light weight aggregate or clean excavated fill soils not containing Bay Mud.

2.02 UNSUITABLE MATERIALS

A. Unsuitable materials include the materials listed below:

1. San Francisco Bay Mud soils that have not been improved by lime treatment (see Section 02250).
2. Soils which, when classified under ASTM D 2487, fall in the classifications of Pt, OH, MH, or OL, or in a classification that contains Pt, OH, MH, or OL in combination with any other letter designation, such as OH/CH.
3. Soils which cannot be compacted sufficiently to achieve the density specified for the intended use, or are unstable or pump regardless of the degree of compaction.
4. Materials that contain hazardous or designated waste materials including petroleum hydrocarbons, pesticides, heavy metals, and any material which may be classified as hazardous or toxic according to applicable regulations.
5. Soils that contain greater concentrations of chloride or sulfate ions, or have a soil resistivity or pH less than the average values for existing onsite soils.

6. Topsoil, sludge and sludge-entrained soils.
7. Rocks, stones, and boulders larger than allowed for use as suitable fill and backfill materials.

PART 3 – EXECUTION

3.01 EXCAVATION – GENERAL

A. Excavation includes the removal of all materials of whatever nature encountered, including all obstructions of any nature.

B. Excavation shall conform to the lines and grades indicated on the Drawings.

C. Clear, grub and strip.

D. Excavation Stability

1. Slope excavated faces or otherwise support in a safe manner in accordance with applicable State safety requirements and the requirements of OSHA Safety and Health Standards for Construction (29CFR1926) and in accordance with Section 02080 and VSFCD Master Bidding Document requirements.
2. Furnish, place, and maintain supports and shoring required to maintain stability of the sides of excavations.

E. Notify Engineer at least 1 working day in advance of completion of any structure excavation to allow inspection of the exposed subgrade before it is covered with backfill or with any construction materials.

F. Erosion Control:

1. Maintain earthwork surfaces true and smooth and protected from erosion.
2. Construct erosion control measures identified in the Storm Water Pollution Protection Plan prior to any clearing or grading activity.

3.02 EXCAVATION, FILL AND EMBANKMENT CONSTRUCTION

C. Subgrade Preparation for Embankments and Fill Areas

1. New Embankments
   a. Expose relatively undisturbed site soils to the lines and grades shown on the Drawings.

D. Excavation Beneath Paved Areas

1. Excavate to the subgrade soils beneath the bottom of the aggregate base or to the subbase, if such subbase is indicated.
2. The top 12 inches of subgrade soils shall be scarified, brought to optimum moisture content, and recompacted to 95% of maximum density
3. Finished subgrade shall be even, self-draining, and in conformance with the slope of the finished pavement.

E. Slopes: No permanent fill or embankment slopes shall be constructed with slope inclinations that exceed 3:1 (horizontal:vertical).

F. Construct fills and embankments to greater horizontal dimensions than indicated. Cut back slope following placement and compaction to expose well compacted fill.

3.03 OVER-EXCAVATION NOT ORDERED OR INDICATED

A. Backfill to the required grade with the indicated material and compaction. Any over-excavation carried below the grade indicated on the Drawings will be at no additional cost to Owner.

3.04 DISPOSAL OF UNSUITABLE, EXCESS EXCAVATED AND OTHER MATERIALS

A. Remove from the Site and dispose of all excess and unsuitable excavated materials. Disposal shall be at a site selected by Contractor and reviewed by Engineer.

B. Obtain all required permits, landowner, and agency approvals for disposal of unsuitable and excess excavated materials and pay all costs associated with the removal and disposal of the materials.

C. When hauling is done over highway or city streets, the loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading. The loads shall be watered after trimming to eliminate dust.

D. All earthwork operations shall be performed in a manner which does not disrupt the continuous flow of traffic on existing roadways. All streets shall be swept clean daily where dirt and debris result from contractor's operations.

3.05 COMPACTION OF FILL AND EMBANKMENT MATERIALS

A. Place fill materials in a manner that minimizes lenses, pockets, and layers of materials differing substantially in texture or gradation from surrounding materials.

B. Spread soil in uniform layers not exceeding 8 inches in loose thickness prior to compaction.

C. Compact each layer in a uniform and systematic manner.

D. For materials with less than 10% passing the No. 4 sieve, compact by means of at least 3 passes from a flat plate vibratory compactor.

E. For materials with 10% or more passing the No. 4 sieve, mechanically compact to the indicated percentage of density each layer of backfill materials.

1. Use equipment that is consistently capable of achieving the required degree of compaction.

2. Compact each layer over its entire area while the material is at the required moisture content.

F. Do not use flooding, ponding, or jetting as a method of compaction.

G. Do not use equipment weighing more than 10,000 lbs closer to walls than a horizontal distance equal to the depth of the fill at the time. Use hand operated power compaction equipment where use of heavier equipment is impractical or restricted due to weight limitations.

H. Compaction over pipelines:

1. Mechanically compact using light, hand operated vibratory compactors and rollers to at least 3 feet over the top of the pipeline

2. After completion of 3 feet of compacted backfill compaction equipment weighing no more than 12,000 lbs may be used.

I. Compaction Requirements

Location or Use of Fill	**Minimum or Range for Percentage of Maximum Density of Compacted Material**
Aggregate base or foundation material beneath structures and slabs	95
Top 12" of pavement subgrades, following scarification and recompaction	90
Aggregate base or sub-base beneath paved areas	95
Structural fill	90
Top 6" of soil in planted areas	80 min – 85 max

1. Where agency or utility company requirements govern, the highest compaction standards shall apply.

J. Immediately following compaction of backfill under structures, slabs, and pavements, compacted soils shall be moisture conditioned and maintained at 3%, ±0.5%, above optimum moisture content until immediately prior to placement of concrete or pavements.

K. Light weight aggregate shall be compacted in loose lifts no greater than 8-inches. Compact with three passes of a vibratory plate compactor. Select compaction plate vibrator so to not cause particle breakdown of the light weight aggregate material.

3.06 SUBGRADE PREPARATION FOR STRUCTURES:

A. Structures with subgrades on competent soils: immediately following excavation to the subgrade elevation indicated on the Drawings, scarify the exposed subgrade

to a depth of 8 inches, moisture condition and re-compact the subgrade beneath structures.

B. Structures with subgrades in San Francisco Bay Mud: over excavate subgrade, place a minimum 12-inch thick layer of foundation material wrapped in geotextile fabric.

3.07 SUBGRADE PREPARATION FOR PAVEMENTS

A. Scarified, brought to at least optimum moisture content, and recompacted with heavy compaction equipment to obtain at least 95% of maximum density, the top 12 inches of subgrade soils.

B. Immediately following scarification and recompaction, the subgrades beneath pavements shall be backfilled with the indicated layers of Aggregate Base Course materials.

3.08 RIP RAP

A. Install riprap with filter fabric and in conformance with Section 72-2, Rock Slope Protection, of the California State Standard Specifications and as shown on the drawings.

END OF SECTION

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SECTION 02320

TRENCH FOUNDATION, BEDDING AND BACKFILL

PART 1 – GENERAL

1.01 GENERAL

A. This section addresses foundation, bedding and backfill requirements for trenches for storm drain piping 24-inches in diameter and larger.

B. The foundation, bedding and backfill for all other trenches shall conform with the District Master Bid Document, Section 02220 – Trench Excavation and Backfill and related sections.

C. No jetting will be allowed for trench bedding or backfill.

D. All existing pipes within the trench zone and any other facilities adjacent to the trench shall be supported and protected from damage as a result of the Contractor's operations.

1.02 SPECIAL FOUNDATION TREATMENT

A. Special foundation treatment shall be required whenever the bottom of the trench has been over excavated as directed in the field by the Engineer.

B. The over excavated portion of trench shall be backfilled with light weight aggregate in accordance with these Specifications.

C. Geotextile filter fabric shall be used to wrap all granular materials in the trench.

D. An additional layer of Geotextile Fabric may be required to stabilize the trench bottom. The specification for this fabric shall be as approved by the Engineer.

1.03 BEDDING

A. Particular attention must be given to the placement of the bedding material to ensure that firm support to the pipe is obtained to prevent any change in alignment of the pipe.

B. The bedding shall be controlled low strength material (CLSM) slurry. CLSM to have a maximum in place density of 150 pcf, a minimum 28-day compressive strength of no less than 50 psi, and a maximum 28-day compressive strength of no more than 150 psi. CLSM to have a minimum 12-hour compressive strength of no less than 20 psi. Contractor shall take precautions, subject to the Engineer's approval to prevent pipe floatation in the CLSM.

1.04 GEOTEXTILE FILTER FABRIC

A. The contractor shall install non-woven geotextile filter fabric where indicated on the Drawings.

B. Geotextile Filter Fabric shall conform to the requirements specified in Section 02200.

1.05 BACKFILL

A. The Contractor shall not place any backfill material until the Engineer has inspected and accepted the placement of the Bedding.

B. Backfill shall conform to the Drawings and shall consist of light weight aggregate (LWA) material.

C. LWA material shall conform to the requirements specified in Section 02200.

D. LWA shall be placed in uniform layers. The thickness of each layer of backfill shall not exceed eight (8) inches before compaction. A minimum of three passes of vibratory compaction equipment should be made. Compaction equipment or methods which may cause displacement or damage to the LWA shall not be used.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

****END OF SECTION****

SECTION 03300

REINFORCED CONCRETE

PART 1 – GENERAL

1.01 REFERENCES

The following is a list of standards which may be referenced in this section. The latest edition of referenced publication in effect at the time of bid opening shall govern.

Reference	Title
American Concrete Institute (ACI)	
ACI 211.2	*Standard Practice for Selecting Proportions for Structural Lightweight Concrete*
ACI 213	*Guide for Structural Lightweight Aggregate Concrete*
ACI 301	*Specifications for Structural Concrete for Buildings*
ACI 304R	*Guide for Measuring, Mixing, Transporting and Placing Concrete*
ACI 305R	*Hot Weather Concreting*
ACI 306R	*Cold Weather Concreting*
ACI 318/318R	*Building Code Requirements for Reinforced Concrete*
ACI 347	*Formwork for Concrete*
American Society for Testing and Materials (ASTM)	
ASTM A497	*Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement*
ASTM A615	*Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement*
ASTM C31	*Standard Practice for Making and Curing Concrete Test Specimens in the Field*
ASTM C33	*Standard Specification for Concrete Aggregates*
ASTM C39	*Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens*
ASTM C88	*Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate*
ASTM C94	*Standard Specification for Ready-Mixed Concrete*
ASTM C127	*Test Method for Specific Gravity and Absorption of Coarse Aggregates*
ASTM C138	*Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete*
ASTM C143	*Test Method for Slump of Hydraulic Cement Concrete*
ASTM C150	*Standard Specification for Portland Cement*
ASTM C172	*Practice for Sampling Freshly Mixed Concrete*

Reference	Title
ASTM C173	*Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method*
ASTM C260	*Standard Specification for Air-Entraining Admixtures for Concrete*
ASTM C309	*Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete*
ASTM C330	*Specification for Lightweight Aggregates for Structural Concrete*
ASTM C494	*Standard Specification for Chemical Admixtures for Concrete*
ASTM C567	*Test Method for Density of Structural Lightweight Concrete*
ASTM C618	*Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete*
ASTM C989	*Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars*
ASTM C1017	*Specification for Chemical Admixtures for Use in Producing Flowing Concrete*
ASTM C1240	*Specification for Use of Silica Fume as a Mineral Admixture in Hydraulic-Cement Concrete, Mortar, and Grout*
ASTM D994	*Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)*
Concrete Reinforcing Steel Institute (CRSI)	
	Manual of Standard Practice, 2003, 27th Edition
	Recommended Practice for Placing Reinforcing Bars

1.02 SUBMITTALS

A. Shop Drawings

1. Reinforcing steel in accordance with CRSI Manual of Standard Practice and ACI SP.
2. Curing compound data.
3. Complete data on the concrete mix, including cementitious materials, aggregate gradations and admixtures, in accordance with ASTM C94.
4. Data compiled by a certified Testing Laboratory from a minimum of 30 previous compression tests and 10 previous drying shrinkage tests, for each mix design submitted.

B. Quality Control Submittals

1. Manufacturer's application instructions for curing compound.
2. Ready-mix delivery tickets for each truck in accordance with ASTM C94.

1.03 QUALITY ASSURANCE

1. Formwork: Unless otherwise specified, follow the recommendations of ACI 347.
2. Concrete and Reinforcement: Unless otherwise specified, meet the requirements of ACI 301 and 318/318R.
3. Hot Weather Concreting: Conform to ACI 305R.

1.04 ENVIRONMENTAL REQUIREMENTS

Do not use curing compound where solvents in the curing compounds are prohibited by state or federal air quality laws. Use only water curing methods.

PART 2 – PRODUCTS

2.01 CONCRETE

A. Ready-mixed meeting ASTM C94, Option A. Concrete shall be structural lightweight concrete where indicated on the Drawings.

B. Portland Cement: ASTM C150, Type II.

C. Aggregates: Furnish from one source.

1. Natural Aggregates
   a. Free from deleterious coatings and substances in accordance with ASTM C33, except as modified herein.
   b. Free of materials and aggregate types causing pop outs, discoloration, staining, or other defects on surface of concrete.
2. Non-Potentially Reactive: In accordance with ASTM C33, Appendix X1, paragraph X1.1.
3. Aggregate Soundness: Test for fine and coarse aggregates in accordance with ASTM C33 and ASTM C88 using sodium sulfate solution.
4. Fine Aggregates
   a. Clean, sharp, natural sand.
   b. ASTM C33.
   c. Materials Passing 200 Sieve: 4 percent maximum.
   d. Limit deleterious substances in accordance with ASTM C33, Table 1 with material finer than 200 sieve limited to three percent, coal and lignite limited to 0.5 percent.
5. Coarse Aggregates
   a. Normalweight concrete: ASTM C33.
      i. Natural gravels, combination of gravels and crushed gravels, crushed stone, or combination of these materials containing no

more than 15 percent flat or elongated particles (long dimension more than five times the short dimension).

ii. Materials Passing 200 Sieve: 0.5 percent maximum.

b. Structural lightweight concrete: Expanded shale, clay or slate lightweight aggregate produced by the rotary kiln method shall meet ASTM C330.

D. Mixing Water: Shall meet ACI 318.

E. Admixtures

1. Air-Entraining: ASTM C260.
2. Water-Reducing: ASTM C494, Type A or D.
3. Superplasticizers: ASTM C494, Type F or G.
4. Fly Ash: ASTM C618, Class C or F.
5. Ground Granulated Blast-Furnace Slag: ASTM C989.
6. Color Pigments: Inert mineral or metal oxide pigments, either natural or synthetic; resistant to lime and other alkalies.

F. Mix Design

1. Minimum 28-day Compressive Strength when cured and tested in accordance with ASTM C31 and C39:
   a. Structure footings, walls, and slabs: 4,000 psi
   b. Site Concrete: 3,000 psi
2. Maximum equilibrium density as determined by ASTM C567:
   a. Normalweight concrete: 145 pcf
   b. Structural lightweight concrete: 110 pcf
3. Coarse Aggregate Size:
   a. Normalweight concrete: 1½ inches and smaller.
   b. Structural lightweight concrete: ¾ inches and smaller.
4. Slump Range:
   a. Normalweight concrete: three to five inches.
   b. Structural lightweight concrete: two to four inches.
5. Air Content:
   a. Normalweight concrete: between one and three percent by volume.
   b. Structural lightweight concrete: between two and four percent by volume.
6. Water Reducers: Use in concrete without plasticizers.

G. Proportions

1. Design mix to meet aesthetic and structural concrete requirements.

2. Water-cement ratio (or water-cement plus fly ash ratio) shall control amount of total water added to concrete as follows:

Coarse Aggregate Size	W/C Ratio
1½ inch	0.45
¾ inch	0.40

3. Minimum Cement Content (or Combined Cement Plus Fly Ash Content When Fly Ash is Used):

   a. 540 pounds per cubic yard for concrete with 1½-inch maximum size aggregate.

   b. 564 pounds per cubic yard for ¾-inch maximum size aggregate.

4. Increase cement content or combined cement plus fly ash content, as required to meet strength requirements and water-cement ratio.

H. Mixing: Minimum 70 and maximum 270 revolutions of mixing drum. Non-agitating equipment is not allowed.

2.02 REINFORCING STEEL

A. Deformed Bars: ASTM A615, Grade 60.

B. Welded Wire Fabric: ASTM A497.

2.03 ANCILLARY MATERIALS

A. Cast-in-Place Anchor Bolts, Expansion Anchors, Headed Studs, Epoxy Adhesive Anchors and Dowels: see Section 05501.

B. Expansion Joint Filler: ASTM D994, ½ inch thick, or as shown.

C. Waterstops

Waterstops shall be manufactured from virgin polyvinylchloride (PVC) conforming to the Corps of Engineers Specification No. CRD-C572. Waterstops shall be 6-inch, heavy-duty Flex-Bulb or flat strip as manufactured by the Greenstreak Company, Water Seals, Inc., or equal; and as shown on the structural drawing details.

D. Bonding Compounds

Epoxy resin bonding compounds shall be used for wet areas and shall be Master Builder, Concresive Nos. 1001, 1001-LPL or 1180 as applicable; Sika Chemical Corporation, Sikadur 35, Hi-Mod LV, Sikadur 32, Hi-Mod, or Sikadur 31, Hi-Mod Gel as applicable; Burke Company 881 LPL Epoxy; or equal.

Non-epoxy bonding compounds shall be used for dry areas and shall be Burke Company, Acrylic Bondcrete; Imperial Chemical Industrial, Inc., Thoro System Products, Acryl 60; Thorobond; or equal. Bonding compounds shall be applied in accordance with the manufacturer's instructions.

E. Curing Compound

1. Material: Solvent based containing chlorinated rubber solids in accordance with ASTM C309, with additional requirement that the moisture loss not exceed 0.030 gram per centimeter squared per 72 hours.
2. Manufacturers and Products:
    a. Chemrex Inc., Shakopee, MN; Masterkure CR.
    b. Euclid Chemical Co.; Euco Super Floor Coat.

F. Surface Hardener

Surface hardener shall be premixed, noncolored, nonmetallic Master Builders, Mastercron; Sonneborn, Harcol; A. C. Horn Inc., Durafax; Burke Company Non-Metallic Floor Hardner; or equal. Surface hardener shall be applied in accordance with manufacturer's instructions.

PART 3 – EXECUTION

3.01 FORMWORK

A. Form Materials

1. Use hard plastic finished plywood for exposed areas, and new ship lap or plywood for unexposed areas.
2. Earth cuts may be used for forming footings.

B. Form Ties

1. Fixed conical or spherical type inserts that remain in contact with forming material and allow for dry packing of form tie holes.
2. Ties shall withstand pressures and limit deflection of forms to acceptable limits.
3. Wire ties are not acceptable.

C. Construction

1. In accordance with ACI 347.
2. Make joints tight to prevent escape of mortar and to avoid formation of fins.
3. Brace as required to prevent distortion during concrete placement.
4. On exposed surfaces locate form ties in uniform pattern or as shown.

5. Construct so ties remain embedded in the wall with no metal within 1-inch of concrete surface when forms, inserts, and tie ends are removed.

D. Form Removal

1. Remove after concrete has attained 28-day strength, or approval is obtained in writing from Engineer.

2. Remove forms with care to prevent scarring and damaging the surface.

3.02 PLACING REINFORCING STEEL

A. Unless otherwise specified, place reinforcing steel in accordance with CRSI Recommended Practice for Placing Reinforcing Bars.

B. Splices and Laps

1. Top Bars: Horizontal bars placed such that 12 inches of fresh concrete is cast below in single placement.

2. Horizontal wall bars are considered top bars.

3. All bar lap splices shall be Class B in accordance with ACI 318-02.

4. Tie splices with 18-gauge annealed wire as specified in CRSI Standard.

3.03 PLACING CONCRETE

A. Place concrete in accordance with ACI 301.

B. Prior to placing concrete, remove water from excavation and debris and foreign material from forms. Check reinforcing steel for proper placement and correct discrepancies.

C. Before depositing new concrete on old concrete, clean surface using sandblast or bush hammer or other mechanical means to obtain a ¼ inch rough profile, and pour a cement-sand grout to minimum depth of ½ inch over the surface. Proportion 1 part cement to 2.5 parts sand by weight.

D. Place concrete as soon as possible after leaving mixer, without segregation or loss of ingredients, without splashing forms or steel above, and in layers not over two feet deep. Place within 1½ hours after adding cement to mix.

E. Eight feet maximum vertical drop to final placement, when not guided with chutes or other devices to prevent segregation due to impact with reinforcing.

F. Hot Weather

1. Prepare ingredients, mix, place, cure, and protect in accordance with ACI 305R.

2. Maintain concrete temperature below 80 degrees F at time of placement, or furnish test data or provide other proof that admixtures and mix ingredients do not produce flash set plastic shrinkage, or cracking due to heat of hydration. Ingredients may be cooled before mixing to maintain fresh concrete temperatures at 80 degrees F or less.

3. Make provisions for windbreaks, shading, fog spraying, sprinkling, ice, or wet cover, or other means to provide concrete with temperature specified.

4. Prevent differential temperature between reinforcing steel and concrete.

3.04 COMPACTION

Vibrate concrete as follows:

A. Apply approved vibrator at points spaced not farther apart than vibrator's effective radius.

B. Apply close enough to forms to vibrate surface effectively but not damage form surfaces.

C. Vibrate until concrete becomes uniformly plastic.

D. Vibrator must penetrate fresh placed concrete and into previous layer of fresh concrete below.

3.05 CONSTRUCTION JOINTS

A. Locate as shown or as approved.

B. Maximum Spacing Between Construction Joints: 40 feet.

3.06 FINISHING

A. Floor Slabs and Tops of Walls

1. Screed surfaces to true level planes.

2. After initial water has been absorbed, float with wood float and trowel with steel trowel to smooth finish free from trowel marks.

3. Do not absorb wet spots with neat cement.

B. Unexposed Slab Surfaces: Screed to true surface, bull float with wood float, and wood trowel to seal surface.

C. Smooth Wall Finish

1. Patch tie holes.

2. Grind off projections, fins, and rough spots.

3. Patch *defective* areas and repair rough spots resulting from form release agent failure or other reasons to provide smooth uniform appearance.

D. Tolerances: Floors shall not vary from level or true plane more than ¼ inch in 10 feet when measured with a straightedge.

E. Exterior Slabs and Sidewalks

1. Bull float with wood float, wood trowel, and lightly trowel with steel trowel.
2. Finish with broom to obtain nonskid surface.
3. Finish exposed edges with steel edging tool.
4. Mark walks transversely at 5-foot intervals with jointing tool.

3.07 FINISHING AND PATCHING FORMED SURFACES

A. Cut out honeycombed and *defective* areas.

B. Cut edges perpendicular to surface at least one-inch deep. Do not feather edges. Soak area with water for 24 hours.

C. Finish surfaces to match adjacent concrete.

D. Keep patches damp for minimum 7 days or spray with curing compound to minimize shrinking.

E. Fill form tie holes with nonshrink grout per Section 03600.

3.08 PROTECTION AND CURING

A. Protect fresh concrete from direct rays of sunlight, drying winds, and wash by rain.

B. Keep concrete slabs continuously wet for a seven-day period. Intermittent wetting is not acceptable.

C. Use curing compound only where approved by Engineer. Cure formed surfaces with curing compound applied in accordance with manufacturer's directions as soon as forms are removed and finishing is completed.

D. Remove and replace concrete damaged by freezing.

3.09 FIELD QUALITY CONTROL

A. Provide adequate facilities for safe storage and proper curing of concrete test cylinders onsite for first 24 hours, and for additional time as may be required before transporting to test lab.

B. Provide concrete for testing of slump, air content, and for making cylinders from the point of discharge into forms.

C. Evaluation will be in accordance with ACI 301, Chapter 17 and Specifications.

D. Specimens will be made daily, cured, and tested in accordance with ASTM C31 and ASTM C39.

E. The District (or the District's Representative) will prepare test cylinders daily during concrete placement. Frequency of testing may be changed at discretion of Engineer.

F. Reject concrete represented by cylinders failing to meet the strength and air content specified.

****END OF SECTION****

SECTION 03600

GROUT

PART 1 – GENERAL

1.01 DESCRIPTION

This section specifies grout for uses other than masonry.

1.02 QUALITY ASSURANCE

A. QUALITY CONTROL BY CONTRACTOR:

To demonstrate conformance with the specified requirements for grout, the Contractor shall provide the services of an independent testing laboratory which complies with the requirements of ASTM E329. The testing laboratory shall sample and test grout materials as required in this section. Costs of testing laboratory services shall be borne by the Contractor.

B. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, whether or not the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM C33	Concrete Aggregates
ASTM C40	Organic Impurities in Fine Aggregates for Concrete
ASTM C88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Material Finer Than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C136	Sieve Analysis of Fine and Coarse Aggregates

Reference	Title
ASTM C150	Portland Cement
ASTM C289	Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
ASTM C494	Chemical Admixtures for Concrete
ASTM C881	Epoxy-Resin-Base Bonding Systems for Concrete
ASTM D2419	Sand Equivalent Value of Soils and Fine Aggregate
ASTM E329 REV C	Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
CRD-C621	Corps of Engineers Specification for Nonshrink Grout

1.03 SUBMITTALS

Submittals shall be provided in accordance with Section 01300 and shall include the following information:

A. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations form specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph referenced to a detailed written explanation for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specifications, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. MANUFACTURER'S DATA:

Manufacturer's data shall be provided for the following:

1. Bonding compounds.

2. Nonshrink grout.

3. Pressure grout.

4. Retardants.

5. Epoxy grout.

6. Polymer concrete.

C. LABORATORY TEST REPORTS:

Test reports on previously tested materials shall be accompanied by the manufacturer's statement that the previously tested material is the same type, quality, manufacture, and make as that proposed for use in this project. Test reports are required for the following:

1. Cement.

2. Aggregates.

3. Retardants.

4. Bonding compounds.

5. Epoxy resin.

D. EVIDENCE OF TESTING LABORATORY COMPETENCE:

The Contractor shall require that the laboratory provide directly to the Construction Manager evidence of the most recent inspection of its facilities by the Cement and Concrete Reference Laboratory of the National Bureau of Standards. The evidences shall show that deficiencies mentioned in the report of that inspection have been corrected. The evidence of inspection shall be provided prior to delivery of materials to the job site.

PART 2 – PRODUCTS

2.01 MATERIALS

A. CEMENT:

Portland cement shall be ASTM C150, Type II or Type V, low alkali, containing less than 0.60 percent alkalies.

B. AGGREGATE:

1. GENERAL:

Aggregate shall be nonreactive and shall be washed before use.

When sources of aggregate are changed, test reports shall be provided for the new material. The tests specified shall be performed prior to commencing grout work.

2. FINE AGGREGATE:

Fine aggregate shall be hard, dense, durable particles of either sand or crushed stone regularly graded from coarse to fine and shall conform to ASTM C33 as modified herein. When tested in accordance with ASTM C136, gradation shall be such that 100 percent by weight will pass a standard No. 8 mesh sleeve and no less than 45 percent by weight will pass a standard No. 40 mesh sieve.

Variation from the specified gradations in individual tests will be acceptable if the average of three consecutive tests is within the specified limits and the variation is within the permissible variation listed below:

U.S. standard sieve size	Permissible variation in individual tests, percent
30 or coarser	2
50 or finer	0.5

Other tests shall be in accordance with the following specifications:

Test	Test method	Requirements
Organic Impurities	ASTM C40	Color lighter than standard
Amount of Material Passing No. 200 Sieve	ASTM C117	3% maximum by weight
Soundness	ASTM C88	10% maximum loss with sodium sulfate
Reactivity	ASTM C289	Innocuous aggregate
Sand Equivalent	ASTM D2419	Minimum 80

C. ADMIXTURES:

1. GENERAL:

Admixtures shall be compatible with the grout. Calcium chloride or admixtures containing calcium chloride are not acceptable. Admixtures shall be used in accordance with the manufacturer's recommendations and shall be added separately to the grout mix.

2. WATER REDUCING RETARDER:

Water reducing retarder shall be ASTM C494 Type D and shall be Master Builders Pozzolith 300-R, Sika Corporation Plastiment, or equal.

3. LUBRICANT FOR CEMENT PRESSURE GROUTING:

Lubricant additive for cement pressure grouting shall be Intrusion Prepakt Intrusion Aid, Sika Intraplast N, or equal.

D. WATER:

Water for washing aggregate, for mixing and for curing shall be free from oil and deleterious amounts of acids, alkalies, and organic materials; shall not contain more than 1000 mg/1 of chlorides as Cl, nor more than 1300 mg/1 of sulfates as SO_4; and shall not contain an amount of impurities that may cause a change of more than 25 percent in the setting time of the cement nor a reduction of more than 5 percent in the compressive strength of the grout at 14 days when compared with the result obtained with distilled water. Additionally, water used for curing shall not contain an amount of impurities sufficient to discolor the grout.

2.02 GROUT

A. DRYPACK GROUT:

Drypack grout shall be a mixture of approximately one part cement, 1-1/2 to 2 parts sand, water reducing retarder, and sufficient water to make a stiff workable mix.

B. CEMENT GROUT:

Cement grout shall be a mixture of one part cement, two parts sand, proportioned by volume, admixtures for pressure grouting, and sufficient water to form a workable mix.

C. NONSHRINK GROUT:

Nonshrink grout is available with both metallic and nonmetallic aggregate. Metallic aggregate grout shall be Master Builders Embeco 636, The Burke Company Metallic Spec Grout, Sonnoborn Ferrolith G Redimix, or equal. Nonmetallic aggregate grout shall be Five Star Products, Inc. Five Star Grout, Master Builders Masterflow 713, The Burke Company Non-Ferrous, Non-Shrink Grout, or equal.

D. EPOXY GROUT FOR CRACK REPAIR:

Except as noted below, epoxy grout shall be a high modulus, two-component, moisture insensitive, 100 percent solids, thermosetting modified polyamid epoxy compound. The consistency shall be a paste form capable of not sagging in horizontal or overhead anchoring configurations. Material shall conform to ASTM C881, Type 1, Grade 3, such as Adhesive Engineering Concresive 1440 series, Sika Corporation Sikadur Hi-Mod Series, Adhesive Technology Corporation Solidbond 200, or equal, and shall have a heat deflection temperature in excess of 130 degrees F.

Epoxy for pressure grouting/crack injection shall be a two-component, moisture insensitive, high modulus, injection grade, 100 percent solids, blend of epoxy-resin

compounds. The consistency shall be as required to achieve complete penetration in hairline cracks and larger. Material shall conform to ASTM C881, Type 1, Grade 1, such as Sika Corporation Sikadur 52, Adhesive Engineering Company SCB products, Adhesive Technology Corporation SLV 300 series, or equal.

E. POLYMER CONCRETE (FOR RESURFACING OR PATCHING):

Polymer concrete (for resurfacing or patching) shall consist of a liquid binder and dry aggregate mixed together to make a mortar or grout of a consistency as required for the application. The liquid binder shall be a chemical and oil resistant, stress relieved, low modulus, moisture insensitive, two-component epoxy-resin compound. The consistency shall be similar to lightweight oil for proper mixing with aggregate. Material shall conform to ASTM C881, Type 3, Grade 1, such as Sika Corporation Sikadur Lo-Mod series, Adhesive Engineering Concresive 1470, Adhesive Technology Corporation 400 series, or equal.

The aggregate shall be oven dry in sealed packages until time of mixing, and shall be of size and consistency compatible with recommendations of manufacturer of liquid binder for intended application.

2.03 PRESSURE GROUTING EQUIPMENT

Pressure grouting equipment shall include a mixer and holdover agitator tanks and shall be designed to place grout at pressures up to 50 psi. Gages shall be provided to indicate pressure used. The mixer shall be provided with a meter capable of indicating to one-tenth of a cubic foot the volume of grout used.

PART 3 – EXECUTION

3.01 GENERAL

Bonding compound for use with grout is specified in Section 03301. Primer, if required for polymer concrete, shall be provided per manufacturer's recommendation.

3.02 DRYPACK GROUT

Drypack grout shall be used for built-up surfaces, setting miscellaneous metal items and minor repairs.

Surfaces required to be built up with drypack grout shall be roughened by brushing, then cleaned and coated with the bonding compound specified in 03301 before the application of the grout. The drypack grout shall be applied immediately following the application of the bonding compound in bands or strips to form a covering of the required thickness. The covering shall be smooth. Construction joints in the grout shall be sloped and shall be cleaned and wetted before application is resumed.

Drypack grout shall be cured in accordance with Section 03301.

Grout shall not be placed during freezing weather unless adequate protection is provided.

3.03 CEMENT GROUT

Cement grout shall be used for filling nonbearing portions of equipment pads and pressure grouting.

Except for the specialized equipment for pressure grouting, mixing and placing apparatus shall be similar to that normally used for cast-in-place concrete. Grout shall be mixed for a period of at least 1 minute. Diluted grout shall be agitated to keep ingredients mixed.

3.04 NONSHRINK GROUT

Nonshrink, metallic aggregate grout shall be used for the bearing surfaces of machinery and equipment bases, column base plates and bearing plates at dry, interior locations. Nonshrink, nonmetallic aggregate grout shall be used for the bearing surfaces of machinery and equipment bases, column base plates and bearing plates at damp or exterior locations. Nonshrink, nonmetallic aggregate grout shall also be used for permanently setting handrail, guardrail or fence posts in pipe sleeves. Grout shall meet the requirements of CRD-C621 and shall be placed in accordance with manufacturer's instructions.

3.05 EPOXY GROUT

Epoxy grout shall be used for repairing cracks by pressure grouting or gravity flow in structural concrete. Concrete shall be primed in accordance with the grout manufacturer's instructions.

3.06 PRESSURE GROUTING

Prior to grouting, systems and holes to be grouted shall be washed clean. Washing is not required for grouting soil voids outside pipe cylinders or casing pipes. Grouting, once commenced, shall be completed without stoppage. In case of breakdown of equipment, the Contractor shall wash out the grouting system sufficiently to ensure fresh grout and adequate bond and penetration will occur upon restarting the grouting operation. Grout pressure shall be maintained until grout has set.

****END OF SECTION****

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SECTION 05500

MISCELLANEOUS METALWORK

PART 1 – GENERAL

1.01 SUMMARY

This section specifies miscellaneous metalwork, which consists of custom fabricated steel metalwork other than structural metalwork.

1.02 QUALITY ASSURANCE

A. GENERAL

Shop and field welding shall conform to the requirements of the AISC Manual of Steel Construction.

The use of salvaged, reprocessed or scrap materials will not be permitted.

B. REFERENCES

This section contains references to the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, whether or not the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
AISC M016	Manual of Steel Construction, Allowable Stress Design-9th Edition
ASTM A36/A36M	Carbon Structural Steel
ASTM A48	Gray-Iron Castings
ASTM A283/A283M	Low and Intermediate Tensile Strength Carbon Steel Plates

Reference	Title
ASTM A307	Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
ASTM A320/A320M	Alloy Steel Bolting Materials for Low-Temperature Service
ASTM A500	Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A992/A992M	Standard Specification for Structural Steel Shapes
ASTM B209	Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B429/B429M	Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube

1.03 CONTRACTOR SUBMITTALS

A. Provide submittals in accordance with Section 01300, "Submittals" of these technical specifications.

B. Submittals shall include product data for all materials, verifying conformance to these Specifications.

C. Submittals shall include Shop Drawings for each miscellaneous metal assembly, complete with material designations, dimensions, welds, anchorage, and details for installation.

PART 2 – PRODUCTS

2.01 MATERIALS

Materials for miscellaneous metalwork are specified in Table A.

Table A, Materials for Miscellaneous Metalwork

Material	Specification
Rolled wide flange beams	ASTM A992
All other rolled shapes, plates, angles and miscellaneous steel	ASTM A36 or ASTM A283
Iron castings	ASTM A48
Structural steel tubing	ASTM A500, Grade B
Steel bolts (except flanges and anchor bolts)	ASTM A307, Grade A
Stainless steel	ASTM A320, Type 316

Material	Specification
Structural Aluminum: Plate	ASTM B 209, 6061-T6 Alloy
Extruded Aluminum Structural Pipe and Tube	ASTM B 429, 6061-T6 Alloy

2.02 FABRICATION

A. GENERAL

Holes shall be punched 1/16-inch larger than the nominal size of the bolts, unless otherwise specified. Whenever needed, because of the thickness of the metal, holes shall be subpunched and reamed or shall be drilled.

Fabrication including cutting, drilling, punching, threading and tapping required for miscellaneous metal or adjacent work shall be performed prior to hot-dip galvanizing.

Hinges and areas where field welding is required shall not be hot-dip galvanized.

B. SEAT ANGLES, SUPPORTS AND BRACKETS

Seat angles over slide gate guides shall be welded to the guides. Seat angles for grating, supports for floor plates, clips for precast panels and brackets for piping shall be steel, hot-dip galvanized after fabrication unless otherwise specified.

C. POWER DRIVEN PINS

Power driven pins may be used in interior locations of nonprocess areas. Pins shall be heat-treated steel alloy in accordance with AISI 1062 or 4063 and shall be zinc-plated. Pins shall have capped or threaded heads capable of transmitting the loads the shanks are required to support. Pins that are connected to steel shall have longitudinal serrations around the circumference of the shank. Complete information describing pin capacities and connections shall be provided to the Engineer. Proposed use and locations shall be approved by the Engineer prior to their use.

D. IRON CASTINGS

Castings shall be as specified on the drawings. Castings weighing less than 100 pounds shall be hot-dip galvanized after machining. Castings weighing greater than 100 pounds shall be galvanized where specified.

E. OTHER MISCELLANEOUS STEEL METALWORK

Other miscellaneous steel metalwork including embedded and nonembedded steel metalwork, grating for trash racks, hangers and inserts shall be as specified on the drawings and shall be hot-dip galvanized after fabrication.

PART 3 – EXECUTION

3.01 INSTALLATION

A. GENERAL

Fieldwork shall not be permitted on galvanized items. Drilling of bolts or enlargement of holes to correct misalignment will not be allowed. Where field welding is required, field welds and areas around them shall be touch-up galvanized after all welding is complete.

Dissimilar metals shall be protected from galvanic corrosion by means of pressure tapes, coatings or isolators.

Metalwork to be embedded in concrete shall be placed accurately and held in correct position while the concrete is placed or, if specified, recesses or blockouts shall be formed in the concrete. The surfaces of metalwork in contact with or embedded in concrete shall be thoroughly cleaned. If accepted, recesses may be neatly cored in the concrete after it has attained its design strength and the metalwork grouted in place. Embedments shall be as specified in Section 03300.

B. SEAT ANGLES, SUPPORTS AND GUIDES

Seat angles for grating and supports for floor plates shall be set so that they are flush with the floor and also maintain the grating and floor plates flush with the floor.

C. POWER DRIVEN PINS

Power driven pins shall be set by a craftsman who is certified by the manufacturer. Pins shall be driven in one initial movement by an instantaneous force that has been selected to attain the required penetration. Driven pins shall conform to the following:

Material penetrated by pin	Penetrated material's minimum thickness	Penetration of pin's shank in supporting material	Minimum space from center of pin's shank to edge of penetrated matl.	Minimum pin spacing
Concrete	16D	6D minimum	14D	20D
Steel	1/4 inch	Steel thickness plus 2D	4D	7D

Where D = pin shank diameter.

When required by the Engineer, pullout tests shall be carried out by the Contractor to prove the effectiveness of the anchorage and the capacity of the pin.

3.02 CLEANING

After installation, damaged surfaces of shop-primed metals shall be cleaned and touched up with the same material used for the shop coat. Damaged surfaces of galvanized metals shall be repaired to the satisfaction of the Engineer.

3.04 BACKPAINTING OF ALUMINUM

A. Aluminum in contact with concrete or metal other than aluminum or stainless steel shall be backpainted with bituminous mastic paint 15 mil dry film thickness, minimum.

****END OF SECTION****

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SECTION 05501
ANCHOR BOLTS

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall select, furnish, and install anchor bolts in accordance with the Contract Documents.

1.02 REFERENCED DOCUMENTS

A. The following documents are referenced in this section.

Reference	Title
ANSI B18.2.1	Square and Hex Bolts and Screws (Inch Series)
ANSI B18.2.2	Square and Hex Nuts (Inch Series)
ASTM A 36	Carbon Structural Steel
ASTM A 307	Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
ASTM A 320	Alloy-Steel Bolting Materials for Low-Temperature Service

1.03 CONTRACTOR SUBMITTALS

A. Provide submittals in accordance with Section 01300, "Submittals" of these Specifications.

B. Submittals shall include product data for all materials, current ICC-ES testing reports, and installation instructions from manufacturers.

C. For cast in place anchor bolts, submittals shall include Shop Drawings for each set of anchor bolts, complete with material designations, dimensions, and details of embedment.

D. For anchor bolts installed into drilled holes for retrofit or modification installations, submit details of the proposed anchors per Paragraph B.

1.04 QUALITY ASSURANCE

A. For applications that require special inspection in accordance with the Statement of Special Inspections on the Drawings, Contractor shall coordinate the inspection activities to ensure that the special inspector is present for the required operations.

Contractor shall provide at least 7 days prior written notice to Engineer and the special inspector for operations that require special inspection.

B. During special inspection, Contractor shall provide access, lighting, safety equipment, and scaffolding, as necessary for the inspections. If scaffolding is required for the inspections, Contractor shall provide workers to move and relocate the scaffolding as required to provide access to all areas for inspection purposes.

PART 2 - PRODUCTS

2.01 GENERAL

A. Contractor shall provide anchor bolts using design data provided in accordance with the requirements in the Technical Specifications, and as indicated on the Drawings.

B. Anchor Bolt Type Requirements

1. Anchor bolts for the following service shall be cast in place with concrete foundations, slabs, walls, or other structure components.

   a. Anchor bolts that are embedded in structural elements other than foundations, slabs, and walls. Such locations include, but are not limited to, pedestals, beams, columns, and other similar structural elements.

   b. Locations indicated in the Contract Documents

2. Cast In Place Anchor Bolt Details

   a. Cast in place anchor bolts shall be as detailed on the Drawings.

   b. For cast in place anchor bolts, the bolts shall be threaded only on the top ends, as necessary for the installation. Rod threaded for its entire length shall not be used.

3. Adhesive anchor bolts shall not be used as a substitution for cast in place anchor bolts without the approval of the Engineer.

4. Where indicated to be a specific type in the Technical Specifications or Drawings, those specific types shall be provided.

5. The minimum anchor bolt sizes shall be 5/8-inch for equipment, 1/2-inch for pipe supports, and 3/8-inch for light duty applications such as conduit supports and small channel supports for small piping.

2.02 MATERIALS

A. Materials for anchor bolts shall be in accordance with the following requirements.

1. Anchor bolts for indoor and outdoor locations with exposure to precipitation, splash and washdown from fresh water, and exposure to lubricating oils, fuel, and grease shall be carbon steel fabricated of materials conforming to ASTM A 307, Grade A or ASTM A 36, hot dip galvanized after fabrication.

2. Anchor bolts for indoor and outdoor locations with exposure to splash, spillage, and vapors from chemicals, and anchor bolts inside chemical containment areas shall be stainless steel in accordance with ASTM A 320, Type 316.

3. Anchor bolts for submerged service, service within the zone between the water level and the tops of walls and overhanging decks in hydraulic structures, and service inside enclosed hydraulic structures shall be stainless steel in accordance with ASTM A 320, Type 316.

B. Bolt Requirements

1. The nuts shall be capable of developing the full strength of the bolts. All bolts and cap screws shall have hexagon heads.

2. Bolts shall be ANSI B18.2.1 hexagon bolts with ANSI B18.2.2 heavy hexagon nuts.

3. The length of all bolts shall be such that after joints are made up, each bolt shall extend through the entire nut, but in no case more than 1/2-inch beyond the nut.

C. Adhesive Anchors

1. Epoxy adhesive shall be ‘SET’ epoxy as manufactured by Simpson Strong-Tie or approved equal.

2. For adhesive anchor bolts, the anchor bolt rods shall be threaded for their entire length.

D. Expanding-Type Anchors

1. Expanding-type anchors shall be steel wedge-type Strong-Bolt by Simpson Strong-Tie, Kwik Bolt TZ by Hilti or approved equal. Lead caulking anchors or other types of non-structural anchors shall not be used.

PART 3 – EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

A. Install anchor bolts in accordance with the manufacturer's printed instructions. In addition, review the applicable ICC-ES reports to determine if there are any limitations associated with installation procedures.

B. Use equipment Shop Drawings to determine anchor bolt layout dimensions. Install anchor bolts using accurate templates. At least 16 hours in advance of concrete placement, notify Engineer to obtain observation of the anchor bolt layout checking procedure by Contractor. Any required corrections to anchor bolt locations shall be made before the end of the day in advance of concrete placement.

C. Support anchor bolts firmly in the correct positions and check bolt positions as concrete is placed and finished.

D. For adhesive anchor bolts, install the bolts in holes drilled using percussion drilling equipment to produce holes with roughened surfaces. Holes shall be brushed and blown clean prior to installing anchor bolt.

****END OF SECTION****