

SET NO: _____



San Diego County, California

**FINAL CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF:**

**4S RANCH WATER RECLAMATION FACILITY
EQUALIZATION BASIN RELINING PROJECT**



AUGUST 2016

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OLIVENHAIN MUNICIPAL WATER DISTRICT


San Diego County California

FINAL CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF

**4S RANCH WATER RECLAMATION FACILITY EQUALIZATION BASIN RELINING
PROJECT**

AUGUST 2016



George R. Briest, P.E.
Engineering Manager

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BID FORM CHECKLIST

(To be placed in the Bidder's Contract Documents in front of the Table of Contents)

Bid Form Page	Requirement	Initial
1 of 14	BID FORM- Fill out the form and acknowledge <u>all</u> addenda in the spaces provided at the end of the first paragraph	
2 of 14	BIDDING INSTRUCTIONS- Examination of the site and review of the Contract Documents has been completed	
2 of 14	BIDDING INSTRUCTIONS- Bid Schedule and all Bid forms are to be submitted with this Bid Form Checklist	
3, 4, & 5 of 14	BID SCHEDULE- Fill out all items in the Bid Schedule, including dollar amounts in words and in numbers for each item	
6 of 14	DESIGNATION OF SUBCONTRACTORS- Fill in all information required on the form	
7 of 14	LISTING OF MANUFACTURERS- Fill in all information required on the form	
8 of 14	Fill in the type of Bid Bond enclosed in the first paragraph, and list all principals of the company in the third paragraph	
9 of 14	Fill in Bidder's license classification, license number, and all other information required in the fourth paragraph, including signature and date	
10 of 14	CERTIFICATE OF DRUG-FREE WORKPLACE- Fill in Bidder's name at the top and Certification section at the bottom of the page, including signature and date	
11 of 14	CERTIFICATE OF NONDISCRIMINATION- Fill in all information required on the form, including signature and date	
12 of 14	NONCOLLUSION AFFIDAVIT- Fill in all information required on the form including signature and date and provide notarization	
13 of 14	BIDDER'S EXPERIENCE- Fill in all information required on the form and provide signature and date at the bottom	
14 of 14	INSURANCE ACKNOWLEDGEMENT- Fill in all information required on the form and provide signature and date where indicated	
1 of 2	BID BOND- Fill in all required information including dollar amount	
2 of 2	BID BOND- Fill in all required information, provide signatures of the bidder and surety where indicated, provide notarization for principal of bidder and surety, and attach a certified Power of Attorney for surety	
00810 2 of 27	1.04 MARKING AND ADDRESSING BID ENVELOPE- Contract Documents are sealed in an envelope marked and addressed as required in this section	

Dated _____ Signature of Bidder _____

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REFERENCE STANDARDS

Olivenhain Municipal Water District, Standard Specifications and Drawings for the Construction of Water, Recycled Water, and Sewer Facilities, June 25, 2008.

Standard Specifications for Public Works Construction, "Greenbook", 2015.

San Diego Regional Standard Drawings (Latest Edition).

PROJECT PLANS

Construction Drawings for the 4S Ranch WRF EQ Basin Relining Project (8 Sheets).

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PART I

BIDDING AND CONTRACT REQUIREMENTS

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NOTICE INVITING SEALED PROPOSALS (BIDS)
FOR THE CONSTRUCTION OF
4S RANCH WRF EQ BASIN RELINING PROJECT
FOR THE
OLIVENHAIN MUNICIPAL WATER DISTRICT

NOTICE IS HEREBY GIVEN that the Board of Directors of said District invites and will receive sealed proposals (bids) up to the hour of **2:00 p.m. on the 13th day of October, 2016** for the furnishing to said District of all transportation, labor, materials, tools, equipment, services, permits, utilities, and other items necessary to construct said work. At said time, said proposals will be publicly opened and read aloud at the office of the Olivenhain Municipal Water District, 1966 Olivenhain Road, Encinitas, CA 92024, (760) 753-6466.

Bids shall conform to and be responsive to the Contract Documents for the work. Copies of the Contract Documents will be open to public inspection during business hours in the office of the District.

The District will conduct a Pre-Bid Conference at the site location at 4S Ranch WRF, 16595 Dove Canyon Rd, San Diego, CA 92127, at **10:00 a.m. on September 20th, 2016**.

All questions relative to this project prior to the opening of bids shall be directed to the District (see enclosed Pre-Bid Question Form). It shall be understood that no specification interpretations will be made by telephone nor will any "or equal" products be considered for approval prior to award of the contract. Bidders are encouraged to submit their pre-bid questions as early as possible, in writing by fax or mail, so they can be answered in writing through an addendum if necessary. Questions may be taken verbally; however, written questions will be given priority, and verbal questions run the risk of not being answered. Pre-bid questions will be received up to **5:00 p.m. on October 7th, 2016**, after which they will not be answered.

Contract Documents consisting of plans, specifications and bidding documents can be downloaded from the "Bids and Planning" link under "About Us" on the home page of the District's website at www.olivenhain.com. Contract documents are not available at the District's office. It is the Bidder's responsibility to download and acknowledge receipt of all addenda. If you wish to be placed on the plan holders list, please send your company name, contact person, contact phone # and email to mdouglas@olivenhain.com.

Each bid shall be submitted on the bid form furnished as part of the Contract Documents and must state the Contractor's applicable license classification, license number, license expiration date, name of license holder, and relationship to Bidder. The license classification required for this project is Class A General Engineering or Class C-61 Synthetic Products. Each bid must be accompanied by cash, a cashier's check, a certified check, or a bidder's bond executed by an admitted surety insurer. This proposal guarantee shall be in an amount of not less than 10 percent of the amount of the bid and made payable to the order of or for the benefit of the District. Each bid shall be sealed and delivered to District personnel at 1966 Olivenhain Road, Encinitas, CA 92024 on or before the day and hour set for the opening of bids. Bids not marked as being received by

District personnel on or before the day and hour of bid opening will be rejected. It is the responsibility of the Bidder to ensure that the bid is received by District personnel on or before the day and hour of bid opening. Said cash, check, or bond shall be given as guarantee that the Bidder will enter into a contract with the District and furnish the required payment and performance bonds and insurance certificates and endorsements if awarded the work, and will be declared forfeited if the Bidder refuses to timely enter into said contract or furnish the required bonds or insurance certificates and endorsements if his bid is accepted. The proposal guarantee of unsuccessful bidders will be returned by the District no later than 60 calendar days following the date of award of contract.

Bidders shall have a minimum of five (5) years of successful prior experience performing the type of work required by this contract. Where the Bidder is a corporation or partnership, the entity must demonstrate at least five (5) years of successful experience with the work required by the contract. Bidders failing to demonstrate this experience may be rejected as nonresponsive at the option of the District.

Under the provisions of the California Public Works Apprenticeship Standards, Sections 1777.5, 1777.6, and 1777.7 of the Labor Code, a copy of the "Extract of Public Works Contract Award" has been included. This document will be filed with the California Department of Industrial Relations at the time of the award of the Contract.

The Board of Directors has obtained from the Director of the California Department of Industrial Relations a determination of the general prevailing rate of per diem, wages, and the general prevailing rate for legal holiday and overtime work in the locality in which said work is to be performed for each craft, classification, or type of worker needed. Not less than the determined rates shall be paid to all workers employed in the performance of the contract. Such rates of wages are on the file with the Department of Industrial Relations and in the office of the District and are available to any interested party upon request.

Pursuant to Public Contract Code Section 22300, the Contractor may substitute equivalent securities for retention amounts which this Contract requires. However, the District reserves the right to solely determine the adequacy of the securities being proposed by the Contractor and the value of those securities. The District shall also be entitled to charge an administrative fee, as determined by the District in its sole discretion, for substituting equivalent securities for retention amounts.

The Contractor agrees that the District's decision with respect to the administration of the provisions of Section 22300 shall be final and binding and not subject to subsequent litigation or arbitration of any kind as to acceptance of any securities being proposed, the value of these securities, the costs of administration and the determination of whether or not the administration should be accomplished by an independent agency or by the District. The District shall be entitled, at any time, to request the deposit of additional securities of a value designated by the District, in the District's sole discretion, to satisfy this requirement. If the District does not receive satisfactory securities within 12 calendar days of the date of the written request, the District shall be entitled to withhold amounts due Contractor until securities of satisfactory value to the District have been received.

Pursuant to Section 995.710 of the Code of Civil Procedures, the Contractor may substitute any of the instruments specified in Code of Civil Procedure Section 995.710 for the performance and payment bonds required by the Contract Documents. All such substitutions shall be subject to review and approval by the District. Contractor agrees to pay all attorney's fees and all other fees, costs, and expenses incurred by the District in reviewing substitutes proposed by the Contractor and in preparing and implementing any agreements determined appropriate by the District to adequately protect District.

All bidders shall agree to obtain and maintain in full effect all required insurance with limits not less than the amounts indicated. Bidders who fail to comply with the insurance requirements of this contract may have their bids rejected as nonresponsive at the election of the District.

Pursuant to California Labor Code Section 6705, the cost of sheeting, shoring, and bracing of trenches, or equivalent method, where part of the job, shall constitute a separate bid item under these contract documents.

The Board of Directors of the District reserves the right to select the schedule(s) under which the bids are to be compared and contract(s) awarded, to reject any and all bids, and to waive any and all irregularities or defects in any bid.

OLIVENHAIN MUNICIPAL WATER DISTRICT

Dated: 8.31.16



GEORGE R. BRIEST, P.E.
ENGINEERING MANAGER

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Prior to the opening of bids, all questions relative to this project **shall be directed to Olivenhain Municipal Water District, Attn: George Briest, Tel: (760) 753-6466, Email: Gbriest@Olivenhain.com**. Bidders are encouraged to submit their pre-bid questions as early as possible, in writing by email, so they can be answered in writing through addendum, if necessary. Questions may be taken verbally; however, **written questions will be given priority**, and verbal questions run the risk of not being answered. **Pre-bid questions will be received up to 5:00 p.m., October 7th, 2016, after which no questions will be taken or answered.**

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BID FORM
PROPOSAL TO
OLIVENHAIN MUNICIPAL WATER DISTRICT
SAN DIEGO COUNTY, CALIFORNIA

FOR THE CONSTRUCTION OF
4S RANCH WRF EQ BASIN RELINING PROJECT

Name of Bidder: _____

Business Address: _____

_____ Phone No.: _____

TO THE GOVERNING BODY OF THE OLIVENHAIN MUNICIPAL WATER DISTRICT

Pursuant to and in compliance with your Notice Inviting Sealed Proposals (Bids) and the other documents relating thereto, the undersigned Bidder, being fully familiar with the terms of the Contract Documents, local conditions affecting the performance of the Contract, the character, quality, quantities, and scope of the work, and the cost of the work at the place where the work is to be done, hereby proposes and agrees to perform within the time stipulated in the Contract, including all of its component parts and everything required to be performed, and to furnish any and all of the labor, material, tools, equipment, transportation, services, permits, utilities, and all other items necessary to perform the Contract and complete in a workmanlike manner, all of the work required in connection with the construction of said work all in strict conformity with the Plans and Specifications and other Contract Documents, including Addenda Nos. __, __ and __ for the prices hereinafter set forth.

The undersigned as Bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any person, firm, or corporation; and he proposes and agrees, if the proposal is accepted, that he will execute a Contract with the Owner in the form set forth in the Contract Documents and that he will accept in full payment thereof the following prices, to wit:

BIDDING INSTRUCTIONS
FOR THE CONSTRUCTION OF
4S RANCH WRF EQ BASIN RELINING PROJECT

Prior to the opening of bids, all questions relative to this project shall be directed to the Owner. Bidders are encouraged to submit their pre-bid questions as early as possible, in writing by fax or mail, so they can be answered in writing through addendum, if necessary. Questions may be taken verbally; however, written questions will be given priority, and verbal questions run the risk of not being answered. Pre-bid questions will be received up to **5:00 p.m. on Friday, October 7th, 2016**, after which they will not be answered.

Bidders shall have a minimum of five (5) years of successful prior experience performing the type of work required by this Contract. Bidders failing to demonstrate this experience may be rejected as nonresponsive at the option of the Owner.

Bidders agree to obtain and maintain in full effect all required insurance with limits not less than the amounts indicated. Insurers must be authorized to do business and have an agent for service of process in California, have an "A" policyholder's rating and a financial rating of at least Class VI in accordance with the most current rating by A.M. Best Company. Bidders who fail to comply with the insurance requirements of this Contract may have their bids rejected as nonresponsive at the election of the Owner.

The Bidder's attention is directed to Article 3-1 "Award of Contract or Rejection of Bids" in the General Provisions concerning the above conditions.

Bidders must satisfy themselves of the character of the work to be performed by examination of the site and review of the Contract Documents. After bids have been submitted, the Bidder expressly waives the right to assert that there was a misunderstanding concerning the nature of the work to be done. Any bid protests must be submitted within three (3) calendar days of the bid.

The Contract Documents contain the provisions required for the construction of the Project. Information obtained from an officer, agent, or employee of the Owner or any other personnel shall not affect the risks or obligations assumed by the Contractor, or relieve him from fulfilling any of the conditions of the Contract.

Bids shall be made on the Bid Form and Bid Bond included within these Contract Documents. Bidders shall designate the subcontractors and list the manufacturers of materials to be used in the Project on the Designation of Subcontractors form included with these Contract Documents. All subcontractors listed to perform any of the work must be licensed in the State of California. No single subcontractor may perform more than 25% of the work listed in the Bid Schedule unless specifically approved in advance by the District prior to the submission of bids. The Owner reserves the right to find a bid non-responsive in the sole discretion Owner if a Bidder lists any unlicensed subcontractors to perform any of the work. Submit with the bid the completed Certificate of Drug-Free Workplace, Certificate of Nondiscrimination, Noncollusion Affidavit, Designation of Subcontractors, Bidder's Experience, and Insurance Acknowledgment included in the Bid Form. Completely fill out the one page Bid Form Checklist included in front of the Table of Contents and include it with the bid.

The pay items listed in each Bid Schedule are described in Specification Section 1150 – Measurement and Payment.

BID SCHEDULE
For
4S RANCH WRF EQ BASIN RELINING PROJECT

Item	Item Description with Lump Sum Price Written in Words	Amount in Figures
1	Mobilization, demobilization, bonds, permits, insurance (earthquake and title wave insurance not required) and cleanup for the lump sum price of	
		DOLLARS \$
	(WORDS)	
2	All work required for removal and reinstallation of the aluminum railing, as required, complete for the lump sum price of	
		DOLLARS \$
	(WORDS)	
3	All work required for supplementary basin dewatering (including dealing with nuisance water) and inspection of the existing geomomembrane liner, grinding sharp protrusions, removal and disposal of all sediment with basins, liner cleaning prior to placement of new liner, and appurtenant items complete for the lump sum price of	
		DOLLARS \$
	(WORDS)	
4	All work required for installation of the new geotextile liner and geomembrane including but not limited to geotextile, geomembrane, doubler welds, testing, liner caps, and appurtenant items complete for the lump sum price of	
		DOLLARS \$
	(WORDS)	
5	All work required for liner attachments, including but not limited to batten bars, bent plates, anchors, and appurtenant items, complete for the lump sum price of	
		DOLLARS \$
	(WORDS)	

BID SCHEDULE
For
4S RANCH WRF EQ BASIN RELINING PROJECT

Item	Item Description with Lump Sum Price Written in Words	Amount in Figures
6	All work required for construction of the fluid applied membrane and appurtenant items, complete for the lump sum price of	

	DOLLARS	\$
<hr/>		
(WORDS)		

TOTAL AMOUNT OF BID SCHEDULE ITEMS 1 THROUGH 6

	DOLLARS	\$
<hr/>		

(WORDS)

DESIGNATION OF SUBCONTRACTORS

In compliance with the provisions of Section 4100 4114 of the Public Contract Code of the State of California, and any amendments thereof, each Bidder shall set forth below, the name, license number, and location of the mill, shop or office of each subcontractor who will perform work or labor, or render service to the Contractor in an amount in excess of one half (1/2) of one percent (1%) of the total bid, and the portion of the work which will be done by each subcontractor. All subcontractors listed must be licensed to perform the subcontract work in the State of California. No single subcontractor may perform work in excess of 25% of the total work listed in the Bid Schedule unless specifically approved by the District in advance of submission of the Bid. Bidders who list any unlicensed subcontractors on this form may have their bid rejected as non-responsive in the sole discretion of Owner.

If the Bidder fails to specify a subcontractor for any portion of the work in excess of one half (1/2) of one percent (1%) of the total bid to be performed under the Contract, he shall be deemed to have agreed to perform such portion himself, and he shall not be permitted to subcontract that portion of the work except under conditions permitted by law.

Subletting or subcontracting any portion of the work as to which no subcontractor was designated in the original bid shall only be permitted in case of public emergency or necessity, or otherwise permitted by law, and then only after a finding reduced to writing as a public record of the Owner.

Trade	% of Work To Be Done	Name of Subcontractor	License Number	Address

LISTING OF MANUFACTURERS

The Contractor shall submit this sheet with his bid, completed, to list the manufacturers of materials he intends to use. It shall be understood that where the Contractor elects to not use the material manufacturers called for in the Specifications, he will substitute only items of equal quality, durability, functional character, and efficiency as determined by the Owner. The Contractor should ascertain prior to bidding the acceptability of substitutes. Only one manufacturer shall be listed for each item.

[illegible]

Substitutions shall be allowed only if requested in accordance with Article 5-10 of the General Provisions within 35 calendar days of the date the Contract is awarded. Should a substitution be allowed, there will be no increase in the amount of the bid originally submitted.

ACCOMPANYING THIS PROPOSAL IS

(insert the words "cash", "a cashier's check", "a certified check", or "a Bidder's bond" as the case may be) in an amount equal to at least 10 percent of the total amount of the Bid, payable to the

OLIVENHAIN MUNICIPAL WATER DISTRICT

The undersigned deposits the above named security as a proposal guarantee and agrees that it shall be forfeited to the Owner as liquidated damages in case this proposal is accepted by the Owner and the undersigned fails to execute a contract with the Owner as specified in the Contract Documents or fails to furnish the required payment and performance bonds, and insurance certificates and endorsements. Should the Owner be required to engage the services of an attorney in connection with the enforcement of this bid, Bidder promises to pay Owner's reasonable attorneys' fees, incurred with or without suit.

The names of all persons interested in the foregoing proposals as principals are as follows: (NOTICE If Bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager thereof; if a general partnership, state true name of firm, also names of all individual partners composing firm; if a limited partnership, the names of all general partners and limited partners; if Bidder or other interested person is an individual, state first and last names in full; if the Bidder is a joint venture, state the complete name of each venturer).

The Owner has determined the license classification necessary to bid and perform the subject contract. In no case shall this Contract be awarded to a specialty contractor whose classification constitutes less than a majority of the project. When a specialty contractor is authorized to bid a portion of the work of this contract, all work to be performed outside of the contractor's license specialty, except work specifically authorized by the Owner, shall be performed by a licensed subcontractor in compliance with the Subletting and Subcontracting Fair Practices Act commencing with Section 4100 et seq., of the Public Contract Code. See Business and Professions Code Section 7059.

The Contractor's license classification(s) required for this project are as follows:

CLASS A – GENERAL ENGINEERING or

CLASS C-61 SYNTHETIC PRODUCTS

It is the Owner's intent that "plans," as used in Public Contract Code Section 3300, is defined as the construction Contract Documents, which include both the Plans and the Specifications.

Bidder warrants and represents that it has at least five (5) years of successful experience performing the type of work required by this Contract.

Bidder warrants and represents, under penalty of perjury, that license(s) required by California State Contractor's License Law for the performance of the subject project are in full effect and proper order. Bidders must state, under penalty of perjury, the Contractor's applicable license classification, license number, license expiration date, name of license holder, and relationship to Bidder. Any bid not containing this information may be considered nonresponsive and may be rejected by the Owner.

Bidders relying upon licenses of Responsible Managing Employees (RME) or Responsible Managing Officers (RMO) agree to provide the Owner with all information it determines necessary to verify that the Bidder complies with California State Contractor's License Law.

License Classification: _____

License Number: _____

Expiration Date: _____

Name of License Holder: _____

Relationship to Bidder: _____

Name of Bidder: _____

Signatures: _____

Dated: _____, 20 _____

NOTE: If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation and the corporate seal; if Bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; if the Bidder is an individual, his signature shall be placed above; if the Bidder is a joint venture, the name of the joint venture shall be set forth above with the signature of an authorized representative of each venturer.

CERTIFICATE OF DRUG-FREE WORKPLACE

BIDDER: _____

The Bidder named above hereby certifies compliance with Government Code Section 8355 in matters relating to providing a drug-free workplace. The above named Bidder will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).
2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:
 - (a) The dangers of drug abuse in the workplace,
 - (b) The person's or organization's policy of maintaining a drug-free workplace,
 - (c) Any available counseling, rehabilitation and employee assistance programs, and
 - (d) Penalties that may be imposed upon employees for drug abuse violations.
3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract or loan:
 - (a) Will receive a copy of the company's drug-free policy statement, and
 - (b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or loan.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the Bidder to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME: _____

DATE EXECUTED: _____ EXECUTED IN COUNTY OF: _____

OFFICIAL'S SIGNATURE: _____

TITLE: _____

CERTIFICATE OF NONDISCRIMINATION

1. During the performance of this contract, Bidder and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, age (over 40) or sex. Bidders and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. Bidder and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.) and the applicable regulations promulgated thereunder (California Administrative Code, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12900, set forth in Chapter 5 of Division 4 of Title 2 or the California Administrative Code are incorporated into this contract by reference and made a part hereof as if set forth in full. Bidder and its subcontractor shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
2. This Bidder shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

THE UNDERSIGNED CERTIFIES THAT THE BIDDER WILL COMPLY WITH THE ABOVE REQUIREMENTS.

BIDDER NAME: _____

CERTIFIED BY:

NAME: _____ TITLE: _____

SIGNATURE: _____ DATE: _____

NONCOLLUSION AFFIDAVIT

State of _____)
) ss.
County of _____)

I, _____, being duly sworn, deposes
and says that he or she is _____ of

_____, the party making the foregoing
bid, that the 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 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 the effectuate a collusive or sham bid.

Signature of Bidder: _____

Subscribed and sworn to before me on this _____ day of _____, 20__.

BIDDER'S EXPERIENCE

Name of Bidder: _____

License Number: _____

List a minimum of five (5) similar projects successfully completed by the Bidder during the last five (5) years. Provide all information required in spec section 02776.1.05 for each project. Additional sheets may be provided. Projects not similar in scope, fee, and complexity will not be considered as representative of this project.

Project Name and Location	Project Owner's Name, Address & Telephone No.	Date Completed
------------------------------	--	-------------------

I declare, under penalty of perjury, that the foregoing is true and correct.

Dated: _____, 20____

(Signature of Bidder)

INSURANCE ACKNOWLEDGMENT

On behalf of the Bidder making this proposal, the undersigned warrants and represents that the Bidder has carefully read and understood all of the insurance requirements of the Contract Documents and has included the full cost of providing insurance meeting all requirements of the Contract Documents in the bid.

Upon request by Owner prior to the time of Award, the Bidder agrees to promptly provide Owner with letters from insurance companies meeting the requirements of the Contract Documents verifying that they are prepared to issue insurance to Bidder meeting all requirements of the Contract Documents. The failure of Bidder to provide Owner with this proof of insurance prior to the time of Award shall entitle Owner to reject the Bidder's bid as nonresponsive and to Award the bid to the next lowest Bidder at the sole discretion of Owner.

The failure of Bidder to provide Owner with insurance meeting all requirements of the Contract Documents within 15 calendar days after the Award, shall constitute a material breach of the Contract, entitling Owner to terminate the Contract and call the bid bond.

By dating and executing this Insurance Acknowledgment, Bidder hereby accepts all terms and conditions of this Insurance Acknowledgment and agrees to be bound by all of its terms.

Dated: _____, 20____

(Name of Bidder)

(Signature)

(Typed Name and Title)

BID BOND

We, _____ as Principal, and
_____ as Surety, jointly and severally, bind
ourselves, our heirs, representatives, successors and assigns, as set forth herein, to the

OLIVENHAIN MUNICIPAL WATER DISTRICT

(herein called Owner) for payment of the penal sum of _____ Dollars
(\$ _____), lawful money of the United States. Principal has submitted the accompanying
bid for the construction of

4S RANCH WRF EQ BASIN RELINING PROJECT

If the Principal is awarded the Contract and enters into a written contract, in the form prescribed by the Owner, at the price designated by his bid, and files two bonds with the Owner, one to guarantee payment for labor and materials and the other to guarantee faithful performance, in the time and manner specified by the Owner, and carries all insurance in type and amount which conforms to the Contract Documents and furnishes required certificates and endorsements thereof, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Forfeiture of this bond, or any deposit made in lieu thereof, shall not preclude the Owner from seeking all other remedies provided by law to cover losses sustained as a result of the Principal's failure to do any of the foregoing.

Principal and Surety agree that if the Owner is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay Owner's reasonable attorney's fees incurred with or without suit.

Executed on _____, 20__

PRINCIPAL

By: _____

(Seal if Corporation) Title: _____

(Attach Acknowledgment of Authorized Representative of Principal)

Any claims under this bond may be addressed to:

_____ (name and address of Surety)

_____ (name and address of Surety's
agent for service of process in
California, if different from above)

_____ (telephone number of Surety's
agent in California)

(Attach Acknowledgment) _____
SURETY

By: _____
(Attorney-in-Fact)

NOTICE:

No substitution or revision to this bond form will be accepted. Sureties must be authorized to do business in and have an agent for service of process in California. A certified copy of the Power of Attorney must be attached.

AGREEMENT

THIS AGREEMENT, made and entered into by and between the

OLIVENHAIN MUNICIPAL WATER DISTRICT

hereinafter referred to as "OWNER" and

_____ ;

a corporation under the laws of the state of _____ ;

a partnership composed of _____

_____ ;

a joint venture composed of _____

_____ ;

an individual doing business as _____ ;

hereinafter referred to as "CONTRACTOR."

OWNER and CONTRACTOR agree as follows:

- (1) **SCOPE OF WORK:** CONTRACTOR will furnish all materials and will perform all of the work for the construction of the

4S RANCH WRF EQ BASIN RELINING PROJECT

in accordance with the plans and specifications and other contract documents therefor.

- (2) **TIME OF COMPLETION:** The work shall be completed within the times set forth in the Special Provisions. Time is of the essence.
- (3) **CONTRACT SUM:** OWNER will pay CONTRACTOR in accordance with the prices shown in the Bid Form.
- (4) **PAYMENTS:** Monthly progress payments and the final payment will be made in accordance with the General Provisions as modified by the Special Provisions. The filing of the notice of completion by OWNER shall be preceded by acceptance of the work made only by an action of the Governing Body of OWNER in session.
- (5) **COMPLIANCE WITH PUBLIC CONTRACTS LAW:** OWNER is a public agency in the State of California and is subject to the provisions of law relating to public contracts. It is agreed that all provisions of law applicable to public contracts are a part of this Contract to the same extent as though set forth herein and will be complied with by CONTRACTOR.
- (6) **CONTRACT DOCUMENTS:** The complete contract includes all the contract documents set forth herein, to wit: Notice Inviting Sealed Proposals (Bids), Bid Form, Bid Bond,

Agreement, Performance Bond, Payment Bond, Contractor's Certificate Regarding Workers' Compensation, Certificate of Insurance (Workers' Compensation and Employer's Liability), Insurance Endorsement (Workers' Compensation and Employer's Liability), Certificate of Insurance (Liability), Insurance Endorsement (Liability), Certificate of Insurance (Builders' Risk "All Risk"), Insurance Endorsement (Builders' Risk "All Risk"), General Provisions, Special Provisions, Standard Specifications, Standard Drawings, Referenced Permits, Drawings, Plans, and also addenda thereto and supplemental agreements.

This Agreement is executed by the OWNER pursuant to an action of its Governing Body in session on _____, 20____, authorizing the same, and CONTRACTOR has caused this Agreement to be duly executed.

Dated: _____, 20____ By: _____
(Authorized Representative of Owner)

Title: _____ GENERAL MANAGER

Dated: _____, 20____ _____
(Contractor)

By: _____
(Authorized Representative of Contractor)

Title: _____

(Seal if Corporation)

(Attach Acknowledgment for Authorized Representative of Contractor)

APPROVED:

(Attorney for OWNER)

Date

CERTIFICATE OF CONTRACTOR

I, _____, certify that I am a/the

[designate sole proprietor, partner in partnership, or specify corporate office, e.g., secretary] in the entity named as CONTRACTOR in the foregoing contract.

I hereby expressly certify that the name of the entity to which I am associated is _____

_____;

that this entity is in good standing and has complied with all applicable laws and regulations, and that I have been expressly authorized by the proper parties in this entity to execute this contract on behalf of the above-named entity.

(Signature)

ATTEST:

Name: _____
(Please Type)

Title: _____

(BLANK)

PERFORMANCE BOND

We, _____ as Principal,
and _____ as Surety, jointly and
severally, bind ourselves, our heirs, representatives, successors and assigns, as set forth herein,
to the

OLIVENHAIN MUNICIPAL WATER DISTRICT

(herein called Owner) for payment of the penal sum of _____

_____ Dollars (\$ _____),

lawful money of the United States. Owner has awarded Principal a contract for the construction of

4S RANCH WRF EQ BASIN RELINING PROJECT

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal shall in all things abide by and well and truly keep and perform the covenants, and agreements in the said contract, and any alteration thereof made as therein provided, on his part to be kept and performed at the time and in the manner therein specified, including all guarantees of workmanship and/or materials for a two (2) year period, and shall indemnify and save harmless the Owner, District, Olivenhain Municipal Water District, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents, as therein stipulated, this obligation shall become null and void, otherwise, it shall be and remain in full force and effect.

Surety agrees that no change, extension of time, alteration, or addition to the terms of the contract, or the work to be performed thereunder, or the plans and specifications shall in any wise affect its obligation on this bond, and it does hereby waive notice thereof.

Principal and Surety agree that if the Owner is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay Owner's reasonable attorney's fees incurred, with or without suit, in addition to the above sum.

Executed in four original counterparts on _____, 20____

PRINCIPAL

By: _____
(Seal if Corporation) Title: _____

(Attach Acknowledgment of Authorized Representative of Principal)

Any claims under this bond may be addressed to:

_____ (name and address of Surety)

_____ (name and address of Surety's agent for service of process in California, if different from above)

_____ (telephone number of Surety's agent in California)

(Attach Acknowledgment) _____
SURETY
By: _____
(Attorney-in-Fact)

APPROVED:

(Attorney for OWNER) Date

NOTICE:

No substitution or revision to this bond form will be accepted. Sureties must meet all requirements of Code of Civil Procedure Section 995.660(a). A certified copy of the Power of Attorney must be attached.

PAYMENT BOND

We, _____ as Principal,
and _____ as Surety, jointly and
severally, bind ourselves, our heirs, representatives, successors and assigns, as set forth herein,
to the

OLIVENHAIN MUNICIPAL WATER DISTRICT

(herein called Owner) for payment of the penal sum of _____

_____ Dollars (\$ _____),

lawful money of the United States. Owner has awarded Principal a contract for the construction of

4S RANCH WRF EQ BASIN RELINING PROJECT

If Principal or any of his subcontractors fails to pay any of the persons named in Section 3181 of the California Civil Code, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract or during the two-year guarantee period, or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the contractor and his subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, then Surety will pay the same in an amount not exceeding the sum specified above, and also will pay, in case suit is brought upon this bond, such reasonable attorney's fees as shall be fixed by the court.

This bond shall inure to the benefit of any of the persons named in Section 3181 of the California Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Surety agrees that no change, extension of time, alteration, or addition to the terms of the contract, or the work to be performed thereunder, or the plans and specifications shall in any wise affect its obligation on this bond, and it does hereby waive notice thereof.

Principal and Surety agree that should Owner become a party to any action on this bond that, each will also pay Owner's reasonable attorney's fees incurred therein in addition to the sum above set forth.

Executed in four original counterparts on _____, 20____

PRINCIPAL

By: _____

(Seal if Corporation) Title: _____

(Attach Acknowledgment of Authorized Representative of Principal)

Any claims under this bond may be addressed to:

_____ (name and address of Surety)

_____ (name and address of Surety's agent for service of process in California, if different from above)

_____ (telephone number of Surety's agent in California)

(Attach Acknowledgment) _____
SURETY

By: _____
(Attorney-in-Fact)

APPROVED:

(Attorney for OWNER) Date

NOTICE:

No substitution or revision to this bond form will be accepted. Sureties must meet all requirements of Code of Civil Procedure Section 995.660(a). A certified copy of the Power of Attorney must be attached.

**CONTRACTOR'S CERTIFICATE
REGARDING WORKERS' COMPENSATION**

Name of Contract: **4S RANCH WRF EQ BASIN RELINING PROJECT**

Name of Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

Labor Code Section 3700:

"Every employer except the State shall secure the payment of compensation in one or more of the following ways:

- (a) By being insured against liability to pay compensation in one or more insurers duly authorized to write compensation insurance in this State.
- (b) By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees.
- (c) For all political subdivisions of the state, including each member of a pooling arrangement under a joint exercise of powers agreement (but not the state itself), by securing from the Director of Industrial Relations a certificate of consent to self-insure against workers' compensation claims, which certificate may be given upon furnishing proof satisfactory to the director of ability to administer workers' compensation claims that may become due to its employees. On or before March 31, 1979, a political subdivision of the state which, on December 31, 1978, was uninsured for its liability to pay compensation, shall file a properly completed and executed application for a certificate of consent to self-insure against workers' compensation claims. The certificate shall be issued and be subject to the provisions of Section 3702."

I am aware of the provisions of Section 3700 of the Labor Code which require 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 of this Contract.

Dated: _____, 20____

(Contractor)

By: _____
(Authorized Representative of Contractor)

Title: _____

(Seal if Corporation)

(Labor Code Section 1861 provides that the above certificate must be signed and filed by the Contractor with the Owner prior to performing any work under this Contract.)

CERTIFICATE OF INSURANCE

Name of Contract: **4S RANCH WRF EQ BASIN RELINING PROJECT**

Name of Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

Type of Insurance: **WORKERS' COMPENSATION INSURANCE AND
EMPLOYER'S LIABILITY INSURANCE**

THIS IS TO CERTIFY that the following policy has been issued by the below-stated company in conformance with the requirements of Articles 8-1 and 8-2 of the General Provisions and is in force at this time.

The Company will give at least 30 days' written notice by certified mail to the Owner and Engineer/Architect prior to any material change or cancellation of said policy.

POLICY NUMBER		
EXPIRATION DATE	TYPE OF INSURANCE	LIMITS OF LIABILITY
	A. WORKERS' COMPENSATION	Statutory Limits Under the Laws of the State of California
	B. EMPLOYER'S LIABILITY	Each Employee Each Accident
	Bodily Injury By Accident	\$
	Bodily Injury By Disease	\$

Named Insured (Contractor)

Insurance Company

Street Number

Street Number

City and State

City and State

By: _____

(Company Representative)
(SEE NOTICE ON PAGE 2 OF 2)

State of _____)
) ss.

County of _____)

On this ____ day of _____, 20 ____ before me personally came _____ to me known, or proved to me on the basis of satisfactory evidence, who being duly sworn, did depose and say: that _____ is an authorized representative of the _____ and acknowledged to me that _____ executed the within instrument on behalf of said insurance company.

In witness whereof, I have signed and affixed my official seal on the date in this certificate first above written.

NOTARY PUBLIC

Insurance Company Agent for Service
of Process in California:

Name

Agency

Street Number

Street Number

City and State

City and State

Telephone Number

Telephone Number

This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate or verification of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions, and conditions of such policies.

NOTICE:

No substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each insurance company.

Insurers must be authorized to do business and have an agent for service of process in California, have an "A" policyholder's rating and a financial rating of at least Class VI in accordance with the most current rating by A.M. Best Company.

INSURANCE ENDORSEMENT

Name of Contract: **4S RANCH WRF EQ BASIN RELINING PROJECT**

Name of Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

Type of Insurance: **WORKERS' COMPENSATION INSURANCE AND
EMPLOYER'S LIABILITY INSURANCE**

This endorsement forms a part of Policy No. _____.

ENDORSEMENT:

It is agreed that with respect to such insurance as is afforded by the policy, the Company waives any right of subrogation it may acquire against the Owner, the Engineer/Architect, the San Elijo Joint Powers Authority, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents by reason of any payment made on account of injury, including death resulting therefrom, sustained by any employee of the insured, arising out of the performance of the above-referenced contract.

This endorsement does not increase the Company's total limits of liability.

Named Insured (Contractor)

Insurance Company

Street Number

Street Number

City and State

City and State

By: _____
(Company Representative)

(SEE NOTICE ON PAGE 2 OF 2)

State of _____)
County of _____) ss.

On this ____ day of _____, 20 ____ before me personally came _____ to me known, or proved to me on the basis of satisfactory evidence, who being duly sworn, did depose and say: that _____ is an authorized representative of the _____ and acknowledged to me that _____ executed the within instrument on behalf of said insurance company.

In witness whereof, I have signed and affixed my official seal on the date in this certificate first above written.

NOTARY PUBLIC

NOTICE:

No substitution or revision to the above endorsement form will be accepted. If the insurance called for is provided by more than one policy, a separate endorsement in the exact above form shall be provided for each policy.

Insurers must be authorized to do business and have an agent for service of process in California, have an "A" policyholder's rating and a financial rating of at least Class VI in accordance with the most current rating by A.M. Best Company.

CERTIFICATE OF INSURANCE

Name of Contract: **4S RANCH WRF EQ BASIN RELINING PROJECT**

Name of Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

Type of Insurance: **LIABILITY INSURANCE**

THIS IS TO CERTIFY that the following policies have been issued by the below-stated company in conformance with the requirements of Articles 8-1 and 8-3 of the General Provisions and are in force at this time. The policy shall be an occurrence policy with a deductible not to exceed \$5,000.

<u>POLICY NUMBER</u> <u>EXPIRATION DATE</u>	<u>TYPE OF INSURANCE</u>	LIMITS OF LIABILITY In Thousands (000)	
		Occurrence	Aggregate
_____	A. GENERAL LIABILITY		
	Bodily Injury, Personal Injury, and Property Damage Combined	\$	\$
_____	B. EXCESS GENERAL LIABILITY	\$	\$
_____	C. AUTOMOBILE LIABILITY		
	Bodily Injury and Property Damage Combined	\$	\$
_____	D. EXCESS AUTOMOBILE LIABILITY	\$	\$

The following types of coverage are included in said policies (indicate by "X" in space):

A. GENERAL LIABILITY

Comprehensive Form-----YES___ NO___

Premises-Operations-----YES___ NO___

Explosion and Collapse Hazard-----YES___ NO___

Underground Hazard-----YES___ NO___

Products/Completed Operations Hazard-----YES___ NO___

Contractual Insurance -----YES___ NO___

Broad Form Property Damage Including Completed Operations-----YES___ NO___

Independent Contractors-----YES___ NO___

Personal Injury-----YES___ NO___

B. EXCESS GENERAL LIABILITY

Umbrella Form-----YES___ NO___

Other Than Umbrella Form-----YES___ NO___

If other than Umbrella Form, please explain below:

C. AUTOMOBILE LIABILITY

Comprehensive Form Including Loading and Unloading -----YES___ NO___

Owned -----YES___ NO___

Hired-----YES___ NO___

Non-Owned-----YES___ NO___

D. EXCESS AUTOMOBILE LIABILITY

Umbrella Form-----YES___ NO___

Other Than Umbrella Form-----YES___ NO___

If other than Umbrella Form, please explain below:

This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. However, the insurance provided shall meet the requirements of the Contract Documents and include coverage as specified in this certificate.

The Company will give at least 30 days' written notice by certified mail to the Owner and the Engineer/Architect prior to any material change or cancellation of said policies.

_____ Named Insured (Contractor)	_____ Insurance Company
_____ Street Number	_____ Street Number
_____ City and State	_____ City and State

By: _____
(Company Representative)

(SEE NOTICE ON PAGE 4 OF 4)

State of _____)
County of _____) ss.

On this ____ day of _____, 20 ____ before me personally came _____ to me known, or proved to me on the basis of satisfactory evidence, who being duly sworn, did depose and say: that _____ is an authorized representative of the _____ and acknowledged to me that _____ executed the within instrument on behalf of said insurance company.

In witness whereof, I have signed and affixed my official seal on the date in this certificate first above written.

NOTARY PUBLIC

Insurance Company Agent for Service
of Process in California:

Name

Street Number

City and State

Telephone Number

Agency

Street Number

City and State

Telephone Number

NOTICE:

No substitution or revision to the above certificate form will be accepted. if the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each insurance company.

Insurers must be authorized to do business and have an agent for service of process in California, have an "A" policyholder's rating and a financial rating of at least Class VI in accordance with the most current rating by A.M. Best Company.

INSURANCE ENDORSEMENT

Name of Contract: **4S RANCH WRF EQ BASIN RELINING PROJECT**

Name of Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

Type of Insurance: **LIABILITY INSURANCE**

This endorsement forms a part of Policy No. _____.

ENDORSEMENT:

The Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents are included as additional insureds under said policies but only while acting in their capacity as such and only as respects operations of the named insured, his contractors, any subcontractor, any supplier, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable in the performance of the above-referenced contract. This insurance shall not apply if the loss or damage is ultimately determined to be the result of the sole and exclusive negligence (including any connected with the preparation or approval of maps, drawings, opinions, reports, surveys, designs, or specifications) of one or more of the aforesaid additional insureds. The insurance afforded to these additional insureds is primary insurance. If the additional insureds have other insurance which might be applicable to any loss, the amount of this insurance shall not be reduced or prorated by the existence of such other insurance.

The Contractual Liability Insurance afforded is sufficiently broad to insure all of the matters set forth in the article entitled "Indemnity" in the General Provisions of the above-referenced contract except those matters set forth in the third paragraph thereof.

This endorsement does not increase the Company's total limits of liability.

Named Insured (Contractor)

Insurance Company

Street Number

Street Number

City and State

City and State

By: _____
(Company Representative)

(SEE NOTICE ON PAGE 2 OF 2)

State of _____)
County of _____) ss.

On this ____ day of _____, 20 ____ before me personally came _____ to me known, or proved to me on the basis of satisfactory evidence, who being duly sworn, did depose and say: that _____ is an authorized representative of the _____ and acknowledged to me that _____ executed the within instrument on behalf of said insurance company.

In witness whereof, I have signed and affixed my official seal on the date in this certificate first above written.

NOTARY PUBLIC

NOTICE:

No substitution or revision to the above endorsement form will be accepted. If the insurance called for is provided by more than one policy, a separate endorsement in the exact form shall be provided for each policy.

Insurers must be authorized to do business and have an agent for service of process in California, have an "A" policyholder's rating and a financial rating of at least Class VI in accordance with the most current rating by A.M. Best Company.

CERTIFICATE OF INSURANCE

Name of Contract: **4S RANCH WRF EQ BASIN RELINING PROJECT**

Name of Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

Type of Insurance: **BUILDERS' RISK "ALL RISK" INSURANCE**

THIS IS TO CERTIFY that the following policy has been issued by the below-stated company in conformance with the requirements of Articles 8-1 and 8-4 of the General Provisions and is in force at this time:

POLICY NUMBER	EXPIRATION DATE	LIMITS OF LIABILITY
		\$
		(Not Less Than Contract Amount)
		Deductible:
		\$
	(Not Sooner Than Contract Completion Date)	(Not More Than \$100,000)

This certificate or verification of insurance is not an insurance policy and does not amend, extend, or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate or verification of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions, and conditions of such policies.

The Company will give at least 30 days' written notice by certified mail to the Owner and the Engineer/Architect prior to any material change or cancellation of said policy.

_____ Named Insured (Contractor)	_____ Insurance Company
_____ Street Number	_____ Street Number
_____ City and State	_____ City and State

By: _____
(Company Representative)

(SEE NOTICE ON PAGE 3 OF 3)

State of _____)
County of _____) ss.

On this ____ day of _____, 20 ____ before me personally came _____ to me known, or proved to me on the basis of satisfactory evidence, who being duly sworn, did depose and say: that _____ is an authorized representative of the _____ and acknowledged to me that _____ executed the within instrument on behalf of said insurance company.

In witness whereof, I have signed and affixed my official seal on the date in this certificate first above written.

NOTARY PUBLIC

Insurance Company Agent for Service
of Process in California:

Name

Street Number

City and State

Telephone Number

Agency

Street Number

City and State

Telephone Number

NOTICE:

No substitution or revision to the above certificate form will be accepted. If the insurance called for is provided by more than one insurance company, a separate certificate in the exact above form shall be provided for each insurance company.

Insurers must be authorized to do business and have an agent for service of process in California, have an "A" policyholder's rating and a financial rating of at least Class VI in accordance with the most current rating by A.M. Best Company.

(BLANK)

INSURANCE ENDORSEMENT

Name of Contract: **4S RANCH WRF EQ BASIN RELINING PROJECT**

Name of Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

Type of Insurance: **BUILDERS' RISK "ALL RISK" INSURANCE**

This endorsement forms a part of Policy No. _____.

ENDORSEMENT:

The Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents are included as additional insureds under said policy but only while acting in their capacity as such with respect to the above-referenced contract.

The insurance afforded to these additional insureds is primary insurance. If the additional insureds have other insurance which might be applicable to any loss, the amount of this insurance shall not be reduced or prorated by the existence of such other insurance.

This endorsement does not increase the Company's total limits of liability.

Named Insured (Contractor)

Insurance Company

Street Number

Street Number

City and State

City and State

By: _____
(Company Representative)

(SEE NOTICE ON PAGE 2 OF 2)

State of _____)
County of _____) ss.

On this ____ day of _____, 20 ____ before me personally came _____ to me known, or proved to me on the basis of satisfactory evidence, who being duly sworn, did depose and say: that _____ is an authorized representative of the _____ and acknowledged to me that _____ executed the within instrument on behalf of said insurance company.

In witness whereof, I have signed and affixed my official seal on the date in this certificate first above written.

NOTARY PUBLIC

NOTICE:

No substitution or revision to the above endorsement form will be accepted. If the insurance called for is provided by more than one policy, a separate endorsement in the exact above form shall be provided for each policy.

Insurers must be authorized to do business and have an agent for service of process in California, have an "A" policyholder's rating and a financial rating of at least Class VI in accordance with the most current rating by A.M. Best Company.

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GENERAL PROVISIONS

SECTION 1 DEFINITIONS, TERMS, AND ABBREVIATIONS

1-1 DEFINITIONS

Whenever the following terms occur in the Contract Documents, the meaning shall be interpreted as follows:

ACCEPTANCE, FINAL ACCEPTANCE - The formal action by the Owner accepting the work as being complete.

ACCEPTED BID - The bid (proposal) accepted by the Owner.

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BIDDER - Any individual, partnership, corporation, joint venture, or other combination thereof submitting a proposal for the work contemplated, acting directly or through an authorized representative.

CALENDAR DAY - Means all days of the week including Saturdays, Sundays and Holidays with the first day counted being the first day following the date specified.

CONTRACT - The written agreement executed between the Owner and the Contractor covering the performance of the work.

CONTRACTOR - The individual, partnership, corporation, joint venture, or other combination thereof who has entered into the contract with the Owner for the performance of the work. The term "Contractor" means the Contractor or his authorized representative.

CONTRACT DOCUMENTS - The Contract Documents set forth in the Agreement; also any and all supplemental agreements amending or extending the work contemplated. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the contract and include contract change orders.

DAYS - Unless otherwise specified, days shall mean calendar days.

ENGINEER/ARCHITECT – The term "Engineer/Architect" means the Engineer/Architect or his authorized representative.

OWNER - The public entity identified as such in the Agreement. The term "Owner" means the Owner or his authorized representative.

OWNER'S REPRESENTATIVE - The person or firm authorized by the Owner to represent it during the performance of the work by the Contractor. The term "Owner's Representative" means the Owner's Representative or his assistants.

PLANS, DRAWINGS - The Plans (drawings), or reproductions thereof, which show the location, character, dimensions, and details of the work to be done.

SPECIAL PROVISIONS - Additions, deletions, and changes to the General Provisions and Standard Specifications.

SPECIFICATIONS - The directions, provisions, and requirements contained in the General Provisions and Standard Specifications as supplemented by the Special Provisions.

STANDARD SPECIFICATIONS - The Contract Documents identified or referenced as such.

SUBCONTRACTOR - An individual, partnership, corporation, joint venture, or other combination thereof who has a contract with the Contractor to perform any of the work at the site. Subcontractor also means an individual, partnership, corporation, joint venture, or other combination thereof who has a contract with another subcontractor to perform any of the work at the site.

STANDARD DRAWINGS, STANDARD PLANS - That portion of the Plans identified or referenced as such.

UTILITY - Public or private fixed works for the transportation of fluids, gases, power, signals, or communications.

WORK - Any and all obligations, duties, and responsibilities necessary to complete the construction assigned to, or undertaken by, the Contractor pursuant to the Contract Documents including all materials, equipment, and supplies incorporated or to be incorporated in the construction. Also, the completed construction or parts thereof required to be provided under the Contract Documents.

1-2 TERMS

Wherever the terms "required," "permitted," "ordered," "designated," "directed," "prescribed," or terms of like import are used, it shall be understood that the requirements, permission, order, designation, direction, or prescription of the Owner's Representative is intended. Similarly, the terms "acceptable," "satisfactory," "or equal," or terms of like import shall mean acceptable to or satisfactory to the Owner's Representative, unless otherwise expressly stated. The word "provide" shall be understood to mean furnish and install.

1-3 ABBREVIATIONS

Wherever abbreviations are used, they shall have the meanings as set forth in the Special Provisions.

SECTION 2 PROPOSAL REQUIREMENTS AND CONDITIONS

2-1 CONTRACT DOCUMENTS

The Contract Documents are set forth in the Agreement form and the definition of "Contract Documents" is in Article 1-1 DEFINITIONS.

2-2 LICENSE AND BIDDER'S EXPERIENCE

No bid will be accepted from a bidder who is not licensed to conduct business in the state of California and licensed to perform the class of work defined by the Contract Documents. All bidders shall complete the Bidder's Experience form as part of their bid. Bidders failing to complete and submit the Bidder's Experience form with their bid may be treated as nonresponsive at the option of the Owner. Bidders unable to demonstrate five (5) years of successful prior experience performing the type and magnitude of work required by this contract may also be rejected as nonresponsive.

2-3 PROPOSALS

Bids shall be made upon the Bid Form furnished by the Owner and a part of the Contract Documents. The Bid Form Checklist, Bid Form and Bid Bond must be submitted with the bid. All bids shall be properly executed and with all items filled in; the signatures of all persons signing shall be in longhand. Erasures, interlineations, or other corrections shall be authenticated by affixing in the margin immediately opposite the correction the initials of a person signing the bid. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures. If the unit price and the total amount named by a bidder for any item are not in agreement, the unit price alone shall be considered as representing the bidder's intention, and the totals shall be corrected to conform thereto.

Bids shall not contain any recapitulation of the work to be done. Alternative proposals will not be considered, except as called for. No oral, telegraphic, or telephonic proposals or modifications will be considered.

Bids shall be accompanied by a "Proposal Guarantee" in the form of cash, a cashier's check, a certified check, or bidder's bond executed by an admitted surety insurer, in an amount not less than 10% of the amount of bid, and made payable to or for the benefit of the Owner. Said cash, check, or bond shall be given as a guarantee that the bidder will enter into a contract and furnish the required bonds or substitutes and insurance certificates and endorsements if awarded the contract, and in case of refusal or failure to enter into said contract and furnish the required bonds or substitutes and insurance certificates and endorsements within 15 calendar days after notice of award by the Owner in writing, the cash or the check and the money represented by said check shall be forfeited to the Owner, or in the event that a bond is deposited, said security shall be forfeited. Forfeiture does not preclude the Owner from seeking all other remedies provided by law to recover losses sustained as a result of the Contractor's failure to enter into the contract or to furnish the required bonds or insurance certificates and endorsements.

Bids shall be sealed in an envelope marked and addressed as set forth in the Special Provisions. Bids shall be delivered to personnel of the Owner at the location designated in the Notice Inviting Sealed Proposals (Bids) on or before the day and hour set for the opening of bids. Bids not marked as being received by personnel of the Owner on or before the day and hour of bid opening will be rejected. It is the responsibility of the bidder to ensure that the bid is received by personnel of the Owner on or before the day and hour of bid opening.

2-4 WITHDRAWAL OF BID

A bidder may withdraw his bid by a signed written request any time prior to the day and hour for receiving bids designated in the Notice Inviting Sealed Proposals. Thereafter the Bid may be

withdrawn only as permitted in accordance with Public Contract Code Section 5100, et seq., regarding relief of Bidders.

The withdrawal of a bid does not prejudice the right of a bidder to file a new bid so long as the new bid is delivered as set forth in Article 2-3 PROPOSALS prior to the closing time specified for all bids.

2-5 BIDDERS INTERESTED IN MORE THAN ONE BID

No person, partnership, or corporation shall be allowed to make or file, or be interested in more than one bid for the work, unless alternative bids are called for. A person, partnership, or corporation submitting a subproposal to a bidder, or who has quoted prices on material to a bidder, is not thereby disqualified from submitting a subproposal or quoting prices to other bidders.

2-6 INTERPRETATION OF PLANS AND OTHER CONTRACT DOCUMENTS

If any person or entity contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the Plans, Specifications, or other Contract Documents, or finds discrepancies in, or omissions from the Plans and Specifications or other Contract Documents, he may submit to the Owner a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. An interpretation or correction of the Contract Documents will be made only by Addendum duly issued by the Owner. A copy of such Addendum will be mailed or delivered to each person or entity that has received a set of such documents. The Owner and the Engineer/Architect will not be responsible for any other explanation or interpretation of the documents.

2-7 ADDENDA

Addenda issued before the time in which to submit bids expires shall be included in the bid and shall be made a part of the contract.

2-8 EXISTING CONDITIONS AND EXAMINATION OF CONTRACT DOCUMENTS

The bidder represents that he has carefully examined the Contract Documents and the site where the work is to be performed and that he has familiarized himself with all local conditions and federal, state and local laws, ordinances, rules, and regulations that may affect in any manner the performance of the work. The bidder further represents that he has studied all surveys and investigation reports about subsurface and latent physical conditions pertaining to the jobsite, that he has performed such additional surveys and investigations as he deems necessary to complete the work at his bid price, and that he has correlated the results of all such data with the requirements of the Contract Documents. The submittal of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered, including locality, uncertainty of weather and all other contingencies, and as to the character, quality, quantities, and scope of the work.

The Plans and Specifications for the work show subsurface conditions or otherwise hidden conditions as they are supposed or believed by the Engineer/Architect to exist; but it is not intended or to be inferred that the conditions as shown thereon constitute a representation that such conditions are actually existent. Except as otherwise specifically provided in the Contract Documents, the Owner, the Engineer/Architect, and their consultants shall not be liable for any

loss sustained by the Contractor as a result of any variance of such conditions as shown on the Plans and the actual conditions revealed during the progress of the work or otherwise.

Where the Owner or the Engineer/Architect or their consultants have made investigations of subsurface conditions in areas where the work is to be performed, such investigations were made only for the purpose of study and design. The conditions indicated by such investigations apply only at the specific location of each boring or excavation at the time the borings or excavations were made. Where such investigations have been made, bidders or Contractors may inspect the records as to such investigations subject to and upon the conditions hereinafter set forth. The inspection of the records shall be made at the office of the Engineer/Architect.

The records of such investigations are not a part of the contract and are shown solely for the convenience of the bidder or Contractor. It is expressly understood and agreed that the Owner, the Engineer/Architect, and their consultants assume no responsibility whatsoever in respect to the sufficiency or accuracy of the investigations; the records thereof; or of the interpretations set forth therein or made by the Owner's consultants, the Engineer/Architect or his consultants in the use thereof by the Engineer/Architect, and there is no warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records thereof are representative of those existing throughout such areas, or any part thereof, or that unlooked-for developments may not occur, or that materials other than, or in proportions, densities, or other characteristics different from, those indicated may not be encountered.

When a log of test borings showing a record of the data obtained by the investigation of subsurface conditions by the Owner, the Engineer/Architect, or their consultants is included with the Plans or other documents, it is expressly understood and agreed that said log of test borings does not constitute a part of the contract, represents only the opinion of the Owner or the Engineer/Architect or their consultants as to the character of the materials encountered by them in the test borings, is included in the Plans or other documents only for the convenience of bidders, and its use is subject to all of the conditions and limitations set forth in this article.

The availability or use of information described in this article is not to be construed in any way as a waiver of the provisions of the first paragraph in this article and a bidder or Contractor is cautioned to make such independent investigations and examination as he deems necessary to satisfy himself as to conditions to be encountered in the performance of the work.

No information derived from such inspection of records of investigations or compilation thereof made by the Owner, the Engineer/Architect, or their consultants will in any way relieve the bidder or Contractor from any risk or from properly fulfilling the terms of the contract nor entitle the Contractor to any additional compensation.

SECTION 3 AWARD AND EXECUTION OF CONTRACT

3-1 AWARD OF CONTRACT OR REJECTION OF BIDS

The award of the contract, if it be awarded, will be to the lowest responsible responsive bidder complying with the instructions contained in the Contract Documents. The Owner, however, reserves the right to select the schedules under which the bids are to be compared; to delete certain bid items from the Bid Schedule, to reject any and all bids, and to waive any irregularity in bids received. If, in the judgment of the Owner, a bid is unbalanced or if the bidder is not responsible, it shall be considered sufficient grounds for rejection of the entire bid.

The Owner shall have the period of time set forth in the Special Provisions after the opening of bids within which to accept or reject the bids. No bidder may withdraw his bid during said period. The Owner will return the proposal guarantees, except any guarantees which have been forfeited, and except bidders' bonds, to the respective bidders whose proposals they accompanied after the execution of the contract by the successful bidder or rejection of all bids or upon receipt of a written request therefor received after said period of time set forth in the Special Provisions. The proposal guarantee of the unsuccessful bidders will be returned by the Owner no later than 60 calendar days following the date of award of contract.

Before award of the contract, any bidder shall furnish upon request proof of required insurance, a recent statement of his financial condition, and previous construction experience or such other evidence of his qualifications as may be requested by the Owner. If a bidder fails to furnish in a timely manner the information requested, it shall be considered sufficient grounds for rejection of such bidder's entire bid.

3-2 EXECUTION OF CONTRACT

The form of agreement, bonds, and other documents which the successful bidder, as Contractor, will be required to execute are included as a part of the Contract Documents.

The contract shall be signed by the successful bidder and returned to the Owner, together with the bonds or substitutes and insurance certificates and endorsements, within 15 calendar days or such additional time as may be allowed by the Owner from the date of the mailing of notice from the Owner to the bidder or from the date of personal delivery of notice from the Owner to the bidder that the agreement is ready for signature. The agreement, bonds or substitutes, insurance certificates and endorsements, and other documents to be executed by the Contractor shall be executed in original-quadruplicate, one each of which shall be filed with the Owner and one each with the Attorney for the Owner and the Engineer/Architect for the Owner.

3-3 BONDS

The successful bidder, simultaneously with execution of the Contract Documents, shall either furnish a Payment Bond and Performance Bond each in an amount equal to 100% of the contract amount, or equivalent cash or securities in lieu of these bonds in accordance with Code of Civil Procedure Section 995.710. The failure of Contractor to make a written request to Owner to use alternative securities meeting the requirements of Code of Civil Procedure Section 995.710 at the time the Contract Documents are signed shall be deemed a waiver of the right of Contractor to subsequently substitute these alternative securities. Alternative securities proposed by the Contractor shall be subject to review and approval by Owner. Contractor agrees to provide Owner with a deposit in a sum determined adequate by the Owner to cover all attorney's fees and all other fees, costs, and expenses incurred by the Owner in reviewing Contractor's request to use alternative securities in lieu of the required bonds and to prepare all agreements determined necessary by Owner to adequately protect Owner's interest. Performance and Payment Bonds shall be furnished by surety companies meeting the requirements of Code of Civil Procedure Section 995.660(a) and shall be completed on the forms furnished as part of the Contract Documents. Surety companies, to be acceptable to Owner, must meet all requirements of Code of Civil Procedure Section 995.660(a).

If at any time a surety on any such bond fails to comply with Code of Civil Procedure Section 995.660(a), the Contractor shall, within 10 calendar days after notice from the Owner, substitute new bonds with surety companies meeting all requirements of Code of Civil Procedure Section

995.660(a). All premiums on these new bonds shall be paid solely by the Contractor. No further progress payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished new bonds to Owner meeting all requirements of Code of Civil Procedure Section 995.660(a).

The Performance Bond and the Payment Bond, or alternative securities meeting the requirements of Code of Civil Procedure Section 995.710 approved by the Owner, must remain in full effect throughout the period of the Work and for a period of two-year thereafter as required by Article 5-14 TWO-YEAR GUARANTEE.

3-4 INSURANCE REQUIREMENTS

The successful bidder will be required to furnish the Owner proof of full compliance with all insurance requirements as specified in SECTION 8 CONTRACTOR'S INSURANCE. The forms of Certificate of Insurance and Endorsement which the successful bidder, as Contractor, will be required to furnish are included as a part of the Contract Documents.

3-5 FAILURE TO EXECUTE CONTRACT

Failure by a bidder to whom the contract is awarded to execute the contract or to furnish the required bonds or insurance certificates and endorsements within the period of time required by Section 3-2 Execution of Contract shall be just cause for the annulment of the award and the forfeiture of the proposal guarantee.

A bidder who is awarded the contract and fails to execute the contract or furnish the required bonds or substitutes, or insurance certificates and endorsements shall be liable to the Owner for all damages resulting therefrom including reasonable attorneys' fees. The proposal guarantee forfeited shall not be a limitation thereon.

SECTION 4 SCOPE OF WORK

4-1 WORK TO BE DONE

The work to be done consists of furnishing all transportation, labor, materials, tools, equipment, services, permits, utilities and all other items which are necessary or appurtenant to construct and complete the entire project and construct the project designated in the Contract Documents, and to leave the grounds in a neat and presentable condition.

4-2 CHANGES IN THE WORK

The Owner may require changes in, additions to, or deductions from the work, including complete termination thereof. Adjustment, if any, in the amounts to be paid to the Contractor by reason of any such change, addition, or deduction shall be determined as set forth in SECTION 9 ESTIMATES AND PAYMENTS.

The Owner's Representative may order minor changes in the work not involving an increase or decrease in the contract amount, not involving a change in the time for completion, and not inconsistent with the purposes for which the work is being constructed. **If the Contractor believes that any order for minor changes in the work for which the contract amount or time for completion should be changed, he shall not proceed with the changes in the work so ordered and shall within seven calendar days of the receipt of such order notify the Owner's**

Representative in writing of his estimate of the changes in the contract amount and time for completion he believes to be appropriate.

No payment for changes in the work will be made and no changes in the time for completion by reason of changes in the work will be made, unless the changes are covered by a written change order approved by the Owner in advance of the Contractor's proceeding with the changed work.

4-3 OBSTRUCTIONS

The Contractor shall remove and dispose of all structures, debris, or other obstructions of any character necessary to accommodate the work. Where such obstructions consist of improvements not required by law to be removed by the owner thereof, all such improvements shall be removed, maintained, and permanently replaced by the Contractor at his expense except as otherwise specifically provided in the Contract Documents.

4-4 UTILITIES

The Engineer/Architect has endeavored to determine the existence of utilities at the site of the work from the records of the owners of known utilities in the vicinity of the work. The positions of these utilities as derived from such records are shown on the Plans. The service connections to these utilities are not shown on the Plans.

The Contractor shall make his own investigations, including exploratory excavations, to determine the locations and type of existing service laterals or appurtenances when their presence can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the work. If the Contractor discovers utility facilities not identified in the Plans or Specifications or in a position different from that shown in the Plans and Specifications, he shall immediately notify in writing the Owner's Representative and the owner of the utility facility.

The Owner shall have the responsibility for the timely removal, relocation, protection, and temporary maintenance of existing main or trunkline utility facilities which are not indicated in the Plans and Specifications with reasonable accuracy.

In case it should be necessary to remove, relocate, protect, or temporarily maintain a utility because of interference with the work, the work on such utility shall be performed and paid for as follows:

When it is necessary to remove, relocate, protect, or temporarily maintain an existing main or trunkline utility facility not indicated in the Plans and Specifications with reasonable accuracy, the Owner will compensate the Contractor for the costs of locating, for the costs of repairing damage not due to the failure of the Contractor to exercise reasonable care, for the costs of removing, relocating, protecting, or temporarily maintaining such utility facilities, and for the costs for equipment on the site necessarily idled during such work. These costs, the work to be done by the Contractor in locating, removing, relocating, protecting, or temporarily maintaining such utility facilities shall be covered by a written change order conforming to the provisions of Article 4-2 CHANGES IN THE WORK and Article 9-1 PAYMENT FOR CHANGES IN THE WORK. The Owner may make changes in the alignment and grade of the work to obviate the necessity to remove, relocate, protect, or temporarily maintain such utility facilities or to reduce the costs of the work involved in removing, relocating, protecting, or temporarily maintaining such utility facilities. Changes in

alignment and grade will be ordered in accordance with Article 4-2 CHANGES IN THE WORK.

When it is necessary to remove, relocate, protect, or temporarily maintain a utility (other than [1] existing main or trunkline utility facilities not indicated in the Plans and Specifications with reasonable accuracy, or [2] existing service laterals or appurtenances when their presence cannot be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the work) the cost of which is not required to be borne by the owner thereof, the Contractor shall bear all expenses incidental to the work on the utility or damage thereto. The work on the utility shall be done in a manner satisfactory to the owner thereof; it being understood that the owner of the utility has the option of doing such work with his own forces, or permitting the work to be done by the Contractor. No representations are made that the obligations to remove, relocate, protect, or temporarily maintain any utility and to pay the cost thereof is or is not required to be borne by the owner of such utility, and it shall be the responsibility of the Contractor to investigate to find out whether or not said cost is required to be borne by the owner of the utility.

The right is reserved to governmental agencies and to owners of utilities to enter at any time upon any street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the work and for the purpose of maintaining and making repairs to their property.

4-5 PLANS AND SPECIFICATIONS FURNISHED BY THE OWNER

The Owner will furnish to the Contractor free of charge up to five (5) full size copies of Plans and Specifications reasonably necessary for the execution of the work. The Contractor shall keep one set of Plans and Specifications in good order with red line changes available to the Owner's Representative at the site of the work.

4-6 FINAL CLEANUP

Upon completion and before making application for acceptance of the work, the Contractor shall clean all rights-of-way, streets, borrow pits, and all other grounds occupied by him in connection with the work of all rubbish, excess materials, temporary structures, and equipment, and all parts of the work and grounds occupied by him shall be left in a neat and presentable condition.

SECTION 5 QUALITY OF THE WORK

5-1 AUTHORITY OF THE OWNER'S REPRESENTATIVE

The Owner's Representative shall decide any and all questions which may arise as to the interpretation of the Plans and Specifications and shall have authority to disapprove or reject materials and equipment furnished and work performed which, in his opinion, is not in accordance with the Contract Documents. The Owner's Representative shall also have the authority to require the Contractor or any subcontractor to replace any workman or supervisor who, in his opinion, is not performing the work in a safe manner, fails to follow the instructions of the Owner's Representative, fails to perform work in accordance with the Contract Documents, fails to properly supervise the work, or demonstrates lack of competence to perform the particular work assigned to the workman or supervisor. The failure of the Contractor or any subcontractor to replace a worker or supervisor as directed by the Owner's Representative shall constitute a material breach of this

agreement. Neither the Owner's Representative nor the Owner shall be liable to Contractor, any subcontractor, or any other person or entity for removing a workman or supervisor in accordance with the terms of this article.

5-2 SUPPLEMENTAL DRAWINGS

The Plans shall be supplemented by such drawings as are necessary to better define the work. All such drawings delivered to the Contractor by the Owner's Representative shall be deemed written instructions to the Contractor. If the Contractor believes that any supplemental drawings call for changes in the work for which the contract amount or time for completion should be changed, he shall not proceed with the changes in the work so called for and shall within seven calendar days of the receipt of the supplemental drawings notify the Owner's Representative in writing of his estimate of the changes in the contract amount and time for completion he believes to be appropriate.

No payment for changes in the work will be made and no change in the time for completion by reason of changes in the work will be made, unless the changes are covered by a written change order approved by the Owner in advance of the Contractor's proceeding with the changed work.

5-3 CONFORMITY WITH CONTRACT DOCUMENTS AND ALLOWABLE DEVIATIONS

The work shall conform to the lines, grades, dimensions, tolerances, and material and equipment requirements shown on the Plans or set forth in the Specifications. Although measurement, sampling, and testing may be considered evidence as to such conformity, the Owner's Representative shall be the sole judge as to whether the work or materials deviate from the Plans and Specifications, and his decision as to any allowable deviations therefrom shall be final.

If specific lines, grades, and dimensions are not shown on the Plans, those furnished by the Owner's Representative shall govern.

5-4 MANUFACTURER'S INSTRUCTIONS

All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier, or distributor, except as otherwise specifically provided in the Contract Documents.

5-5 COORDINATION OF PLANS AND SPECIFICATIONS

The Plans, Specifications, and other Contract Documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for the complete work. In the event of an apparent difference between Plans and Specifications, reference shall be made to the Owner's Representative whose decision thereon shall be final.

Special Provisions shall govern over General Provisions and Standard Specifications.

5-6 INTERPRETATION OF PLANS AND SPECIFICATIONS

Figured dimensions on drawings shall govern, but work not dimensioned shall be as directed. Work not particularly shown or specified shall be the same as similar parts that are shown or specified. Large-scale details shall take precedence over smaller scale drawings as to shape and

details of construction. Specifications shall govern as to materials and workmanship. Plans and Specifications are intended to be fully complementary and to agree. The Specifications calling for the higher quality material or workmanship shall prevail. Materials or work described in words which so applied have a well known technical or trade meaning shall be deemed to refer to such recognized standards. In the event of any discrepancy between any drawings and the figures thereon, the figures shall be taken as correct. In the event of any doubt or question arising respecting the true meaning of the Plans or Specifications, reference shall be made to the Owner's Representative whose decision thereon shall be final.

5-7 ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR

It is the duty of the Contractor to promptly notify the Owner's Representative in writing of any design, materials, or specified method that the Contractor believes may prove defective or insufficient. If the Contractor believes that a defect or insufficiency exists in design, materials, or specified method and fails to promptly notify the Owner's Representative in writing of this belief, the Contractor waives any right to assert that defect or insufficiency in design, materials, or specified method at any later date in any legal or equitable proceeding against Owner, or in any subsequent mediation, arbitration, or settlement conference between the Owner and the Contractor. The Owner's Representative, on receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor after he comes to the belief that a defect or insufficiency exists in design, materials, or specified method which is directly or indirectly affected by such alleged defect or insufficiency in design, materials, or specified method will be at his own risk and he shall bear all cost arising therefrom.

If the Contractor, either before commencing work or in the course of the work, finds any discrepancy between the Plans and the Specifications or between either of them and the physical conditions at the site of the work or finds any error or omission in any of the Plans or in any survey, he shall promptly notify the Owner's Representative of such discrepancy, error, or omission. If the Contractor observes that any Plans or Specifications are at variance with any applicable law, ordinance, regulation, order, or decree, he shall promptly notify the Owner's Representative in writing of such conflict. The Owner's Representative, on receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor after his discovery of such error, discrepancy, or conflict which is directly or indirectly affected by such error, discrepancy, or conflict will be at his own risk and he shall bear all cost arising therefrom.

5-8 SUPERVISION AND SUPERINTENDENCE

The Contractor shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the work in accordance with the Contract Documents.

The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but the Contractor shall not be solely responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence, or procedure of construction which is indicated in and required by the Contract Documents except as otherwise provided in Article 5-7 ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR.

The Contractor shall be responsible to see that the completed work complies with the Contract Documents.

The Contractor shall designate and keep on the work at all times during its progress a competent superintendent who shall not be replaced without written notice to the Owner's Representative. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor. During periods when the work is suspended, the Contractor shall make appropriate arrangements for any emergency work which may be required.

Whenever the superintendent is not present on any particular part of the work where the Owner's Representative may desire to inform the Contractor relative to interpretation of the Plans and Specifications or to the disapproval or rejection of materials or work performed, the Owner's Representative may so inform the foreman or other worker in charge of the particular part of the work in reference to which the information is given. Information so given shall be as binding as if given to the superintendent.

5-9 SHOP DRAWINGS

Shop drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are prepared by the Contractor or any subcontractor, manufacturer, supplier, or distributor and which illustrates some portion of the work.

The Contractor shall review, mark with his approval, and submit for review by the Owner's Representative shop drawings as called for in the Special Provisions and Standard Specifications or requested by the Owner's Representative. Shop drawings shall be submitted by email as a PDF to the Owner's Representative and be accompanied by the Shop Drawing Submittal Form included at the end of the General Provisions. Shop drawings shall show the name of the project, the name of the Contractor, and, if any, the names of suppliers, manufacturers, and subcontractors. Shop drawings shall be submitted with promptness and in orderly sequence so as to cause no delay in prosecution of the work.

Shop drawings shall be complete in all respects. If the shop drawings show any deviations from the requirements of the Plans and Specifications because of standard shop practices or other reasons, the deviations and the reasons therefor shall be set forth in the Shop Drawing Submittal Form.

By submitting shop drawings, the Contractor represents that material, equipment, and other work shown thereon conforms to the Plans and Specifications, except for any deviations set forth in the Shop Drawing Submittal Form. A log shall be maintained by the Contractor showing the following information: sequential shop drawings number brief description, date submitted, date approved, any other data relevant to the shop drawings.

Within 30 calendar days after receipt of said shop drawings, the Owner's Representative will return via electronic mail (email), of the shop drawings to the Contractor with any comments noted thereon.

If so noted by the Owner's Representative, the Contractor shall correct the drawings and resubmit them in the same manner as specified for the original submittal. The Contractor in the Shop Drawing Submittal Form accompanying resubmitted shop drawings shall direct specific attention to revisions other than the corrections requested by the Owner's Representative on previous submittals.

The review by the Owner's Representative is only of general conformance with the design concept of the project and general compliance with the Plans and Specifications and shall not be construed as relieving the Contractor of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction of the work; the accuracy and completeness of the shop drawings; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

No portion of the work requiring a shop drawing submittal shall be commenced until the submittal has been reviewed by the Owner's Representative and returned to the Contractor with a notation indicating that resubmittal is not required.

If the Contractor believes that any shop drawing or communication relative thereto calls for changes in the work for which the contract amount or time for completion should be changed, he shall not proceed with the changes in the work so called for and shall within seven calendar days of the receipt of the shop drawings notify the Owner's Representative in writing of his estimates of the changes in the contract amount and time for completion he believes to be appropriate.

No payment for changes in the work will be made and no change in the time for completion by reason of changes in the work will be made, unless the changes are covered by a written change order approved by the Owner in advance of the Contractor's proceeding with the changed work.

5-10 QUALITY AND SAFETY OF MATERIALS AND EQUIPMENT

All equipment, materials, and supplies to be incorporated in the work shall be new, unless otherwise specified. All equipment, materials, and supplies shall be produced in a good and workmanlike manner. When the quality of a material, process, or article is not specifically set forth in the Plans and Specifications, the best available quality of the material, process, or article shall be provided.

Whenever any material, process, or article is indicated or specified by grade, patent or proprietary name, or by name of manufacturer, such Specification shall be deemed to be used for the purpose of facilitating description of the materials, process, or articles desired and shall be deemed to be followed by the words "or equal", and the Contractor may offer any material, process, or article which shall be substantially equal or better in every respect to that so indicated or specified; provided, however, that if the material, process, or article offered by the Contractor is not, in the opinion of the Owner's Representative, equal or better in every respect to that specified, then the Contractor must furnish the material, process, or article specified or one that in the opinion of the Owner's Representative is the substantial equal or better in every respect. In the event that the Contractor furnishes material, process, or article more expensive than that specified, the difference in cost of such material, process, or article so furnished shall be borne by the Contractor.

In accordance with Public Contract Code Section 3400, the Contractor shall submit data substantiating requests for substitution of "equal" items within 35 calendar days after award of the contract. This 35-day period of time is included in the number of days allowed for the completion of the work.

All materials, equipment, and supplies provided shall, without additional charge to Owner, fully conform with all applicable state and federal safety laws, rules, regulations, and orders, and it shall be Contractor's responsibility to provide only such materials, equipment, and supplies

notwithstanding any omission in the Contract Documents therefor or that a particular material, equipment, or supply was specified.

All machinery and equipment provided by the Contractor for the work shall include locking mechanisms capable of locking any shut-down devices on the machinery and equipment before commencement of any repairs or other work. Any machinery or equipment provided by the Contractor, which does not have this locking ability, shall be altered at the expense of the Contractor to provide these locking mechanisms without compromising any safety features on the equipment or machinery prior to the commencement of any repairs or work on the equipment or machinery. The Contractor shall not commence any work or repairs on any machinery or equipment which has been shut down until the locking mechanism has been activated and the Contractor has tagged the applicable machinery or equipment with a tag stating "Danger Do Not Operate." This tag shall include the name of the employee who locked the equipment prior to the commencement of any work or repairs. The Contractor shall insure that all equipment and machinery fully complies with Title 8 of California Administrative Code Sections 3202, 3314, 6003, 2320.4-2320.6, 2530.43, and 2530-86 at all times during performance of the work.

5-11 STANDARDS, CODES, SAMPLES, AND TESTS

Whenever reference is made to a standard, code, Specification, or test and the designation representing the date of adoption or latest revision thereof is omitted, it shall mean the latest revision of such standard, code, Specification, or test in effect on the day the Notice Inviting Sealed Proposals (Bids) is dated.

Tests shall be made in accordance with commonly recognized procedures of technical organizations and such special procedures as may be prescribed elsewhere in the Plans and Specifications. The Contractor shall furnish without charge such samples for testing as may be required by the Owner's Representative.

5-12 OBSERVATION OF WORK BY OWNER'S REPRESENTATIVE

The Owner's Representative shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge respecting the progress, workmanship, and character of materials and equipment used and employed in the work.

Whenever the Contractor varies the normal period during which work or any portion of it is carried on each day, he shall give timely notice to the Owner's Representative so that the Owner's Representative may, if he wishes, be present to observe the work in progress. If the Contractor fails to give such timely notice, any work done in the absence of the Owner's Representative will be subject to rejection.

The Contractor shall give timely notice to the Owner's Representative in advance of backfilling or otherwise covering any part of the work so that the Owner's Representative may, if he wishes, observe such part of the work before it is concealed.

The observation, if any, by the Owner's Representative of the work shall not relieve the Contractor of any of his obligations to fulfill the contract as prescribed. Defective work shall be made good, and materials and equipment furnished and work performed which is not in accordance with the Contract Documents may be rejected notwithstanding the fact that such materials, equipment, and work have been previously observed by the Owner's Representative or that payment therefor has been included in an estimate for payment.

5-13 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

Any work which does not conform the requirements of the Contract Documents or which is found unacceptable or deficient by the Owner or the Owner's Representative shall be remedied or removed and replaced by the Contractor at the Contractor's sole cost and expense, together with any other work which may be displaced in so doing, and no compensation will be allowed the Contractor for such removal, replacement, or remedial work. All materials found inadequate or deficient by the Owner or the Owner's Representative shall be immediately removed from the site.

Any work done beyond the lines and grades shown on the Plans or established by the Owner or any changes in, additions to, or deductions from the work done without written authority from the Owner will be considered as unauthorized and will not be paid for. Work so done will be ordered remedied, removed, or replaced by the Owner or the Owner's Representative at the Contractor's sole cost and expense.

Upon failure on the part of Contractor to comply promptly with any order of the Owner or Owner's Representative made under the provisions of this article the Owner or Owner's Representative shall have authority to cause all non-conforming materials, rejected work, or unauthorized work to be remedied, removed, or replaced at the Contractor's sole cost and expense and to deduct all fees and costs incurred by the Owner including staff time from any monies due or to become due the Contractor under this contract.

5-14 TWO-YEAR GUARANTEE

Besides guarantees required elsewhere, the Contractor shall and hereby does guarantee all work, materials, parts, equipment and supplies to be free from all defects due to faulty materials or workmanship for a period of two-years after the date of formal acceptance of the work by the Board of Directors of Owner except for any portion of the work that is utilized or placed into service by the Owner in accordance with the provisions of Article 6-6 USE OF COMPLETED PORTIONS. The guarantee period for portions of the work so utilized or placed into service shall be two-years commencing on the date of the written notification to the Contractor described in Article 6-6 USE OF COMPLETED PORTIONS. The Contractor shall repair or remove and replace any and all such work, together with any other work which may be displaced in so doing, that is found to be defective by Owner in workmanship and/or materials, equipment, parts or supplies within the two-year period, at the Contractor's sole cost and expense, ordinary wear and tear and unusual abuse or neglect excepted. In the event the Contractor fails to correct all defects identified by the Owner within seven (7) consecutive days after written notice of the defects from Owner, the Owner is hereby authorized to proceed to have the defects remedied and made good at the sole expense of the Contractor who hereby agrees to pay the cost and charges therefore immediately on demand. Such action by the Owner will not relieve the Contractor of the guarantees required by this article or elsewhere in the Contract Documents.

The Performance Bond and the Payment Bond shall continue in full force and effect for the guarantee period.

If, in the opinion of the Owner, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the Owner or to prevent interruption of operations of the Owner, the Owner may require the Contractor to correct the defects in a shorter period of time determined solely by Owner. If the Contractor does not correct the defects within the time specified by Owner, Owner may proceed to make such corrections or provide such attention; and all fees and costs of such correction or attention shall be charged against the Contractor. Such

action by the Owner will not relieve the Contractor of the guarantees required by this article or elsewhere in the Contract Documents.

This article does not in any way limit the guarantee on any items for which a longer guaranty is specified or on any items for which a manufacturer or supplier gives a guarantee for a longer period. The Contractor agrees to act as a co-guarantor with such manufacturer or supplier and shall furnish the Owner all appropriate guarantee or warranty certificates upon completion of the project. No guarantee period whether provided for in this article or elsewhere in this contract shall in any way limit the liability of the Contractor or his subcontractors, materialmen, suppliers, sureties or insurers for the full statutory periods provided by California law.

SECTION 6 PROSECUTION AND PROGRESS

6-1 CONTRACTOR'S LIABILITY

The Contractor shall be solely liable and responsible to the Owner for all acts and omissions of the Contractor's directors, officers, agents, owners, and employees and for all acts and omissions of all subcontractors, materialmen and suppliers and their respective directors, officers, managers, members, agents, owners and employees performing any of the work or providing any materials or supplies included as part of the work. The Owner, the Engineer/Architect and the Owner's Representative shall not be liable in any way for any acts or omissions of the Contractor, any subcontractors, any materialmen, any suppliers, or any of their respective directors, officers, managers, members, agents, employees or owners. Nothing contained in the Contract Documents shall create any contractual relationship between any subcontractor materialman, or supplier and the Owner. The Contractor shall bind all subcontractors to all terms of the Contract Documents for all work being performed by those subcontractors.

The divisions and sections of the Specifications and the identifications of any Drawings shall not control the Contractor in dividing the work among subcontractors.

6-2 ASSIGNMENT

The performance of the contract may not be assigned, except upon the written consent of the Owner. Consent will not be given to any proposed assignment which would relieve the original Contractor or his sureties or insurers of their responsibilities under the contract, nor will the Owner consent to any assignment of a part of the work under the contract.

Upon obtaining a prior written consent of the Owner, the Contractor may assign moneys due or to become due him under the contract, to the extent permitted by law, but any assignment of moneys shall be subject to all proper setoffs in favor of the Owner and to all deductions provided for in the contract, and particularly all money withheld, whether assigned or not, shall be subject to being used by the Owner for the completion of the work in the event that the Contractor should be in default therein.

No assignment of this contract will be approved unless it shall contain a provision that the funds to be paid to the assignee under the assignment are subject to a prior lien for services rendered or materials supplied for performance of the work called for under the contract in favor of all persons, firms, or corporations rendering such services or supplying such materials and that the Owner may withhold funds due until all work required by the Contract Documents is completed to the Owner's satisfaction.

In the event of bankruptcy of the Contractor, whether voluntary or involuntary, this Agreement may be automatically terminated at the election of the Owner. The election to terminate in accordance with this provision shall be deemed effective as of the date the Owner mails notice of termination in accordance with this section to the Contractor at the Contractor's last known address without any further action of any party. Upon termination in accordance with this provision, the Contractor shall be entitled to no further payments over and above the reasonable value of the actual Work completed as of the date the termination notice is mailed.

6-3 CONTRACTOR'S CONSTRUCTION SCHEDULE AND COST BREAKDOWN

Within fourteen (14) days after Notice to Proceed, the Contractor shall deliver to the Owner's Representative a construction progress schedule and cost breakdown in bar chart form showing the proposed dates of commencement and completion and cost of each of the various parts of the work and the anticipated amount of each monthly payment that will become due the Contractor in accordance therewith. The Owner shall be entitled to terminate this Contract if, in the Owner's opinion, the Contractor is failing to carry on the work diligently or in accordance with the approved construction schedule and breakdown. The Contractor has been advised and understands that time is of the essence with respect to completion of all phases of the work in accordance with the approved construction schedule.

6-4 TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY

The Contractor shall complete all or any designated portion of the work called for under the contract within the time set forth in Special Provisions. Time is of the essence in this contract.

Failure of the Contractor to perform any covenant or condition contained in the Contract Documents within the time period specified shall constitute a material breach of this contract entitling the Owner to terminate the contract unless the Contractor applies for, and receives, an extension of time in accordance with the procedures set forth in this article and Article 6-5 EXTENSION OF TIME.

Failure of the Owner to insist upon the performance of any covenant or condition within the time period specified in the Contract Documents shall not constitute a waiver of the Contractor's duty to complete performance within the designated periods unless the waiver is in writing.

The Owner's agreement to waive a specific time provision or to extend the time for performance shall not constitute a waiver of any other time provisions contained in the Contract Documents. Failure of the Contractor to complete performance promptly within the additional time authorized in the waiver or extension of time agreement shall constitute a material breach of this contract entitling the Owner to terminate.

In accordance with Government Code 53069.85, Contractor agrees to forfeit and pay Owner the amount per day set forth in the Special Provisions for each and every day of delay which shall be deducted from any payments due or to become due the Contractor.

The Contractor shall not be deemed in breach of this contract and no forfeiture due to delay shall be made because of any delays in the completion of the work due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor provided the Contractor requests an extension of time in accordance with the procedures set forth in this article and Article 6-5 EXTENSION OF TIME. Unforeseeable causes of delay beyond the control of Contractor shall include acts of God, acts of a public enemy, acts of the government, acts of the Owner, or acts of

another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and weather, or delays of subcontractors due to such causes, or delays caused by failure of the Owner or the owner of a utility to provide for removal or relocation of existing utility facilities. Delays caused by actions or neglect of Contractor or his agents, servants, employees, officers, subcontractors, directors, or of any party contracting to perform part or all of the work or to supply any equipment or materials shall not be excusable delays. Excusable delays (those beyond Contractor's control) shall not entitle the Contractor to any additional compensation. The sole remedy of the Contractor shall be to seek an extension of time.

6-5 EXTENSION OF TIME

The Contractor shall not be entitled to any increase in the contract price as a result of the Owner's approval of any extension of time except to the extent that the Owner approves an increase in the contract price on a properly executed Change Order.

The time specified for completion of all of the work or any part of the work may be extended only by a written change order executed by the Owner or other written form executed by the Owner.

Requests for an extension of time must be delivered to the Owner's Representative within ten consecutive calendar days following the date of the occurrence which caused the delay. The request must be submitted in writing and must state the cause of the delay, the date of the occurrence causing the delay, and the amount of additional time requested. Requests for extensions of time shall be supported by all evidence reasonably available or known to the Contractor which would support the extension of time requested. Requests for extensions of time failing to include the information specified in this article and requests for extensions of time which are not received within the time specified above shall result in the forfeiture of the Contractor's right to receive any extension of time requested.

If the Contractor is requesting an extension of time because of weather, he shall supply daily written reports to the Owner's Representative describing such weather and the work which could not be performed that day because of such weather or conditions resulting therefrom and which he otherwise would have performed.

The Owner's acceptance of the daily reports shall not be deemed an admission of the Contractor's right to receive an extension of time or a waiver of the Owner's right to strictly enforce the time provisions contained in the Contract Documents.

When the Contractor has submitted a request for an extension of time in accordance with the procedures of this article and Article 6-4 TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY, the Owner will ascertain the facts and extent the delay and extend the time for completing the work if, in its judgment, the findings of fact justify such an extension, and its findings of facts thereon shall be final and conclusive. An extension of time may be granted by the Owner after the expiration of the time originally fixed in the contract or as previously extended, and the extension so granted shall be deemed to commence and be effective from the date of such expiration.

Any extension of time shall not release the sureties upon any bond required under the contract.

6-6 USE OF COMPLETED PORTIONS

When the work or any portion of it is sufficiently complete to be utilized or placed into service, the Owner shall have the right upon written notification to the Contractor to utilize such portions of the work and to place the operable portions into service and to operate same.

Upon said notice and commencement of utilization or operation by the Owner, the Contractor shall be relieved of the duty of maintaining the portions so utilized or placed into operation; provided, however, that nothing in this article shall be construed as relieving the Contractor of the full responsibility for completing the work in its entirety, for making good defective work and materials, for protecting the work from damage, and for being responsible for damage and for the work as set forth in the General Provisions and other Contract Documents nor shall such action by the Owner be deemed completion and acceptance, and such action shall not relieve the Contractor, his sureties, or insurers of the provisions of SECTION 8 CONTRACTOR'S INSURANCE, of Article 7-12 INDEMNITY, and of Article 5-14 TWO-YEAR GUARANTEE.

SECTION 7 LEGAL RELATIONS AND RESPONSIBILITIES

7-1 OBSERVING LAWS AND ORDINANCES

The Contractor shall keep himself fully informed of all existing and future laws, ordinances, and regulations which in any manner affect those engaged or employed to perform any of the work or providing any materials or supplies or which in any way affect the conduct of the work and of all statutes, laws, rules, regulations, orders, decisions, and decrees of any court or governmental agency having any jurisdiction or authority over all or any of the work or the conduct of the work, including all federal, state and local safety rules, regulations, and orders. This shall expressly include all ordinances, rules, regulations, and requirements applying to the work or the conduct of the work enacted by the Owner. If any discrepancy or inconsistency is discovered in the Plans, Specifications, or contract for the work the relation to any such law, rule, regulation, ordinance, order or decree, the Contractor shall forthwith report the same to the Owner's Representative in writing and cease operations on that part of the work until the Owner's Representative has given him appropriate instructions as provided for Article 5-7 ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR.

The Contractor shall at all times observe and comply with and shall cause all of his directors, officers, agents, managers, members, owners, employees, subcontractors, materialmen and suppliers to observe and comply with all existing and future laws, ordinances, regulations, orders, and decrees, and shall hold harmless, indemnify, and defend the Owner, the Water Authority, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents from and against any and all liability, claims, causes of action, damages, losses, claim fees and costs, staff time, expenses, fees, and costs, including all costs of defense and attorneys' fees, arising from or based on the violation any such law, ordinance, regulation, order, or decree by the Contractor, any subcontractor, any materialman or supplier or any of their respective directors, officers, agents, managers, members, owners, or employees.

7-2 PERMITS AND LICENSES

The Contractor shall be solely liable and responsible for securing all permits and licenses necessary to perform all of the work, for paying all fees and charges necessary to secure any such permit, license, or approval, and for giving all notices which are appropriate or necessary to the proper and safe prosecution of the work. The Owner shall have no obligation to procure any

permit, license, or approval necessary to perform all or any portion of the work. The Contractor shall also be solely liable and responsible for fully complying with all requirements of any permits, licenses or approvals pertaining to all or any of the work. The failure of Contractor to strictly comply with all requirements of any permits, licenses, or approvals applying to all or any of the work shall constitute a material breach of the contract.

7-3 INVENTIONS, PATENTS, AND COPYRIGHTS

The Contractor shall pay all royalties and assume all costs arising from the use of any invention, design, process, materials, equipment, product, or device which is the subject of patent rights or copyrights.

The Contractor shall hold harmless, indemnify, and defend the Owner, the Water Authority, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents from and against all claims, damages, losses, expenses, and other costs, including costs of defense and attorneys' fees, arising out of any infringement of patent rights or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, materials, equipment, product or device, and shall defend all such claims in connection with any alleged infringement of such rights.

7-4 PUBLIC CONVENIENCE AND SAFETY

The Contractor shall conduct his operations at all times in a manner that creates the least possible obstruction and inconvenience to the public, and he shall have under construction no greater length or amount of work than he can prosecute properly with due regard to the rights of the public and all property owners in the area of the work. The Contractor shall be solely liable and responsible for ensuring that all of the work is conducted at all times in a safe manner that does not injure or damage any workers, members of the public or private or public property.

Convenient access to driveways, houses, and buildings along the line of work shall be maintained and temporary crossings shall be provided and maintained in good condition at all times during performance of the work. Not more than one crossing or intersecting street or road shall be closed at any one time.

The Contractor shall provide and maintain such fences, barriers, directional signs, lights, and flagmen as are necessary to give adequate warning to the public at all times of any conditions to be encountered as a result of the work and to give directions to the public. The Contractor shall ensure that all unsafe conditions created by the work are promptly remedied and that any unsafe conditions created by the work are protected by barriers, safeguards and warnings preventing vehicular, bicycle or walking access in any unsafe areas.

It shall also be the sole responsibility of the Contractor to ensure that the work is performed at all times in a manner that does not injure or harm any person or injure or damage any real or personal property of any person or entity.

The Contractor shall perform the work only the areas expressly identified on the drawings. The Contractor must operate entirely within the limits of the project site. No equipment or materials may be parked, stockpiled, or stored outside the project site or designated Contractor staging areas. The Contractor shall not enter onto, occupy, or disturb any privately owned land or any public or private habitat not scheduled for removal in the approved plans with any men, tools, materials, dirt, or equipment except with the prior express written consent of the Owner and all

owners of any privately-owned land. The Contractor has been advised, and understands, that any request to enter onto, occupy, or disturb any privately-owned land or habitat must be submitted to the general manager of the Owner for written approval prior to entering onto, occupying, or disturbing any privately-owned land or public or private habitat for any purpose. The violation of this section by Contractor shall constitute a material breach of this contract.

The Contractor and any subcontractors, materialmen, or suppliers shall not, at any time, conduct any of the work in any manner that creates any public or private nuisance or trespass on the land of any private party or public agency. It shall be the sole responsibility of Contractor to conduct the work at all times in a manner that avoids creating any nuisance or trespass on any real or personal property owned by any private party or public agency.

The Contractor hereby agrees to indemnify, defend, and hold harmless the Owner, the San Elijo Joint Powers Authority, City of Encinitas, Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents from and against any and all liability, claims, causes of action, actions, damages, losses, fees, costs, or expenses, of whatever type or nature, including all costs of defense, attorneys' fees, and claim fees or costs, arising out of or resulting from performance of any of the work by the Contractor, its subcontractors, materialmen, or suppliers, or their respective directors, officers, agents, managers, members, owners, or employees which results in any injury or damage to persons or property including wrongful death regardless of whether or not such claim, cause of action, damage, loss or expense is caused in whole or in part by the negligence, active or passive, of Owner, the Engineer/Architect, or the Owner's Representative excepting only those claims and causes of action caused by the sole active negligence or intentional misconduct of the Owner, the Engineer/Architect, or the Owner's Representative. From and after the date of submission of any claim or demand to Owner, the indemnified parties shall recover from the Contractor all attorneys fees, expert fees and costs, claim costs, and staff time involved in handling the claim or any subsequent action on the claim at the standard hourly rates for staff handling the claim or action.

7-5 RESPONSIBILITY FOR LOSS, DAMAGE, OR INJURIES

The Contractor shall be solely responsible for all liability, claims, causes of action, demands, losses, costs, fees, expenses, and damages, of whatever type or nature, from any cause arising out of or resulting from or in connection with the performance of any of the work, excepting only those claims and causes of action caused solely and exclusively by the active negligence or intentional misconduct of the Owner, the Engineer/Architect, the Owner's Representative, or their consultants, directors, officers, employees, and agents. This exclusive responsibility shall extend to all liability, claims, causes of action, demands, losses, costs, fees, and expenses, of whatever type or nature, after completion of the work as well as during the progress of the work.

In the event any hazardous or toxic materials, including but not limited to asbestos, are utilized in construction or hazardous or toxic materials are otherwise encountered during construction, the Contractor shall take all appropriate precautions to protect persons and property and shall comply with all applicable regulations for the installation and handling of such hazardous or toxic materials. The Contractor is solely responsible for protection of all persons and property that could be affected by any construction or work and for the proper handling and disposal of all such hazardous or toxic materials.

Contractor has been advised that the Owner has Material Safety Sheets (hereinafter "MSS") available for review on any hazardous chemical they may be exposed to while working in or around Owner facilities. It shall be the sole responsibility of Contractor to request and inspect

these MSS forms prior to commencement of any work and to alert all employees and agents of Contractor of potential hazardous waste exposure from Owner facilities. It shall be the sole responsibility of Contractor to provide the Owner's Representative with completed MSS forms for all hazardous or toxic substances that the Contractor utilizes as part of the work prior to the use of any hazardous or toxic substances and to provide these MSS forms to the Contractor's agents and employees prior to their exposure to any hazardous or toxic substance utilized by the Contractor. Further, Contractor shall comply with all provisions contained in General Industry Safety Orders Section 5194 of Title 8 of the California Administrative Code (the California Hazardous Communication Regulation) at all times during performance of the work.

7-6 CONTRACTOR'S RESPONSIBILITY FOR THE WORK

Until formal acceptance of the work by action of the Board of Directors of Owner, the Contractor shall be solely liable and responsible for all aspects of the work and all equipment materials and supplies to be provided as part of the work (including materials for which he has received partial payment or materials which have been furnished by the Owner) and shall bear the sole risk of injury, loss, or damage to any of the work, or any materials, supplies, or equipment being used or provided in conjunction with the work from any act of nature or the elements and from all other causes, whether arising from the execution or from the non-execution of the work.

The Contractor, at the Contractor's sole cost and expense, shall rebuild, repair, restore, and make good all injuries, losses, or damages whatsoever to any portion of the work or to any materials, equipment, or supplies from any cause before completion and formal acceptance of the work by formal action of the Board of Directors of Owner and shall solely bear the expense thereof. Where the Owner or the Owner's Representative determines it is necessary to protect the work or materials from any damage or injury, the Contractor shall at his sole expense provide suitable drainage and erect any additional structures and take all additional protective actions determined necessary or appropriate by either the Owner or the Owner's Representative to protect the work or materials from further damage or injury. The suspension of the work or the granting of an extension of time from any cause whatsoever shall not relieve the Contractor of his sole responsibility for the work, materials, or equipment as specified herein.

In an emergency affecting the safety of life or property, including any adjoining property, the Contractor, without special instructions or authorizations, shall promptly act to prevent such threatened loss or injury. The Contractor shall also promptly implement any and all directions given by the Owner or the Owner's Representative to protect the safety of life or property during any emergency as determined by Owner.

Notwithstanding the foregoing provisions of this section, the Contractor shall not be responsible for the cost of repairing or restoring damage to the work where the damage has been determined to have been caused solely by an Act of God in excess of 5% of the contract and amount provided that the work damaged is built in accordance with accepted and applicable building standards and in strict compliance with the Plans and Specifications. For the purpose of this paragraph, "Acts of God" shall include only earthquakes in excess of a magnitude of 3.5 on the Richter Scale and tidal waves. No other actions of the elements, nature, or man shall be treated as Acts of God under this paragraph.

7-7 PRESERVATION OF PROPERTY

The Contractor shall be solely liable and responsible for avoiding injury or damage or interfering with the construction or operation of any and all existing improvements or facilities, all utility

facilities, all personal and real property whether owned by any public agency or private party, and any and all trees, shrubbery, landscaping and habitat that are not to be removed. The Contractor shall be solely liable and responsible for any and all damage and injury to any real or personal property of any person or entity both during and after performance of the work.

All trees, shrubbery, and landscaping that are not to be removed, and all lines, fences, signs, survey markers and monuments, buildings and structures, conduits, pipelines both under or above ground, all sewer and water pipelines or facilities, all highway or street facilities, and any and all other improvements, facilities, habitat, trees, or landscaping within or adjacent to the work not to be removed in the approved plans shall be protected by the Contractor from all injury or damage and the Contractor shall provide and install suitable safeguards to protect all such objects from any injury or damage. If any of the foregoing objects are injured or damaged either during or after performance of the work, they shall be promptly replaced or restored to a condition as good as when the Contractor commenced work or as good as required by the Plans and Specifications if any such objects or are part of the work being performed, at the Contractors sole cost and expense. The Owner, the Engineer/Architect and the Owners Representative and their respective Directors, officers, agents and employees shall have no liability whatsoever for any injury or damage caused in whole or in part by the actions or omissions of the Contractor, any subcontractor, any materialmen or supplier, or any of their respective directors, officers, agents, employees, managers, or members except where the injury or damage is caused by the sole and exclusive active negligence or intentional misconduct of the Owner, the Engineer/Architect, the Owners Representative, or their consultants, directors, officers, employees, and agents. The Contractor shall also be solely liable and responsible for any and all damage or injury to any landscaping or habitat caused in whole or in part by the actions or omissions of the Contractor, any subcontractor, any materialmen or supplier, or their respective directors, officers, agents, employees, managers, owners, or members.

The fact that any pipeline or other underground facility is not shown on the Plans, shall not relieve the Contractor of his responsibility under this section.

In addition to any requirements imposed by law, the Contractor shall shore up, brace, underpin, and protect all foundations, structures, or improvements adjacent to or adjoining the site of the work which are in any way affected by the excavations or by any of the work. Whenever any notice is required to be given by the Owner or the Contractor at any adjacent or adjoining landowner or other party before commencement of any work, this notice shall be given by the Contractor.

7-8 REGIONAL NOTIFICATION CENTER CONTACT

The Contractor, except in an emergency, shall contact the appropriate regional notification center prior to commencing any excavation work. Notify the center at least two working days in advance or up to a maximum of 14 calendar days in advance of any excavation work. The Contractor shall delineate the proposed excavation site with white paint on paved surfaces or with markings such as flags or stakes in unpaved areas. The Contractor shall provide the regional notification center with all job site location information. The regional notification center will assign to the Contractor a Dig Alert Number which validates the Contractor's excavation permit and will notify all of its members having subsurface installations in the area. No excavation shall be commenced and carried out by the Contractor until all existing subsurface installations have been field marked and the Owner has been given the Dig Alert Number by the Contractor.

Emergency shall be defined as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage (Government Code Section 4216).

Subsurface installation means any underground pipeline, conduit, duct, wire, or other structure operated or maintained in or across a public street or public right-of-way (Government Code Section 4216).

7-9 EXCAVATION PLANS FOR WORKER PROTECTION REQUIRED BY LABOR CODE SECTION 6705

If the total amount of the contract is in excess of \$25,000, the Contractor shall submit to the Owner for acceptance, in advance of excavation, a detailed Plans 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 any trench or trenches 5 feet or more in depth. The Plans shall be prepared by a registered civil or structural engineer. As a part of the Plans, a note shall be included stating that the registered civil or structural engineer certifies that the Plans complies with all CAL-OSHA Construction Safety Orders and regulations, or that the registered civil or structural engineer certifies that the Plans is not less effective than the shoring, bracing, sloping, or other provisions of the Safety Orders and regulations.

The Owner or the Engineer/Architect or their consultants may have made investigations of subsurface conditions in areas where the work is to be performed. If so, these investigations are identified in the Special Provisions and the records of such investigations are available for inspection at the office of the Engineer/Architect. The detailed Plans showing the design of shoring, etc., which the Contractor is required to submit to the Owner for acceptance in advance of excavation will not be accepted by the Owner if the Plans are based on subsurface conditions which are more favorable than those revealed by the investigations made by the Owner or the Engineer/Architect or their consultants; nor will the Plans be accepted if it is based on soils-related design criteria which is less restrictive than the criteria set forth in the report on the aforesaid investigations of subsurface conditions.

The detailed Plans showing the design of shoring, etc., shall include surcharge loads for nearby embankments and structures, for spoil banks, and for construction equipment and other construction loadings.

The Plans shall indicate for all trench conditions the minimum horizontal distances from the side of the trench at its top to the near side of the surcharge loads.

Nothing contained in this article shall be construed as relieving the Contractor of the full responsibility for providing shoring, bracing, sloping, or other provisions which are adequate for worker protection.

7-10 SAFETY

In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons and property during performance of the work, and the Contractor shall fully comply with all state, federal and other laws, rules, regulations, and orders relating to safety of the public and workers.

The right of the Engineer/Architect or the Owner's Representative to conduct construction review or observation of the Contractor's performance will not include review or observation of the adequacy of the Contractor's safety measures in, on, or near the construction site.

7-11 PERSONAL LIABILITY

No director, officer, employee, or agent of the Owner, the Engineer/Architect, the Owner's Representative, or their consultants shall be personally responsible for any liability arising under or by virtue of the contract.

7-12 DEFENSE AND INDEMNITY

The Contractor hereby agrees to indemnify, defend, and hold harmless the Owner, the Engineer/Architect, and the Owner's Representative and their respective directors, officers, agents, employees and consultants from and against any and all liability, claims, demands, causes of action, actions, damages, losses, fees, costs, or expenses, of whatever type or nature, including all costs of defense and attorneys' fees, caused in whole or in part, or claimed to be caused in whole or in part, by any act or omission of the Contractor, any subcontractor, any supplier or materialman or any of their respective directors, officers, agents, employees, managers, members, or owners except only those claims and causes of action caused by the sole active negligence or intentional misconduct of the Owner, the Engineer/Architect or the Owner's Representative or their respective agents or employees. This indemnification shall extend to all claims, demands, causes of action, actions, or liability occurring after completion of the project as well as during the progress of the Work.

The Contractor further agrees to indemnify, defend, and hold harmless the Owner, the Engineer/Architect, and Owner's Representative and their respective directors, officers, agents, employees, and consultants from and against any and all liability, claims, causes of action, actions, losses, fees, costs, expenses, or damages, of whatever type or nature, including all costs of defense and attorneys' fees, as a result of the failure of or claimed failure of the Contractor to strictly comply with any of the Contractor's obligations under this contract. This indemnity shall expressly include claims by the Owner for any injury, damages, losses, costs, fees or expenses arising from or related to the failure of the Contractor or any of his subcontractors, materialmen, or suppliers to strictly comply with all terms of this contract or as a result of any improper workmanship or defective supplies or materials.

The Contractor's indemnity obligations as contained in this section shall remain in full force and effect and shall apply whether or not the claim, cause of action, damage, cost, fee, or expense is covered by any applicable insurance policy and regardless of any position that may be taken by any insurance company regarding a defense or coverage for any claim or cause of action asserted. From and after the date any claim or demand is submitted to Owner covered by these indemnity provisions, the indemnified parties shall be entitled to recover from Contractor all fees and costs incurred in investigating the claim, all staff time involved in handling the claim or any subsequent action on the claim at staff's ordinary hourly rates, all expert fees and costs, all attorneys' fees, and all court costs. The Contractor shall also be solely liable and responsible for paying any and all damages, fees or costs awarded to the claimant as a result of any settlement or final judgment of any cause of action or action covered by these indemnity provisions. This indemnity shall expressly include all wrongful death actions as well as any actions asserting any damage or injury to any persons or real or personal property.

From and after submission of any claim or demand to any of the indemnified parties, the indemnified party shall be entitled to appoint their own independent counsel to represent them and the Contractor shall pay all fees, costs, and expenses of whatever type or nature (including all staff time) incurred by each of the indemnified parties within thirty (30) consecutive days of receipt of a demand for reimbursement of these costs, fees, or expenses by each of the indemnified parties. A breach of this indemnity provision by Contractor shall constitute a material breach of the contract.

7-13 HOURS OF LABOR

The Contractor shall forfeit as a penalty to the Owner \$25 for each worker employed in the execution of the contract by the Contractor or any subcontractor under him for each calendar day during which such worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of the Labor Code and, in particular, Section 1810 to Section 1815 thereof, inclusive, except that work performed by employees of Contractors in excess of 8 hours per day and 40 hours during any one week shall be permitted upon compensation for all hours worked in excess of 8 hours per day at not less than one and one-half times the basic rate of pay as provided in said Section 1815.

7-14 PREVAILING WAGE

The Contractor shall comply with Labor Code Section 1775. In accordance with said Section 1775, the Contractor shall forfeit as a penalty to the Owner \$50 for each calendar day or portion thereof for each worker paid less than the stipulated prevailing rates for such work or craft in which such worker is employed for any work done under the contract by him or her or by any subcontractor under him or her in violation of the provisions of the Labor Code and in particular, Labor Code Sections 1770 to 1780, inclusive. In addition to said penalty and pursuant to said Section 1775, the difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor. Pursuant to Labor Code Section 1775, to the extent there is insufficient money due a contractor to cover all penalties forfeited and amounts due, the Division of Labor Standards Enforcement shall be notified of the violation and the Division of Labor Standards Enforcement shall be entitled to maintain an action in any court of competent jurisdiction to recover the penalties and the amounts due pursuant to Labor Code Section 1775.

Section 1776 of the Labor Code requires each contractor and its subcontractors to keep accurate payroll records showing the name, address, social security number, work classification, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the work required by these Contract Documents. These payroll records shall be made available for inspection or furnished to all employees, any representative of the Owner, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations. Contractor shall provide a certified copy of these payroll records to any of the aforementioned parties within 10 calendar days after receipt of a written request for these records. Contractor understands that it is the responsibility of the Contractor to ensure that these payroll records are maintained by Contractor and all subcontractors performing the work in accordance with Labor Code Section 1776(h). The payroll records shall be on forms provided by the Division of Labor Standard Enforcement or provide the same information as the information required by this form.

Pursuant to Labor Code Section 1777.1, whenever any contractor or subcontractor performing a public works project is found by the Labor Commissioner or the Owner to be in violation of Labor Code Section 1770 et seq., except Section 1775, the contractor or subcontractor or any firm, corporation, partnership, or association of which the contractor or any subcontractor has a substantial interest, shall be ineligible to bid on or to receive any public works contract for a period of not less than one-year or more than three years. The period of debarment shall run from the date the determination of the violation is made by the Labor Commissioner.

The Owner shall be entitled to withhold wages and penalties due as a result of any violation of the Labor Code from Payments due the Contractor in accordance with Labor Code Section 1726. These withheld amounts shall be paid to the Labor Commissioner for disbursement in accordance with Labor Code Section 1730. The Contractor's right to recover these wages and penalties shall be limited as provided in the Labor Code.

7-15 TRAVEL AND SUBSISTENCE PAYMENTS

Each worker needed to execute the work must be paid travel and subsistence payments as defined in the applicable collective bargaining agreements filed in accordance with Labor Code Section 1773.8.

7-16 APPRENTICES

Attention is directed to the provisions in Sections 1777.5, 1777.6, and 1777.7 of the Labor Code concerning the employment of apprentices by the Contractor or any subcontractor under him.

The Contractor and any subcontractor under him shall comply with the requirements of Sections 1777.5 and 1777.6 of the Labor Code in the employment of apprentices.

Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

Willful violations of Section 1777.5 will result in the Contractor, and the business entity under which the Contractor is doing business, being denied the right to bid on, or to receive, any public works contract for a period of up to one year for the first violation and for a period of up to three years for the second and subsequent violations commencing from the date the determination of noncompliance by the Administrator of Apprenticeship Council. In addition, if the Contractor violates Section 1777.5, he will forfeit as a civil penalty the sum of \$50 for each calendar day of non-compliance which shall be withheld from progress payments by Owner upon notice from the Department of Industrial Relations. (Labor Code Section 1777.7.)

7-17 WARRANTY OF TITLE

No materials, supplies, or equipment for the work under this contract shall be purchased subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants clear and good title to all materials, supplies, and equipment installed and incorporated in the work and agrees upon completion of all work to deliver the premises together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens, encumbrances, or charges and further agrees that neither he nor any person, firm, or corporation furnishing any material or labor for any work covered by the contract shall have any right to a lien

upon the premises or any improvement or appurtenance thereon, provided that this shall not preclude the Contractor from installing metering devices or other equipment of utility companies or of municipalities, the title of which is commonly retained by the utility company or the municipality. Nothing contained in this article, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any right under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this article shall be inserted in all subcontracts and material contracts, and notices of its provision shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

7-18 PROPERTY RIGHTS IN MATERIALS

Nothing in the contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil. All such materials shall become the property of the Owner upon being so attached or affixed. Soil, stone, gravel, and other materials found at the site of the work and which conform to the Plans and Specifications for incorporation into the work may be used in the work. No other use shall be made of such materials except as may be otherwise described in the Plans and Specifications.

7-19 MUTUAL RESPONSIBILITY OF CONTRACTORS

Nothing in the contract shall be interpreted as granting to the Contractor exclusive occupancy of the site of the project. The Contractor must ascertain to his own satisfaction the scope of the project and the nature of any other contracts that have been or may be awarded by the Owner in the construction of the project, to the end that the Contractor may perform this contract in the light of such other contracts, if any.

The Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the project. If the performance of any contract for the project is likely to be interfered with by the simultaneous performance of some other contract or contracts, the Owner's Representative shall decide which contractor shall cease work temporarily and which contractor shall continue or whether the work under the contracts can be coordinated so that the contractors

may proceed simultaneously. On all questions concerning conflicting interest of contractors performing related work, the decision of the Owner's Representative shall be binding upon all contractors concerned and the Owner, the Engineer/Architect, the Owner's Representative, and their consultants shall not be responsible for any damages suffered or extra costs incurred by the Contractor resulting directly or indirectly from the award or performance or attempted performance of any other contract or contracts on the project or caused by a decision or omission of the Owner's Representative respecting the order of precedence in the performance of the contracts.

If through acts of neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration, if such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against the Owner, the Engineer/Architect, the Owner's Representative, or their consultants or any of their directors, officers, employees, or agents on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall hold harmless, indemnify, and defend the Owner, the San Elijo Joint Powers Authority, City of Encinitas, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents

against any such claim, including all attorneys' fees and any other costs incurred by the indemnified parties relative to any such claim.

7-20 TERMINATION FOR BREACH

If the Contractor refuses or fails to prosecute the work or any separable part thereof with such diligence as will ensure its completion within the time specified herein, or any extension thereof, or fails to complete such work within such time, or if the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he files a petition to take advantage of any debtor's act, or if he or any of his subcontractors should violate any of the provisions of the contract, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials to complete the work in the time specified, or if he should fail to make prompt payment to subcontractors or for material or labor, or if he should persistently disregard laws, ordinances, or instructions given by the Owner or Owner's Representative, the Owner may, without prejudice to any other right or remedy, serve written notice upon the Contractor and his surety of his intention to terminate the contract, said notice to contain the reasons for such intention to terminate the contract, and unless within ten days after the service of such notice such violations shall cease and satisfactory arrangements for the corrections thereof be made, the contract shall upon the expiration of said ten days cease and terminate. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished.

In the event of any such termination, the Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract; provided, however, that if the surety within 15 calendar days after the serving upon it of a notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within 30 calendar days from the date of serving said notice, the Owner may take over the work and prosecute the same to completion by contract or by any other method it may deem advisable for the account and at the expense of the Contractor, and his surety shall be liable to the Owner for any excess cost or other damage occasioned the Owner thereby, and in such event the Owner may, without liability for so

doing, take possession of and utilize in completing the work such materials, appliances, plants, and other property belonging to the Contractor that may be on the site of the work and be necessary therefor. For any portion of such work that the Owner elects to complete by furnishing its own employees, materials, tools, and equipment, the Owner shall be compensated for such in accordance with the schedule of compensation for force account work in Article 9-1 PAYMENT FOR CHANGES IN THE WORK.

If the unpaid balance of the contract price exceeds the direct and indirect costs of completing the work, including, but not limited to, all costs to Owner arising from professional services and

attorneys' fees and all costs generated to insure or bond the work of substituted contractors or subcontractors utilized to complete the work, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner promptly upon demand; on failure of Contractor to pay, the surety shall pay on demand by Owner. Any portion of such difference not paid by Contractor or surety within 30 calendar days following the mailing of a demand for such costs by Owner shall earn interest at the rate of 10% per annum or the maximum rate authorized by California law, whichever is lower.

The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to the Owner.

7-21 NOTICE AND SERVICE THEREOF

Any notice required or given under the contract shall be in writing, be dated, and signed by the party giving such notice or his duly authorized representative, and be served as follows:

If to the Owner, by personal delivery or by deposit in the United States mail.

If to the Contractor, by personal delivery to the Contractor or to his authorized representative at the site of the project or by deposit in the United States mail.

If to the surety or any other person, by personal delivery to said surety or other person or by deposit in the United States mail.

All mailed notices shall be in sealed envelopes, shall be sent by certified mail with postage prepaid, and shall be addressed to the addresses in the Contract Documents or such substitute addresses which a party designates in writing and serves as set forth herein.

7-22 PARTIAL INVALIDITY

If any provision of this contract is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions shall nevertheless continue in full force without being impaired or invalidated in any way.

7-23 ATTORNEYS' FEES

In the event any arbitration proceeding, administrative proceeding or litigation in law or in equity, including an action for declaratory relief, is brought to invalidate, enforce, or interpret any term or provision of this contract, the prevailing party shall recover all attorneys' fees, all expert fees and costs, and all costs of the proceeding which shall be determined by the Court or the presiding officer at the proceeding authorized to make a determination of the issues or in a separate action brought for that purpose, in addition to any other relief provided by California law.

If any party to this agreement becomes a party to any litigation, administrative proceeding or arbitration concerning the invalidation, enforcement or interpretation of the provisions of this agreement or the performance of this agreement by reason of any act or omission of another party or authorized representative of another party to this agreement and not by any act or omission of a party that becomes a party to that proceeding or any act or omission of its authorized representatives, the party that causes another party to become involved in the proceeding shall be liable to that party for all expert fees and costs, all attorneys' fees, and all costs of the proceeding. The award of these expert fees and costs, attorneys' fees, and costs shall be determined as provided above.

From and after any date of submission of any demand or claim to Owner or any of the other indemnified parties covered by any indemnity provisions of this contract, the indemnified party shall be entitled to appoint their own independent counsel to represent them and the Contractor shall pay all fees and costs incurred by the indemnified parties to investigate and evaluate the claim or cause of action, for all staff time at the hourly rates of each staff member handling the claim or cause of action, all attorneys' fees, all expert fees and costs, and all court costs when and as these

fees and costs are incurred by each of the indemnified parties. The Contractor agrees to pay all of these fees, costs, and expenses to each of the indemnified parties not later than thirty (30) days following a demand for reimbursement of these fees, costs, and expenses by each of the indemnified parties. Amounts not paid by the Contractor within this thirty (30) day period shall earn interest at the rate of one percent (1%) per month until paid by Contractor in full.

In the event opposing parties have each prevailed on one or more cause of action actually contested or admitted by pleadings or pre-hearing documents on file, the presiding officer may offset such fees and costs between prevailing parties after considering the necessity of the proceeding and the importance of the issue or issues upon which a party has prevailed. However, the court or presiding officer shall have no authority to relieve the Contractor of the Contractor's obligation to pay all damages, fees, costs, and expenses of each of the indemnified parties as provided in the indemnity provisions of this contract.

The term "prevail" as used in this section shall include any action at law, in equity, or pursuant to arbitration in which either party has been successful including, but not limited to, demurrers, motions to strike, judgments on the pleadings, summary judgments or summary adjudications of issues, any other motion of whatever type or nature, or any trial proceeding or motion.

7-24 LANDS AND RIGHTS-OF-WAY

The lands and rights-of-way for the facility to be constructed will be provided by the Owner. The Contractor shall make his own arrangements and pay all expenses for additional area required by him outside the limits of the Owner's lands and rights-of-way.

Work in public right-of-way shall be done in accordance with the requirements of the permit issued by the public agency in whose right-of-way the work is located in addition to conforming to the Plans and Specifications. If a permit is not required, the work shall conform to the standards of the public agency involved in addition to conforming to the Plans and Specifications.

7-25 NO WAIVER OF RIGHTS OR REMEDIES

No action or failure to act by the Owner, Engineer/Architect, or Owner's Representative shall constitute a waiver of any right or duty afforded any of them under the Contract Documents, nor shall any such action or failure to act constitute an approval of or acquiescence in an breach of this contract by Contractor. No oral waiver of any rights or remedies granted to the Owner, Engineer/Architect, or Owner's Representative shall be effective for any purpose. To be effective, the waiver must be in writing and executed by an authorized representative of Owner, the Engineer/Architect, or the Owner's Representative. Contractor has been informed, and understands, that the Engineer/Architect and Owner's Representative have no authority whatsoever to waive any rights or remedies granted to the Owner by this contract or to alter any term or provision of the Contracts Documents or the approved Plans and Specifications. Any such purported waiver shall be void and unenforceable.

7-26 TAXES

The Contractor shall pay all sales, consumer, use, and other taxes.

NOTICE OF TAXABLE POSSESSORY INTEREST - The terms of this document may result in the creation of a possessory interest. If such a possessory interest is vested in a private party to this

document, the private party may be subjected to the payment of personal property taxes levied on such interest.

7-27 ASSIGNMENT OF ANTI-TRUST ACTIONS

In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

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

Contractor shall insure that a comparable provision is included in all subcontracts at all tier levels which are executed pursuant to this Agreement.

7-28 PAYROLL RECORDS

It shall be the responsibility of the Contractor to maintain an accurate payroll record showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each employee in accordance with Labor Code Section 1776, and to ensure that each subcontractor also complies with all provisions of Labor Code Section 1776 and this contract provision.

All payroll records shall be certified as accurate by the applicable contractor or subcontractor or its agent having authority over such matters.

The Contractor shall ensure that all payroll records are available for inspection at the Contractor's principal office during normal business hours and shall notify the Owner, in writing, of the place where all payroll records are located from time to time.

The Contractor shall furnish a copy of all payroll records, upon request, to employees or their authorized agents, to the Owner, to the Division of Labor Standards Enforcement, and to the Division of Apprenticeship Standards of the Department of Industrial Relations. The Contractor shall also furnish a copy of payroll records to the general public upon request provided the public request is made through the Owner, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement of the Department of Industrial Relations. In no event shall members of the general public be given access to payroll records at the Contractor's principal office.

Records made available to the general public in accordance with the prior paragraph shall be marked or obliterated in such a manner that the name and address of the Contractor and/or

subcontractor and the name, address, and telephone number of all employees does not appear on the modified record.

The Contractor shall file a certified copy of any requested payroll records with the entity that requested such records within ten days of the date a written request for payroll records has been received.

Failure of the Contractor to comply with any provisions of this article or Labor Code Section 1776 within ten days of the date of a written request for compliance is received shall result in a forfeiture of up to \$50 per calendar day or portion thereof, for each worker, until strict compliance is obtained. Upon notification by the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement of the Department of Industrial Relations, the Owner shall withhold penalties under this article or Labor Code Section 1776 from the Contractor's payments then due.

7-29 MODIFICATION

This contract may not be altered in whole or in part except by modification in writing and properly executed by all parties hereto or by change as provided herein.

7-30 JURISDICTION AND VENUE

In the event any legal or equitable proceeding is commenced to invalidate, enforce, or interpret any of the terms or provisions of this contract, the parties expressly agree that jurisdiction and venue shall lie only in the Superior Court located in the North County Judicial District, County of San Diego, State of California. The Contractor acknowledges and agrees that this contract has been executed and requires performance solely within the jurisdiction and venue of the North County Judicial District and that the contract requires work solely within the jurisdiction and venue of the North County Judicial District.

7-31 HAZARDOUS WASTE

It shall be the responsibility of the Contractor to pay all fees and costs associated with removal and cleanup of any hazardous waste used at or brought to the job site by the Contractor, any subcontractor, or any agent, representative, or employee of the Contractor or any subcontractor.

The Contractor shall identify and remove all such hazardous waste in accordance with all federal, state, and local rules and regulations and shall promptly notify the Owner's Representative of any such hazardous waste. If hazardous waste is discovered during performance of the work which has not been brought to, or used at, the job site by the Contractor, any subcontractor, or any agent, representative, or employee of the Contractor or any subcontractor, the Contractor shall identify and remove this hazardous waste in accordance with all federal, state, and local rules and regulations and in accordance with directions of the Owner and the Contractor shall be entitled to request an increase in compensation due for these removal and cleanup costs in accordance with Article 9-1 PAYMENT FOR CHANGES IN THE WORK.

7-32 EXCAVATIONS BELOW FOUR (4) FEET

If any work required by this contract includes digging trenches or other excavations that extend deeper than four feet below the surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the Owner in writing of any:

Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing law.

Subsurface or latent physical conditions at the site differing from those indicated.

Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.

Nothing in this article is intended to relieve the Contractor of his responsibility to carefully examine the Contract Documents and the site where the work is to be performed in accordance with Article 2-8 EXISTING CONDITIONS AND EXAMINATION OF CONTRACT DOCUMENTS; to familiarize himself with all local conditions and federal, state, and local laws, ordinances, rules, and regulations that may affect the performance of any work; to study all surveys and investigation reports about subsurface and latent physical conditions pertaining to the job site; to perform such additional surveys and investigations as the Contractor deems necessary to complete the work at his bid price; and to correlate the results of all such data with the requirements of the Contract Documents.

If the Owner determines that hazardous waste exists and that conditions exist which Contractor could not discover through the investigations required by the preceding paragraph, the Owner shall notify the Contractor and the Contractor may request a change order in accordance with Article 9-1 PAYMENT FOR CHANGES IN THE WORK. Nothing in this article shall relieve the Contractor of the obligation to pay all fees and costs associated with removal and cleanup of any hazardous waste used at, or brought to, the job site by the Contractor as specified in Article 7-31 HAZARDOUS WASTE. Nor shall this article relieve the Contractor of responsibility for site conditions discoverable by any investigation required by the preceding paragraph.

In the event that a dispute arises between the Owner and the Contractor involving hazardous waste and whether site conditions differ materially from those the Contractor could or should have discovered by the investigations required by this contract, the Contractor shall not be excused from the scheduled completion date provided in the Contract Documents and shall proceed with all work in the manner and in the time required by the Contract Documents.

7-33 ARBITRATION

All public works claims between the Contractor and Owner relating to this contract where the total claims of both parties are equal to or less than \$375,000 shall be submitted to mediation first and then to arbitration in accordance with Public Contract Code Section 20104, et seq. A copy of Public Contract Code Section 20104, et seq stating these arbitration requirements is attached following the General Provisions. When a total payment of the Contractor and the Owner exceed a total of \$375,000, this section shall not apply and neither the Owner nor the Contractor shall have any obligation to arbitrate the claim.

SECTION 8 CONTRACTOR'S INSURANCE

8-1 GENERAL

The Contractor shall not commence or continue to perform any work unless he, at his own expense, has in full force and effect all required insurance. The Contractor shall not permit any

subcontractor to perform work on this project unless the Workers' Compensation Insurance requirements have been complied with by such subcontractor.

The types of insurance the Contractor shall obtain and maintain are Workers' Compensation Insurance and Employer's Liability Insurance, Liability Insurance, Builders' Risk "All Risk" Insurance, all as set forth herein.

Workers' Compensation Insurance and Employer's Liability Insurance and Liability Insurance shall be maintained in effect for the full guarantee period.

Insurers must be authorized to do business and have an agent for service of process in California, have an "A" policyholder's rating and a financial rating of at least Class VI in accordance with the most current rating by A.M. Best Company.

As evidence of specified insurance coverage, the Contractor shall provide certificates of insurance and endorsements on the forms provided as a part of the Contract Documents. No alteration or substitution of said forms will be allowed.

8-2 WORKERS' COMPENSATION INSURANCE AND EMPLOYER'S LIABILITY INSURANCE

Upon execution of the Agreement, the Contractor shall provide a Certificate(s) of Insurance certifying that he has obtained for the period of the contract full Workers' Compensation Insurance coverage for no less than the statutory limits and Employer's Liability Insurance coverage in limits not less than the amounts set forth in the Special Provisions, for all persons whom he employs or may employ in carrying out the work under the contract. At the same time, the Contractor shall provide the Insurance Endorsement(s) on the forms provided as part of the Contract Documents. This insurance shall be in strict accordance with the requirements of the most current and applicable state Workers' Compensation Insurance laws.

8-3 LIABILITY INSURANCE

Upon execution of the Agreement, the Contractor shall provide a Certificate(s) of Insurance showing that he has Liability Insurance coverage in limits not less than the amounts set forth in the Special Provisions. At the same time, the Contractor shall provide the Insurance Endorsement(s) on the forms provided as part of the Contract Documents.

All liability insurance shall include occurrence coverage with a deductible amount not exceeding the amount specified on the liability certificate form.

Included in such insurance shall be a "Cross Liability" or "Severability of Interest" clause.

The Liability Insurance coverage shall include each of the following types of insurance:

A. General Liability

- (1) Comprehensive Form.
- (2) Premises-Operations.
- (3) Explosion and Collapse Hazard.
- (4) Underground Hazard.

- (5) Products/Completed Operations Hazard.
- (6) Contractual Insurance.
- (7) Broad Form Property Damage Including Completed Operations.
- (8) Independent Contractors.
- (9) Personal Injury.

B. Automobile Liability

- (1) Comprehensive Form Including Loading and Unloading.
- (2) Owned.
- (3) Hired.
- (4) Non-Owned.

The Liability Insurance shall include as additional insureds: the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents. The insurance afforded to these additional insureds shall be primary insurance. If the additional insureds have other insurance which might be applicable to any loss, the amount of the insurance provided under this article on LIABILITY INSURANCE shall not be reduced or prorated by the existence of such other insurance.

8-4 BUILDERS' RISK "ALL RISK" INSURANCE

Upon execution of the Agreement, the Contractor shall provide a Certificate(s) of Insurance showing that he has obtained for the period of the contract Builders' Risk "All Risk" completed value insurance coverage (including any damage attributable directly or indirectly to surface water, runoff, rainfall or flood but excluding earthquake and tidal wave) upon the entire project which is the subject of the contract and including completed work and work in progress. At the same time, the Contractor shall provide the Insurance Endorsement(s) on the forms provided as a part of the Contract Documents. Such insurance shall include as additional insureds: the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents.

Such insurance may have a deductible clause but not to exceed \$25,000.

8-5 CONTRACTOR'S LIABILITY NOT LIMITED BY INSURANCE

Nothing contained in these insurance requirements is to be construed as limiting the liability of the Contractor or the right of the Owner to secure damages in excess of any insurance which may be provided.

SECTION 9 ESTIMATES AND PAYMENTS

9-1 PAYMENT FOR CHANGES IN THE WORK

The Contractor shall not be entitled to any increase in the contract price due to any change in the work unless the Contractor submits a written request within seven calendar days from the date of the event which causes the Contractor to request a change in the price.

Changes in, additions to, or deductions from the work, including increases or decreases in the quantity of any item or portion of the work, shall be set forth in a written change order executed by the Owner and by the Contractor which shall specify:

The changes, additions, and deductions to be made.

The increase or decrease in compensation due the Contractor, if any.

Adjustment in the time of completion, if any.

Adjustment in the compensation due the Contractor shall be determined by one or more of the following methods in the order of precedence listed below:

Unit price contained in the contract.

Mutually agreeable lump sum or unit prices. If requested by the Owner's Representative, the Contractor shall furnish an itemized breakdown of the quantities and prices used in computing proposed lump sum and unit prices.

Force account whereby the Contractor is compensated for furnishing labor, materials, tools, and equipment as follows:

Cost of labor plus 15% for workers directly engaged in the performance of the work. Cost of labor shall include actual wages paid including employer payments to or on behalf of the workers for health and welfare, pension, vacation, and similar purposes plus payments imposed on payroll amounts by state and federal laws plus subsistence and travel allowance payments to workers.

Cost of material plus 15%. Cost of material shall include sales tax, freight, and delivery charges. The Owner reserves the right to furnish such materials as he deems advisable and the Contractor shall not be paid the 15% markup on such materials.

For tools and equipment actually engaged in the performance of the work, rental rates plus 15%. The rental rates shall be those prevailing in the area where the work is performed. No rental charge shall be made for the use of tools or equipment having a replacement value of \$500 or less.

Subcontractor invoices to the Contractor plus 5%. Subcontractor invoices shall be based on the above-described cost of labor plus 15%, cost of material plus 15%, and tool and equipment rental rates plus 15%.

No payment shall be made for any item not set forth above, including without limitation, Contractor's overhead, general administrative expense, supervision, or damages claimed for delay in prosecuting the remainder of the work.

For force account work, the Contractor shall submit to the Owner's Representative for his verification, daily work sheets showing an itemized breakdown of labor, materials, tools, and equipment used in performing the work. No payment will be made for work not verified by the Owner's Representative.

9-2 PROGRESS PAYMENTS

The Contractor shall, on or before the third day of each calendar month after actual construction work is started, prepare the Progress Estimate and Payment Form included at the end of the General Provisions. The Contractor and the Owner's Representative shall review each work item and agree on the total value of work performed during the previous month. In the event the Contractor and the Owner's Representative cannot agree on the estimated total value of work during the previous month, the estimated total value of work performed as determined by the Owner's Representative during the previous month shall be used. No progress payment will be processed by the Owner until all information required by the Progress Estimate and Payment Form has been completed and the Contractor has signed the form. By signing the Progress Estimate and Payment Form, the Contractor expressly waives and releases any claims the Contractor may have, of whatever type or nature, for the period specified which is not shown as a retention amount or a disputed claim on the Release Form included at the end of the General Provisions. The Contractor shall submit to the Owner within seven days from signing the Progress Estimate and Payment Form a completed and signed Release Form that corresponds to the same pay estimate work period. The Owner shall have no obligation to pay the Contractor for any work done until the Release Form has been executed by the Contractor and submitted to the Owner for the corresponding pay period in accordance with Article 9-6 REQUIRED RELEASES.

Properly submitted Progress Estimate and Payment Form with corresponding Release Form shall be paid by the Owner within thirty days after receipt. Properly submitted forms not paid within this thirty-day period shall earn interest at the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure. The Contractor and Owner agree that the thirty-day period for payment shall not commence until the Contractor has executed and submitted the Release Form to the Owner for the corresponding pay period.

In preparing any progress payment with the Contractor, the Owner's Representative will may use the cost breakdown in by Article 6-3 CONTRACTOR'S CONSTRUCTION SCHEDULE AND COST BREAKDOWN. No allowance shall be made for materials delivered but not installed. In evaluating any progress payment, the Owner's Representative may take into consideration any facts and conditions deemed proper by him or her in his or her sole discretion including, but not limited to, the ratio of the difficulty or cost of the work done to the probable difficulty or cost of the work remaining to be done under the contract, the value of the work actually completed, and the estimated cost to complete all of the work in accordance with the contract price. In the event of any dispute between the Owner and the Contractor on the amount that should be paid for any progress payment, the determination of the Owner or the Owner's Representative shall control and be binding on the Contractor. No dispute between the Contractor and the Owner concerning the amount to be paid for any progress payment shall relieve the Contractor of its continuing obligation to complete all contract work within the time required by the Contract Documents, and to complete the work for the contract price and shall not relieve the Contractor of any other obligations contained in the Contract Documents. Owner shall retain five percent (5%) of each progress payment approved by the Owner's Representative as part security for the fulfillment of the contract by Contractor, unless Contractor has substituted adequate equivalent securities as required by Article 9-5 WITHHELD CONTRACT FUNDS. The total amount retained will equal 5% of the contract price. In the event of a dispute between the Owner and Contractor, the Owner shall have

the right to withhold an amount up to 150% of the disputed amount in accordance with Public Contract Code Section 7107(c). As part of any progress payment the Owner shall have the express right to deduct and withhold from any payments due the Contractor any amounts the Owner or the Owner's Representative determines are necessary or appropriate to cover all fees, costs, expenses, and damages incurred or estimated by the Owner as a result of any breach of this contract by the Contractor and to cover any and all damages suffered or estimated by the Owner as a result of the breach of any term or provision of the contract by the Contractor. Amounts the Owner may withhold also expressly include any and all liquidated damages authorized by the terms of this contract.

9-3 FINAL ESTIMATE AND PAYMENT

Contractor shall not make any request for the final payment until all work required by the Plans and Specifications of the Contract Documents has been completed to the satisfaction of the Owner's Representative. Upon receipt of a request from Contractor for final payment, the Owner's Representative will make a final inspection of the work done and advise the Contractor of additional work required before final payment will be processed. All prior progress estimates and payments shall be subject to correction in the final estimate and payment.

The final payment shall not be due and payable until 60 calendar days after the date of filing a Notice of Completion of the accepted work. The date of completion shall be determined in accordance with Public Contract Code Section 7107. In the event of a dispute between the Owner and the Contractor, Owner shall be entitled to withhold an amount up to 150% of the disputed amount.

It is mutually agreed between the parties to the contract that no certificate given or payment made under this contract shall constitute evidence of performance of the contract and no payment by Owner shall be construed as an acceptance of any defective work or improper materials.

Contractor shall not be entitled to payment of the final amount due until Contractor has executed a Release Form in accordance with Article 9-6 REQUIRED RELEASES. Contractor hereby expressly agrees that payment of the final amount due under the contract shall release the Owner, the Engineer/Architect, the Owner's Representative, and their consultants, and each of their directors, officers, employees, and agents, from any and all claims relating to the work for which Contractor is being paid. It is the declared intention of the parties that this provision comply with Public Contract Code Section 7100 and that this section shall be construed as in compliance with Public Contract Code Section 7100 to the maximum feasible extent.

9-4 OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

In addition to the amounts which the Owner may retain under Sections 9-2 and 9-3 of this contract, the Owner may withhold a sufficient amount or amounts from any payment otherwise due to the Contractor (including any final payment) as may be necessary or appropriate in Owner's sole and exclusive judgment to cover each of the following:

Payments which are or may be past due and payable for properly filed claims against the Contractor or any subcontractors for any labor, materials, or equipment furnished in or about the performance of the work on the project under this contract including any amounts asserted as attorneys' fees, costs, or interest by the claimant.

All fees, costs, and expenses estimated by the Owner for correcting any work determined to be defective by the Owner.

Any amounts determined appropriate or necessary by the Owner to cover the Owner's estimate of any damages paid or payable as a result of any claim or cause of action on the contract caused, or claimed to be caused by any action or omission of Contractor, any subcontractor, supplier or materialmen or their respective directors, officers, agents, employees, members, managers or consultants and all fees, costs, and expenses, including all attorneys' fees, expert fees and costs, staff time at each staff members' normal hourly rates and all court costs estimated by the Owner in responding to the claim or cause of action.

Any amounts determined necessary or appropriate by Owner to cover all of the indemnity obligations of Contractor under this contract.

Any amounts claimed by the Owner as forfeiture due to delay and any and all other amounts, fees, costs, or expenses estimated by the Owner as offsets.

The Owner has the express authority to withhold any amount or amounts determined appropriate by Owner from time to time from any payments otherwise due Contractor to cover all or any of the preceding items in the Owner's sole and exclusive judgment. The Owner may also apply all or any portion of any such withheld amount or amounts to the payment of any claims in such amounts and at such times as are determined appropriate by Owner, in Owner's discretion. In withholding any sums permitted by this section or in paying any claims, the Owner shall be deemed the agent of the Contractor and any payments made by the Owner on any claim shall be considered as a payment made under the contract by the Owner to the Contractor. The Owner shall not be liable to the Contractor for Owner's withholding of any and all amounts permitted by this section or Owner's payment of any claims as permitted by this section. Such withholdings and payments may be made by Owner at any time without prior judicial determination of the merits of any claims or causes of action. The Owner will render to the Contractor a proper account of any funds withheld or disbursed as permitted by this section.

9-5 WITHHELD CONTRACT FUNDS

Pursuant to Public Contract Code Section 22300, the Contractor may substitute equivalent securities for retention amounts which this Contract requires. However, the Owner reserves the right to solely determine the adequacy of the securities being proposed by the Contractor and the value of those securities. The Owner shall also be entitled to charge an administrative fee, as determined by Owner in its sole discretion, for substituting equivalent securities for retention amounts.

The Contractor agrees that the Owner's decision with respect to the administration of the provisions of Section 22300 shall be final and binding and not subject to subsequent litigation or arbitration of any kind as to acceptance of any securities being proposed, the value of these securities, the costs of administration and the determination of whether or not the administration should be accomplished by an independent agency or by the Owner. The Owner shall be entitled, at any time, to request the deposit of additional securities of a value designated by the Owner, in Owner's sole discretion, to satisfy this requirement. If the Owner does not receive satisfactory securities within 12 calendar days of the date of the written request, Owner shall be entitled to withhold amounts due Contractor until securities of satisfactory value to Owner have been received.

9-6 REQUIRED RELEASES

In accordance with Public Contract Code Section 7100, the Contractor shall not be entitled to any payment specified in this Contract which is undisputed until such time as the Contractor has executed the Release Form(s) included at the end of the General Provisions releasing the Owner from all claims relating to work for which the Contractor is being paid. The Release Form contains space for the Contractor to claim any disputed amount and to designate the retention amount for each pay period associated with the release. Contractor hereby expressly agrees that failure on his part to designate any disputed amount or to designate the correct retention amount for each release period on the Release Form shall constitute an express waiver of the right of the Contractor to claim any disputed amount or any retention amount at any later date. The Owner shall have no obligation to pay the Contractor for any work done until the Release Form at the end of the General Provisions has been executed by the Contractor and submitted to the Owner.

SECTION 10 AUTHORITY AND STATUS OF OWNERS REPRESENTATIVES

10-1 STATUS OF OWNERS REPRESENTATIVES

The Contractor has been informed, and understands, that the Engineer/Architect and the Owner's Representative are not agents or employees of Owner. They are independent contractors retained by Owner to assist in preparation of the design plans for the work and in supervising the work to be performed by the Contractor. Owner does not direct the Engineer/Architect or the Owner's Representative in the performance of their respective duties and obligations. Owner shall not be liable for any errors or omissions of the Engineer/Architect, the Owners Representative or their respective directors, officers, agents or employees.

10-2 AUTHORITY OF OWNER'S REPRESENTATIVES

Contractor has been informed, and understands, that the Engineer/Architect and the Owner's Representative have no authority to alter any of the terms or provisions of the Contract Documents

or to alter any of the requirements contained in the plans and specifications approved by Owner. In the event that Contractor desires to modify any term or provision of the Contract Documents or to modify any of the requirements of the approved plans and specifications, a written request must be submitted with the requested changes to the Owner through the Owner's Representative. Only the general manager of Owner has the authority to alter or modify any of the terms or provisions of the Contract Documents. No modification or change to the Contract Documents shall be effective for any purpose unless the change or modification has been expressly approved, in writing, by the general manager of Owner. Any requested changes by the Contractor to the approved plans and specifications must be submitted to the Owner's Engineer for review and approval through the Owner's Representative. No changes to the approved plans or specifications shall be effective for any purpose unless the Owner's Engineer has expressly approved of the change, in writing. The Contractor is expressly prohibited from entering onto private property, disturbing any habitat, or using private property to stockpile, store, or spread any men, tools, equipment, materials, or dirt without the express prior written consent of the general manager of Owner. The violation of this section by Contractor or any of its subcontractors, materialmen, or suppliers or their respective directors, officers, managers, members, agents, consultants or employees shall constitute a material breach of this Agreement.

SECTION 11 FORMS

11-1 SHOP DRAWING SUBMITTAL FORM

The Contractor shall complete the Shop Drawing Submittal Form included at the end of the General Provisions when submitting Shop Drawings as called for in the Special Provisions and Standard Specifications or requested by the Owner's Representative. Duplication of this form is permissible to comply with the requirements of the Contract Documents. No substitution or revision to this form will be accepted and approved by the Owner.

11-2 PROGRESS ESTIMATE AND PAYMENT FORM

The Contractor will use the Progress Estimate and Payment Form included at the end of the General Provisions when preparing the monthly progress payment for review. No progress payment will be processed to pay the Contractor until the progress estimate and payment form and the release form included at the end of these general provisions have been fully completed and submitted by the Contractor to the Owner's Representative and approved by the Owner.

11-3 RELEASE FORM(S)

The Contractor shall complete the Conditional and/or Final Release Forms (as appropriate) included at the end of the General Provisions and submit to the Owner for the corresponding pay period in accordance with Article 9-6, REQUIRED RELEASES. Duplication of this form is permissible to comply with the requirements of the Contract Documents. No substitution or revision to this form will be accepted. No payment request to the Contractor will be processed until the Release Form has been fully completed and submitted by the Contractor.

END OF SECTION

SHOP DRAWING SUBMITTAL FORM

TO: OWNER'S REPRESENTATIVE
c/o Olivenhain Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024

From: (Contractor)
(Address)

Contractor Job Number _____

Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

OMWD PN: **D701067**

Project: **4S RANCH WRF EQ BASIN RELINING PROJECT** OWNER'S REP ACCT NO. _____

SUBMITTAL NO.: _____

RESUBMITTAL: ☐ Yes ☐ No

SPECIFICATION SECTION: _____

DESCRIPTION: _____

This Shop Drawing Submittal has been prepared by the Contractor or any subcontractor, manufacturer, supplier, or distributor and illustrates some portion of the work. The Contractor warrants one of the following conditions:

- ☐ The Contractor has approved this submittal and represents that the material, equipment, and other work shown conforms to the Plans and Specifications.
- ☐ The Contractor has approved this submittal but represents that this is a deviation from the requirements of the Plans and Specifications and has set forth the reasons for the deviation below.

DEVIATION/REVISIONS:

By: _____

Title: _____

(BLANK)

PROGRESS ESTIMATE AND PAYMENT FORM

Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT** OMWD: **D701067**
 Project: **4S RANCH WRF EQ BASIN RELINING PROJECT** Contract End Date _____
 Contractor: _____ Revised Contract End Date _____
PAY ESTIMATE NO. _____
PERIOD WORK PERFORMED: _____ Contract Job No. _____
 Date Created _____

Work Item	Description of Work Item	Total Cost of Work Item	Percent Complete	Value of Work

Total Project Cost of Work Items			-----
Estimated Total Value of Work Performed			
Less Five Percent (5%) of Such Estimated Total Value			
Total Amount Due for Work Performed			
Less All Previous Payments			
AMOUNT DUE AND PAYABLE TO THE CONTRACTOR			

Prepared by Owner's Representative

Accepted by CONTRACTOR

Approved by OWNER

By: _____

By: _____

Date: _____

Date: _____

Distribution: ☐ Owner ☐ Contractor ☐ Engineer ☐ Finance

(BLANK)

**CONDITIONAL WAIVER AND RELEASE ON
PROGRESS PAYMENT**

(CA CIVIL CODE §8132) (1)

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information:

Name of Claimant: _____

Name of Customer: **Olivenhain Municipal Water District**

Job Location: _____

Owner: Olivenhain Municipal Water District

Through Date: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: Olivenhain Municipal Water District

Amount of Check: _____

Check Payable to: _____

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:
Date(s) of waiver and release: _____
Amount(s) of unpaid progress payment(s): \$ _____
- (4) Contract rights, including:
(A) a right based on rescission, abandonment, or breach of contract, and
(B) the right to recover compensation for work not compensated by the payment.

SIGNATURE

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

(BLANK)

**CONDITIONAL WAIVER AND RELEASE ON
FINAL PAYMENT**
(CA CIVIL CODE §8136) (3)

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information:

Name of Claimant: _____

Name of Customer: **Olivenhain Municipal Water District** _____

Job Location: _____

Owner: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: Olivenhain Municipal Water District _____

Amount of Check: _____

Check Payable To: _____

Exceptions

This document does not affect any of the following:

Disputed claims for extras in the amount of: \$ _____

SIGNATURE

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

(BLANK)

PROPOSED CHANGE ORDER

Owner: **OLIVENHAIN MUNICIPAL WATER DISTRICT**

OMWD PN: **D701067**

Project: **4S RANCH WRF EQ BASIN RELINING PROJECT**

Contractor: _____

PROPOSED CHANGE ORDER NO. _____

Date: _____

*A change to the contract documents for the above referenced project is being considered. Please provide cost and schedule impact(s) for the following described work:

DESCRIPTION OF CHANGE / PCO's

Cost Impact

Schedule Impact

\$ _____

_____ Day(s)

TOTAL \$ _____ **Calendar Day(s)** _____

NOTE: Attention is called to the sections in the General Provisions on Scope of Work and Estimates and Payments.

THIS PROPOSED CHANGE ORDER IS NOT EFFECTIVE UNTIL A CONTRACT CHANGE ORDER HAS BEEN APPROVED BY OWNER.

This PCO was initiated by _____ On _____

Submitted _____ On _____
Contractor

Article 1.5

RESOLUTION OF CONSTRUCTION CLAIMS

Section	Section
20104. Application of article; provisions included in plans and specifications.	20104.6. Payment on undisputed portion of claim; interest on arbitration awards or judgments
20104.2. Claims; requirements; tort claims excluded.	20104.8. Repealed.
20104.4. Civil action procedures; mediation and arbitration; trial de novo; witnesses.	

Article 1.5 was added by Stats. 1994, c. 726 (A.B. 3069), § 22, eff. Sept. 22, 1994.

Former Article 1.5, Resolution of Construction Claims, consisting of §§20104 to 20104.8, added by Stats. 1990, c. 1414 (A.B. 4165), § 2, was repealed by Stats. 1990, c. 1414 (A.B. 4165), § 2, operative Jan. 1, 1994.

§ 20104. Application of article; provisions included in plans and specifications

(a) (1) This article applies to all public works claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between a contractor and local agency.

(2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2.

(b) (1) “Public work” has the same meaning as in Sections 3100 and 3106 of the Civil Code, except that “public work” does not include any work or improvement contracted for by the state or the Regents of the University of California.

(2) “Claim” means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.

(c) The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.

(d) This article applies only to contracts entered into on or after January 1, 1991.

(Added by Stats. 1994, c. 726 (A.B. 3069), § 22, eff. Sept. 22, 1994.)

Historical and Statutory Notes

1990 Legislation

Former § 20104 was renumbered Public Contract Code § 20103.5 and amended by Stats. 1990, c. 1414 (A.B. 4165), § 1.

Former § 20104, added by Stats. 1990, c. 1414 (A.B. 4165), § 2, relating to application of article regarding resolution

of construction claims, was repealed by Stats. 1990, c. 1414 (A.B. 4165), § 2, operative Jan. 1, 1994. See, now, this section.

Derivation: Former § 20104, added by Stats. 1990, c. 1414, § 2.

§ 20104.2 Claims; requirements; tort claims excluded

For any claim subject to this article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars (\$50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 80 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

(c) (1) For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

(d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of Government Code.

(Added by Stats. 1994, c. 726 (A.B. 3069), § 22, eff. Sept. 22, 1994.)

Historical and Statutory Notes

1990 Legislation

Former § 20104.2, added by Stats. 1990, c. 1414 (A.B. 4165), § 2, amended by Stats. 1991, c. 1029 (A.B. 1086), § 1, relating to requirements for claims filed under the article,

was repealed by Stats. 1990, c. 1414 (A.B. 4165), § 2, operative Jan. 1, 1994. See, now, this section.

Derivation: Former § 20104.2, added by Stats. 1990, c. 1414, § 2, amended by Stats. 1991, c. 1029, § 1.

Library Reference

California Practice Guide: Alternative Dispute Resolution, Knight, Fannin & Disco, see Guide's Table of Statutes for chapter paragraph number references to paragraphs discussing this section.

Civil Procedure Before Trial, Well & Brown, Guide's Table of Statutes for chapter paragraph number references to paragraphs discussing this section.

§ 20104.4 Civil action procedures, mediation and arbitration; trial de novo; witnesses

The following procedures are established for all civil actions filed to resolve claims subject to the article:

(a) Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

(b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

(2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

(3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

(c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

(Added by Stats. 1994, c. 726 (A.B. 3069), § 22, eff. Sept. 22, 1994.)

Historical and Statutory Notes

1990 Legislation

Former § 20104.4, added by Stats. 1990, c. 1414 (A.B. 4165), § 2, amended by Stats. 1991, c. 1029 (A.B. 1086), § 2, relating to procedures for civil actions filed to resolve construction claims, was repealed by Stats. 1990, c. 1414

(A.B. 4165), § 2, operative Jan. 1, 1994. See, now, this section.

Derivation: §20104.4, added by Stats. 1990, c. 1414, § 2, amended by Stats. 1991, c. 1029, § 2.

Library Reference

California Practice Guide: Alternative Dispute Resolution,
Knight, Fannin & Disco, see Guide's Table of Statutes

for chapter paragraph number references to paragraphs
discussing this section.

§ 20104.6 Payment on undisputed portion of claim; interest on arbitration awards or judgments

(a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.

(b) In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

(Added by Stats. 1994, c. 726 (A.B. 3069), § 22, eff. Sept. 22, 1994.)

Historical and Statutory Notes

1990 Legislation

Former § 20104.6, added by Stats. 1990, c. 1414 (A.B. 4165), § 2, relating to payment of undisputed portion of claims, was repealed by Stats. 1990, c. 1414 (A.B. 4165), § 2, operative Jan. 1, 1994. See, now, this section.

Derivation: Former § 20104.6, added by Stats. 1990, c. 1414, § 2.

§ 20104.8 Repealed by Stats. 1990, c. 1414 (A.B. 4165), § 2, operative Jan. 1, 1994

Historical and Statutory Notes

The repealed section, added by Stats. 1990, c. 1414 (A.B. 4165), § 2, related to application of the article to specified

contracts and provided for repeal of the article on Jan 1, 1994.

SECTION 00810 – SUPPLEMENT TO GENERAL PROVISIONS

1.01 DEFINITIONS

Whenever the following terms occur in the Contract Documents, the meaning shall be interpreted as follows:

ATTORNEY FOR Owner – Alfred E. Smith, Nossaman LLP, 777 South Figueroa Street, 34th Floor, Los Angeles, CA 90017, (213) 612-7831

BOARD OF DIRECTORS - Board of Directors of the Olivenhain Municipal Water District.

CONTRACT TIME – The number of consecutive days stated in the contract documents commencing from the date of the notice of award, for completion of the Work.

DATE OF AWARD OF CONTRACT - The date of the District Resolution (formal action of the Board of Directors of the District) awarding the Contract.

DISTRICT - Olivenhain Municipal Water District (OMWD), 1966 Olivenhain Road, Encinitas, California 92024, (760) 753-6466.

DISTRICT'S REPRESENTATIVE - The Owner's Representative.

DRAWINGS or PLANS – Construction drawings entitled, “**4S RANCH WRF EQ BASIN RELINING PROJECT**” and referenced Standard Drawings or Regional Standard Drawings.

ENGINEER / DESIGN ENGINEER – Hoch Consulting, APC, 3255 Moccasin Avenue, San Diego, CA, 92117, 858-431-9767, and all subconsultants.

OWNER - Olivenhain Municipal Water District (OMWD), 1966 Olivenhain Road, Encinitas, California 92024, Tel: (760) 753-6466; Fax: (760) 753-1578.

OWNER'S REPRESENTATIVE - The person or engineering/architectural firm authorized by the District to represent it during the performance of the work and until final acceptance. The Owner's Representative is referred to throughout the Contract Documents as if singular in number and masculine in gender. The Owner's Representative means the Owner's Representative and his assistants.

PUBLIC WORKS SPECIFICATIONS - Standard Specifications for Public Works Construction 2015 Edition by APWA/AGC, the "GREENBOOK" with 2012 Regional Supplement Amendments.

REGIONAL STANDARD DRAWINGS – Standard Drawings for Agencies in the San Diego Region as recommended by the Regional Standards Committee and published by the San Diego County Department of Public Works, April 2006.

SPECIAL PROVISIONS - Section 00810 of the specifications.

SPECIFICATIONS - Division 1 to 16 of the technical specifications contained in these Contract Documents, and those technical specifications contained in the Drawings.

STANDARD DRAWINGS - Drawings A-1.1 through G-13 of the Olivenhain Municipal Water District, Standard Specifications and Drawings for the Construction of Water, Recycled Water, and Sewer Facilities, dated June 2008, with revisions.

STANDARD SPECIFICATIONS - Divisions 1 through 15 of the Olivenhain Municipal Water District, Standard Specifications and Drawings for the Construction of Water, Recycled Water, and Sewer Facilities, dated June 2008, with revisions.

STATE STANDARD SPECIFICATIONS - State of California, Department of Transportation, Standard Specifications, May 2010, Caltrans.

STATE STANDARD PLANS - State of California, Department of Transportation, Standard Plans, May 2010, Caltrans.

WATER AUTHORITY – San Diego County Water Authority

Whenever the following terms appear in the State Standard Specifications or Public Works Specifications, the meaning shall be interpreted as follows:

AGENCY, BOARD or DEPARTMENT - The Owner.

ENGINEER - The Owner's Representative.

1.02 TERMS

Command type sentences used in the Contract Documents refer to and are directed to the Contractor.

1.03 ABBREVIATIONS

Interpret abbreviations used on the Drawings and in the Specifications as explained on the Drawings.

1.04 MARKING AND ADDRESSING BID ENVELOPE

Bids shall be made on the Bid Form and Bid Bond included within the Contract Documents. Complete and include the Bid Form Checklist together with the completed Bid Form and Bid Bond when submitting a bid. Seal the Contract Documents with the filled out bid in an envelope marked and addressed as follows:

BID FOR CONSTRUCTION OF:

4S RANCH WRF EQ BASIN RELINING PROJECT

OLIVENHAIN MUNICIPAL WATER DISTRICT
Attention: George R. Briest, Engineering Manager
1966 Olivenhain Road
Encinitas, California 92024

1.05 AWARD OF CONTRACT OR REJECTION OF BIDS

Within a period of 60 calendar days after the opening of bids, the District will accept or reject the bids.

1.06 CONTRACTOR'S LICENSING REQUIREMENTS

The District has determined the license classification necessary to bid and perform the subject contract. In no case shall this contract be awarded to a specialty contractor whose classification constitutes less than a majority of the portion of the work of this contract, all work to be performed outside of the contractor's license specialty, except work specifically authorized by District, shall be performed by a licensed subcontractor in compliance with the Subletting and Subcontractor Fair Practices Act commencing with Section 4100 et seq., of the Public Contract Code. See Business and Professions Code Section 7059.

The Contractor's license classification required for this project is a California State Contractor's License Class A OR C-61.

It is the District's intent that "plans", as used in Public Contract Code Section 3300, is defined as the construction Contract Documents, which include both the Drawings and the Specifications

1.07 TIME FOR COMPLETION AND FORFEITURE DUE TO DELAY

The work shall be completed within ONE-HUNDRED AND TWENTY (120) CONSECUTIVE CALENDAR DAYS, from and after the date of the Notice to Proceed.

The Contractor will not be permitted to begin work until the agreement, bonds or substitutes, insurance certificates and endorsements are acceptable to the District and Attorney for Owner. This period of time is set forth in Paragraph 3-2 Execution of Contract in the General Provisions. Time is of the essence in this contract.

The Contractor shall complete all work in its entirety as specified in the Contract Documents within this time period. Time of completion shall also include time for all submittals and coordination required to satisfy the requirements of these Contract Documents.

The Contractor agrees that the work shall be prosecuted regularly, diligently, and uninterruptedly and at such rate of progress as will insure full completion thereof within the Time for completion stated above. It is expressly understood and agreed, by and between Contractor and Owner that the Time for completion is reasonable for the completion of the WORK, taking into consideration the average climatic range, usual industrial conditions prevailing in this locality, and lead time required to procure equipment.

Pursuant to Government Code 53069.85, forfeiture for each day completion is delayed beyond the time allowed will be at the rate of \$2,500.00 per day, except as noted below.

1.08 PERMITS

The Contractor shall obtain all required permits and provide copies of all permits to the District's Representative prior to starting work. The Contractor shall comply with the ordinances, directives, and regulations of the respective agencies with jurisdiction over the

area of the work. All work not specifically covered in the required permits shall conform to the requirements of these Specifications. The cost of all permits and plan check review shall be borne by the Contractor and included in the Contractor's bid.

The Contractor shall be responsible for developing haul routes for the importing or exporting of materials or equipment for the project and obtaining all required permits from the affected agencies of jurisdiction. The Contractor shall provide copies of all permits to the District's Representative prior to starting work. The Contractor shall comply with the ordinances, directives, and regulations of the respective agencies with jurisdiction over the area of the work. All costs for transport fees, dump fees, plan or haul route reviews, permits, and related incidentals shall be borne by the Contractor and included in the Contractor's bid.

1.09 USE OF ASBESTOS PRODUCTS NOT PERMITTED

The intent of the Contract Documents is to provide asbestos-free components throughout the project in accordance with the recent Environment Protection Agency stated policy seeking a ban on the use of all products containing asbestos. Where the Contract Documents or the referenced specifications, standards, codes, or tests refer to products containing asbestos, the Contractor shall provide acceptable alternatives under those documents, or in the absence of such referenced alternatives, he shall submit a proposed substitute to the District's Representative for review and acceptance.

1.10 ASBESTOS CEMENT PIPE REMOVAL AND DISPOSAL

If asbestos cement pipe must be cut and handled in the field to accomplish the work, the Contractor is solely responsible for and shall take all appropriate precautions for protecting against threats to health and safety of the work force and general public arising out of construction involving asbestos. The Contractor shall comply with all applicable regulations for the handling, cutting, shaping, installation and disposal of asbestos. Asbestos cement pipe to be disposed shall be properly manifested, prepared for transport following criteria of County of San Diego Department of Public Works, Solid Waste Division, and delivered to a landfill permitted for disposal of non-friable asbestos containing materials. The completed Generator copy (yellow) manifest shall be returned to the District's Representative. All cost for disposal of the AC pipe shall be included in the Contractor's bid.

1.11 ABATEMENT OF AIR POLLUTION

- A. Comply with all applicable Federal, State, County, and City laws and regulations concerning the prevention and control of air pollution.
- B. Conduct construction activities and equipment in a manner so as to minimize atmospheric emissions or discharges of air contaminants. Equipment or vehicles that show excessive emissions of exhaust gases shall not be operated on the site.

1.12 NOISE CONTROL REQUIREMENTS

- A. The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the Contract.

- B. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.
- C. Noise level requirements shall apply to all equipment on the job or related to the job, including but not limited to trucks and transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety for the protection of personnel.

1.13 AMOUNT OF LIABILITY INSURANCE

A. Employer's Liability Insurance:

- 1. Bodily injury coverage by accident shall be for not less than \$1,000,000 for each employee and \$1,000,000 for each accident.
- 2. Bodily injury coverage by disease shall be for not less than \$1,000,000 for each employee and \$1,000,000 for each disease.

B. General Liability:

Bodily injury, personal injury, and property damage coverage shall be in a combined single limit of not less than \$1,000,000 for each occurrence and \$1,000,000 aggregate.

C. Automobile Liability:

Bodily injury and property damage coverage shall be in a combined single limit of not less than \$1,000,000 for each occurrence.

D. Builder's Risk Insurance:

Builder's risk insurance shall be provided for the full contract amount.

E. Earthquake and Tidal Wave Insurance:

Earthquake and Tidal Wave Insurance is not required for this project.

F. Additional Insured:

In addition to the additional insureds required for Liability insurance in the General Provisions, 8-3 LIABILITY INSURANCE, and 8-4 BUILDER'S RISK "ALL RISK" INSURANCE, the OWNER and each of its directors, officers, employees, and agents and its Design Engineer shall be named as additional insureds for all Liability insurance and Builders' Risk Insurance provided herein.

1.14 USE OF THE STANDARD DRAWINGS

Where the Drawings or Specifications make reference to the Standard Drawings, construct the item in accordance with the details and materials as specified in the Contract Documents. For items not included in the Standard Drawings that are part of the Contract Documents, construct the item in accordance with the Olivenhain Municipal Water District,

Standard Specifications and Drawings for the Construction of Water, Recycled Water, and Sewer Facilities dated June 2008 with revisions. These District Standard Drawings and Standard Specifications are available for purchase at the office of the District.

1.15 CONSTRUCTION SCHEDULE AND BID BREAKDOWN

The Contractor shall conform to the requirements of Article 6-3 Contractor's CONSTRUCTION SCHEDULE AND COST BREAKDOWN of the General Provisions within 15 days after the date of award of contract. Submit to the District's Representative a construction progress schedule and bid breakdown in bar chart form. Divide each lump sum bid item into its major elements of work and show separately labor, materials and equipment costs. The District's Representative will use this cost breakdown as a basis for the monthly progress estimate and payment. The schedule shall specifically include and identify the construction sequence requirements defined on the plans.

1.16 STORM WATER POLLUTION PREVENTION

- A. The Contractor is responsible for Implementation, Maintenance, Inspection, Monitoring and Construction/Installation of all Best Management Practices (BMPs) required by the Storm Water Pollution Prevention Plan (SWPPP), Construction General Permit (CGP), and the Erosion Control Plan for the purpose of preventing the discharge of pollutants from the construction site throughout the duration of the project. The Contractor is to provide all labor, materials and equipment to perform all work necessary to accomplish the work described below and per the Plans, Specifications and Special Provisions listed in the Bid Documents and References herein. A copy of the SWPPP must be submitted to the District seven (7) days in advance of any mobilization and/or construction at the project location. A copy of the SWPPP must also be kept on the project site at all times.

B. SCOPE OF WORK

1. The Contractor shall provide the services of a Qualified Stormwater Practitioner (QSP) and will be responsible for adhering to and implementing the monitoring requirements set forth in the SWPPP and the CGP. The name of the QSP, together with their qualifications and certifications, shall be submitted to the District as a formal submittal.
2. The SWPPP shall remain within the project limits at all times during the duration of the project or at a location approved by the District. The Contractor shall make the SWPPP available at all times per the requirements of the CGP.
3. The Contractor shall monitor the National Oceanic Atmospheric Administration (NOAA) website at www.noaa.gov for the current weather conditions on a daily basis. Contractor shall inform the District of any potential rain and/or storm conditions.
4. The Contractor's QSP shall perform all of the required inspections, reporting and maintenance according to the appropriate sections and attachments per the CGP. Inspections and reporting shall continue for the duration of the project.

5. Inspection reports shall be kept on site in the SWPPP binder.
6. Each report must be accompanied with appropriate pictures to adequately document the effectiveness of installed BMPs and SWPPP practices.

C. DELIVERABLES

1. After the construction project is complete, the Contractor shall deliver hardcopies of all inspections reports, an electronic copy of all pictures, and any miscellaneous SWPPP documents to the District.
2. The delivery of the required reports and pictures to the District shall be within 14 days of project completion.

D. NON-COMPLIANCE

1. Should the Contractor not perform all required inspections per the CGP and SWPPP as determined by the District's SWPPP Manager, the site shall be deemed to be out of compliance. The Contractor will have 48 hours, upon notification by the District, to generate the proper reports and return the project back in compliance of the CGP. If after the 48 hour time frame the project is still considered out of compliance, the District may take any actions necessary to return the project back in compliance with the requirements of the CGP and SWPPP. Any and all costs expended by the District to bring the project back in compliance as determined by the SWPPP Manager, in his/her sole discretion, shall be charged to the Contractor.
2. Should the Contractor not install all required BMPs per the CGP and SWPPP as determined by the District's SWPPP Manager, the site shall be deemed to be out of compliance. The Contractor will have 48 hours, upon notification by the District, to install or repair any BMPs necessary to keep the project in compliance with the CGP. If after the 48 hour time frame, the project is still considered out of compliance, the District may take any actions necessary to return the project back into compliance with the requirements of the CGP and SWPPP. Any and all costs expended by the District to bring the project back in compliance as determined by the SWPPP Manager, in his/her sole discretion, shall be charged to the Contractor.
3. If the District receives any non-compliance notifications or fines from Governing Municipalities and/or the State, the Contractor shall indemnify and defend the District. Any and all costs resulting from a violation and/or fine will be borne by the Contractor to include District staff, legal, and consulting costs at the Contractor's sole expense.
4. The District and the District's SWPPP Manager will be onsite, throughout the duration of the project, to monitor and verify that all reporting and BMP Implementation is being performed per the requirements of the CGP.
5. If at any time the site is deemed to be out of compliance as determined by the SWPPP Manager, in his/her sole discretion, the District reserves the right to stop all construction

activities. The site will remain inactive until the Contractor performs all the necessary actions to return the project back in compliance with the requirements of the CGP and SWPPP.

6. There will not be any days given to the Contractor for an extension of the contract for the time the site is deemed to be out of compliance. The Contractor is solely responsible for maintaining all of the necessary BMPs at all times and ensure the project meets all of the CGP and SWPPP requirements.

E. IMPLEMENTATION OF BMPs

1. The Contractor shall be responsible to protect the site at all times per the requirements of the CGP and the project SWPPP.
2. The Contractor shall be responsible to protect but is not limited to the following:
 - A. Stockpiles (Soil, Asphalt, Concrete, Sand, Gravel and other material)
 - B. Concrete Washouts
 - C. Trash Containers and Dumpsters
 - D. Slopes and Disturbed areas
 - E. Equipment and Vehicles
 - F. Bagged and Boxed materials
 - G. Liquid and Hazardous materials
 - H. Portable Toilets and Storage Facilities
3. The Contractor shall install, implement and maintain the BMPs to the Maximum Extent Practical (MEP) to prevent or reduce pollutant discharges to local storm drain, storm drain conveyance systems and/or receiving waters from construction activities. BMPs are to be installed per the California Stormwater Quality Association (CASQA) BMP Handbook (2015) and shall be applied to but not limited to the following:
 - A. Erosion Control on Slopes
 - B. Erosion Control on Flat areas; or BMPs to desilt runoff from flat areas
 - C. Runoff Velocity Reduction
 - D. Sediment Control
 - E. Offsite Sediment Tracking Control
 - F. Materials Management
 - G. Stockpile Management
 - H. Waste Management
 - I. Vehicle and Equipment Management
 - J. Temporary Soil Stabilization
 - K. Storm Drain Inlet Protection
 - L. Wind Erosion Control
 - M. De-watering an Hydrostatic Operations
 - N. Materials Pollution Control

- O. Water Conservation
 - P. Structure Painting and Construction
 - Q. Paving Operations
 - R. Planned Construction Operations
 - S. Downstream Erosion Control
 - T. Prevention of Non-Storm Water Discharges
 - U. Protection of Ground Water
4. BMPs are to be installed by qualified personnel only. The Contractor's QSP is responsible to inspect all BMPs for proper installation per the CGP, CASQA BMP Handbook, Erosion Control Plan, and the SWPPP.
 5. The Contractor shall inform the District of any BMP failures, malfunctions, breeches and/or discharges during the course of construction. The Contractor will be responsible for the repair and clean up of any breach and or discharge caused or related to their work at no additional cost to the District.
 6. The Contractor shall be responsible for maintaining proper dust control during the course of construction per the (spell out first) Air Quality Management District (AQMD) standards.
 7. All entrances and exits of work and storage areas shall be inspected on a daily basis. Any dirt, dust, or debris leaving the project site will be the sole responsibility of the Contractor to correct immediately upon occurrence.
 8. All slopes and stockpiles that have been inactive for 14 days or in the event of a rain storm shall be properly protected per the requirements of the CGP and SWPPP.
 9. Contractor shall be responsible to implement Post Construction BMPs for permanent control of erosion from slopes and required vegetation areas. These BMPs shall include but are not limited to:
 - A. BMPs and Landscaping shown on the erosion control and project plans
 - B. Structures to convey runoff safely from slopes and walls
 - C. Vegetation or alternative stabilization of all disturbed slopes
 - D. Re-vegetation of any natural drainage systems to the MEP

E.COMPLIANCE CERTIFICATION

1. An officer or other authorized representative of the Contractor shall certify that the site is and/or was in full compliance with the CGP during construction activities.

F.TERMINATION

1. At the end of the project, the Contractor shall be responsible for removal of all temporary BMP measures, all construction related materials, equipment, trash/litter/debris, portable toilets, stockpiles of materials and any trash and concrete washout containers. The Contractor is responsible to re-install, plant, repair or replenish, any vegetation, landscaping or permanent structure damaged or disturbed during the course of construction of which is not called out or listed on the bid documents and plans.

G.TRAINING

1. Prior to the commencement of construction, all personnel that will be on site shall go through a formal SWPPP training provided by the District. This training will take place at a mutually agreed upon location and will last for 1 hour. Additional training shall take place at a minimum of once a month as determined by the Owner's Representative throughout the course of construction.

H.REFERENCES

1. State Water Resources Control Board (SWRCB) Construction General Permit (CGP) Order No. 2012-0006-DWQ National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS0109266, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity.
2. California Stormwater Quality Association, CASQA Construction BMP Handbook/Portal.
3. San Diego County Ordinance No. 9424
(*Watershed Protection, Stormwater Management and Discharge Control*)

1.17 ACCESS OF DISTRICT'S REPRESENTATIVE TO CONFINED SPACES IN STRUCTURES UNDER CONSTRUCTION

- A. The Contractor shall be aware that some or all portions of the work may be designated as a PERMIT REQUIRED CONFINED SPACE. The Contractor is required to provide the Owner with a copy of the Contractor's Confined Space Program for Owner's review and acceptance prior to beginning work. Contractor's Confined Space Program shall be in compliance with Cal-OSHA's Confined Space regulatory requirements. The Contractor is required to perform all work in accordance with Cal-OSHA Confined Space requirements and Title 8, Subchapter 20 "*Tunnel Safety Orders*".
- B. The Contractor shall provide the following assistance to the personnel of the District's Representative when said personnel must enter confined spaces in structures under construction or structures which have not been accepted by the District.
 1. Training program for the personnel of the District's Representative relevant to the specific structures being entered.

2. Testing equipment and personnel to operate said equipment for testing the atmosphere in the confined spaces for oxygen deficiency, explosive gases, and toxic gases.
 3. Authorized competent person to stand by each confined space while entrants are inside the space.
 4. Safety equipment (breathing apparatus, harnesses, and rescue equipment) in good working order.
 5. Communication equipment.
 6. Access equipment (hoists and ladders).
 7. Signs.
 8. Alarm system.
 9. Ventilation system.
- C. The Contractor shall identify confined spaces on the project, mark them with warning signs per CAL/OSHA requirements, and notify the District's Representative that these structures now exist.

1.18 PROTECTION OF EXISTING UTILITIES

The Contractor shall coordinate their efforts with the District and shall take every precaution to protect all existing utilities and structures at the project site. The Contractor shall be responsible for all Underground Service Alert notification and mark outs prior to the beginning of work.

1.19 COORDINATION WITH DISTRICT OPERATIONS

- A. The Contractor shall coordinate all work with the District sufficiently ahead of time so as to not interfere with the District's operation of their system. The Contractor shall submit a detailed sequence of work to the District for all work. This proposed sequence of work shall be reviewed with the District prior to construction for consistency with the Sequence of Work as described in these Contract Documents and the District's required operation and shut-down plan.
- B. The District will operate all existing valves. Therefore, the Contractor must coordinate connection work with operations. Once the pipelines have been isolated, the Contractor shall dechlorinate and drain all lines.

1.20 PRE-CONSTRUCTION CONFERENCE AND PROGRESS MEETINGS

A Pre-Construction Conference shall be scheduled prior to start of project as described in Section 01039. The District, the Contractor, and the District's Construction Manager shall be present. The Contractor's detailed sequence of work and a list of labor, material and equipment rates for additional work shall be established and maintained throughout the project. Contractor shall identify all personnel assigned to the project and a complete set of approved submittal data for use by inspection personnel. Contractor shall have a designated representative for this project.

The Contractor shall also attend a project planning meeting as described in Specification Section 01039.

1.21 HOURS OF WORK

Hours of work shall be 7:00 A.M. to 5:00 P.M. Saturday and nighttime work will only be allowed with prior written approval by the Owner. If allowed, nighttime work hours shall be 9:00 P.M. to 6:00 A.M. Overtime and shift work may be established as short-term procedure by Contractor with written notice to and advanced written permission from Owner. **Absolutely no equipment shall be started or warmed up prior to 7:00 AM or after 3:00 PM.** No work other than overtime and shift work approved by Owner shall be done between the hours of 3:00 P.M. and 7:00 A.M., nor on weekends, or District recognized holidays, except such work as is necessary for the proper care and protection of the work already performed, except in case of emergency, and as specified herein. The District recognized holidays are as follows:

- New Year's Day
- Martin Luther King Day
- Presidents' Day
- Memorial Day
- Fourth of July
- Labor Day
- Veterans Day
- Thanksgiving Day
- Day after Thanksgiving
- Christmas Day

1.22 CONSTRUCTION SURVEYS

A. LAND MONUMENTS

The Contractor shall notify the District and the District's Representative of any existing Federal, State, City, County, and private land monuments encountered. All monuments shall be preserved, or if necessary to be destroyed during performance of the Work, shall be replaced by a licensed surveyor under contract to the Contractor. Appropriate record of survey drawings shall be filed with the City of Encinitas and County of San Diego for all replaced monuments. When government monuments are encountered, the Contractor shall notify the District's Representative at least two (2) weeks in advance of the proposed construction and provide for surveying of the existing monument before it is disturbed or destroyed.

B. CONSTRUCTION STAKING

1. The Contractor shall furnish construction staking to execute the work as described in the Contract Documents. Preserve all construction stakes, reference points, and other survey points. In case of their loss or destruction, the Contractor shall be liable for their replacement. If the field survey stakes are not available for review by the District's Representative, the work may not proceed.

1.23 GEOTECHNICAL WORK

A. CONSTRUCTION TESTING

1. The Owner shall furnish compaction testing for all bedding, backfill, and soil compaction testing.
2. The Owner shall furnish all materials testing and special inspections called for in the Contract Documents.
3. When any work is determined to be unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents, the costs incurred by the Owner for additional tests or inspections shall be reimbursed by the Contractor. Said costs shall be paid by the Owner and deducted from progress payments to the Contractor.

1.24 CONSTRUCTION WATER

- A. The Contractor shall obtain and pay for a construction water meter from the District and shall be responsible for all highlines and other temporary equipment and facilities necessary to provide adequate construction water to the project site. The Contractor shall coordinate the locations of water supply with the District. The following conditions must also be met:

1. Excess water must be available in the pipeline at the connection point.
2. The contractor shall submit a construction water service connection plan a minimum of two weeks prior to the need for water. This plan shall indicate all piping, valves, and other materials necessary to connect to District owned piping at designated blow-off, air vacuum, and air release structures located within the project site. Do not install piping, meter, or valves until the District's Representative has approved the water service plan.
3. Accurately measure all water use and submit meter readings to the District's Representative when the meter is installed, at the end of each month and when the meter is removed.
4. Securely lock the installed valve in the closed position at the end of each workday and during all times of inactivity. Avoid wasting water and prevent unauthorized use. Do not use water from the District on any other project.
5. Coordinate all use of water, flushing of pipelines and filling of pipelines with the District's representative. All requests for use of water and for increases or decreases in quantity shall be made in writing to the District's Representative two working days in advance.

1.25 POWER AND LIGHTING

- A. The Contractor shall provide all power required for construction operations, and shall provide and maintain all temporary power facilities required to perform the work in a safe and satisfactory manner. All electrical facilities shall conform to the requirements of the of

the requirements of Title 8, Industrial Relations, Subchapter 5, Electrical Safety Orders, of the California Code of Regulation; and Subpart K of the OSHA Safety and Health Standards for Construction.

- B. The Contractor shall provide adequate light for work conducted at night or under low light conditions to provide adequate facilities for inspection and safe working conditions and to insure proper work.
- C. Temporary connections for electricity shall be subject to approval of the District's Representative and the power company representative. Remove temporary electrical connections in like manner prior to final acceptance of the work.

1.26 DUST CONTROL AND CLEANUP

- A. Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the work site clean and free from rubbish and debris. The Contractor shall also abate dust nuisance by cleaning or sweeping and sprinkling with water or other means as necessary, in accordance with the San Diego Air Pollution Control District's regulations. The use of water resulting in mud on public streets and/or private property will not be permitted as a substitute for cleaning, sweeping, or other methods. Every day, and as required by the project inspector, the Contractor shall furnish and operate a motorized, self-loaded sweeper with water spray nozzles to keep paved areas affected by the work acceptably clean and dust free.
- B. The Contractor shall keep the premises free at all times from accumulations of waste materials and rubbish. Contractor shall provide adequate trash receptacles about the site, and shall promptly empty the containers when filled. Wastes shall not be buried or burned on the site or disposed of into storm drains, sanitary sewers, streams, or waterways. All wastes shall be removed from the site and disposed of in a manner complying with local ordinances and antipollution laws. Volatile wastes shall be properly stored in covered metal containers and removed daily. Construction materials shall be neatly stacked by the Contractor when not in use. The Contractor shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from surfaces to prevent marring or other damage.

1.27 SANITATION AND DRINKING WATER

- A. The Contractor shall provide toilet and wash-up facilities for his work force at the site of work. They shall comply with applicable laws, ordinances, and regulations pertaining to the public health and sanitation of dwellings and camps. The facilities shall be stored within the staging areas overnight and on weekends. The Contractor shall maintain the sanitary facilities in an acceptable condition from the beginning of work to completion and shall remove the facilities and disinfect the premises.
- B. The Contractor shall provide safe drinking water at all times at the jobsite.

1.28 SAFETY

- A. Owner and its inspectors, consultants, agents and other representatives are in no way responsible for safety and are there only to observe the work compliance with plans and specifications.

- B. The Contractor acknowledges responsibility for jobsite and acknowledges that the District, Engineer and their agents, employees, consultants and representatives will not have any such responsibility. To the fullest extent permitted by law the Contractor shall indemnify, defend and hold harmless the District, Engineer, their present companies, subsidiaries, agents, and employees from and against all claims, damages, losses and expenses, including but not limited to attorney fees and claim costs, arising out of or resulting from performance of work by the Contractor, its subcontractors, or their agents and employees, which results in damage, loss or expense is caused in whole or in part by the negligence, active or passive, of District, Engineer, their parent and subsidiary companies, as well as their agents and employees, excepting only the sole negligence of District, Engineer, their parent or subsidiary companies and their agents and employees.

1.29 INDEMNIFICATION

- A. Contractor hereby releases and agrees to indemnify, defend, hold harmless the District, Engineer, their parent and subsidiary companies, agents, employees, consultants and representatives for any and all damage to persons or property or wrongful death regardless of whether or not such claim, damage, loss or expense is caused in whole or in part by the negligence, active or passive, of District, Engineer, their parent and subsidiary companies, as well as their agents and employees, excepting only the sole negligence of District, Engineer, their parent or subsidiary companies and their agents and employees to the fullest extent permitted by law. Such indemnification shall extend to all claims, demands, actions, or liability for injuries, death or damages occurring after completion of the project, as well as during the work's progress. Contractor further agrees that it shall accomplish the above at its own cost, expense and risk exclusive of and regardless of any applicable insurance policy or position taken by any insurance company regarding coverage.
- B. Contractor shall defend, indemnify and hold the District, Engineer, its employees, officers, or agents, harmless against any and all claims by any parties arising from, or related to, any and all damages, including legal costs and attorney's fees, resulting from interference with, interruption of, damage to, or any and all injuries which result from damage caused to subsurface installation, which is unforeseen and despite Engineer's/Architect's effort during the design process was not located, excepting only the gross negligence or willful misconduct of Engineer in providing its services.

1.30 VIDEOTAPE OF PROJECT SITE

A minimum of one week prior to start of construction, the Contractor shall perform detailed videotaping with voice identifying physical features and stationing to avoid potential construction repair disputes. All proposed facilities must be included. A copy of the videotape on a DVD shall be provided to the District's representative prior to the start of construction. Field staking and USA mark out shall be completed prior to videotaping. Videotape shall document USA mark outs as well as other required items.

1.31 MEASUREMENT AND PAYMENT

A. General:

1. The measurement and payment provisions of these Contract Documents shall govern over those of referenced standards, if any.
2. The price set forth in the Bid Form for the work shall include all costs and expenses incidental to completing the work, and payment of the price bid will be payment in full under this contract, except as provided by Article 9-1 PAYMENT FOR CHANGES IN THE WORK of the General Provisions.
3. As a condition precedent to approval of the Contractor's monthly payment application by the District's Representative, the Contractor shall attend all progress or issue resolution meetings scheduled by the District's Representative. In addition, the Contractor shall submit a monthly construction schedule properly updated and accurately showing the work completed to date and the work yet to be performed in the remaining Contract time. The Contractor agrees failure to comply with the foregoing to the satisfaction of the District's Representative shall delay the monthly progress payment to the Contractor without penalty to the District.

B. Lump Sum Work Items Listed in the Bid Schedules:

1. The lump sum prices include full compensation for furnishing the labor, materials, tools, and equipment and doing all the work involved to complete the work included in lump sum work items listed in the Bid Schedules and defined by the Contract Documents.
2. The application for payment for a lump sum payment item will be for that specific work item based on the percentage completed. The percentage complete will be based on the value of partially completed work relative to the value of the item when entirely completed and ready for service. The application for payment will be in accordance with Article 9-2 PROGRESS PAYMENTS of the General Provisions.

C. Unit Price Work Items Listed in the Bid Schedules:

1. The unit prices include full compensation for furnishing the labor, materials, tools, and equipment and doing all the work involved to complete the work included in the unit price work items listed in the Bid Schedules and defined by the Contract Documents.
2. The application for payment for a unit price payment item will be for that specific work item based on the units of work that are entirely completed and ready for service. The application for payment will be in accordance with Article 9-2 PROGRESS PAYMENTS of the General Provisions.

D. Work Items Not Listed in the Bid Schedules:

1. The General Provisions and items in the Special Provisions which are not listed in the Bid Schedules of the Bid Form are, in general, applicable to more than one listed work item, and no separate work item is provided therefor. Include the cost of work not listed but necessary to complete the project designated in the Contract Documents in the various listed work items of the Bid Form.

2. The bids for the work are intended to establish a total cost for the work in its entirety. Should the Contractor feel that the cost for the work has not been established by specific items in the Bid Form, he shall include the cost for that work in some related bid item so that his proposal for the project does reflect his total cost for completing the work in its entirety.

1.32 TWO-YEAR GUARANTEE

A two-year guarantee shall be furnished by the Contractor as required in the General Provisions, Article 5-14, except that any guarantee included for materials or equipment beyond the period specified herein shall be solely the responsibility of the guarantor and not the Contractor.

1.33 CONTRACTOR REGISTRATION WITH STATE OF CALIFORNIA

In accordance with requirements defined by the California State Legislature via Senate Bill 854, all contractors and subcontractors involved with public works projects shall be registered with the State Department of Industrial Relations. Registration is completed through an on-line application process and the payment of a fee to the State. The registration process requires contractors and subcontractors to provide workers' compensation coverage to its employees, hold a valid Contractors State Board License, have no delinquent unpaid wage or penalty assessments, and not be subject federal or state debarment. The registration form is located on the State Department of Industrial Relations website:

<http://www.dir.ca.gov/Public-Works/PublicWorks.html>

Prior to award of the contract, the Contractor shall submit to the District evidence of completing this registration for the prime firm and all subcontracting firms.

END OF SECTION

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PART II

TECHNICAL SPECIFICATIONS

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SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 LOCATION AND DESCRIPTION OF WORK

- A. Work for this project will consist of FEB upgrades including installing a new geomembrane lining and geotextile including but not limited to removal and reinstallation of the existing aluminum railing, securing the liner components with batten bars, geomembrane testing; and all incidental work necessary to complete the FEB upgrades in accordance with the Contract Documents.
- B. The site of Work is located at 4S Ranch WRF 16595 Dove Canyon Rd, San Diego, CA 92127.

1.2 CONTRACTS

- A. The Work shall be constructed under one prime contract.

1.3 WORK BY OTHERS

- A. Work by Franchise Utilities. All costs for coordination with the franchise utilities or for any Work performed by Contractor associated with franchise utilities shall be borne by Contractor at no additional cost to Owner. Costs for compensation to franchise utilities for work performed by their forces shall be paid for by the Contractor.

1.4 SALVAGE

- A. The Owner may desire to salvage certain items of existing equipment which are to be dismantled and removed during the course of construction. Prior to removal of any existing equipment from the site of the Work, the Contractor shall ascertain from the Engineer whether or not the particular item or items are to be salvaged. Items to be salvaged shall be stockpiled on the site in a location as directed by the Engineer. All other items of equipment shall be disposed of off-site by the Contractor at his own expense.

1.5 CONTRACT METHOD

- A. The work hereunder will be constructed under a single contract, the total cost of which is a total lump sum.
- B. The Contractor shall include all Contract Documents as a part of all its subcontract agreements.

1.6 NOT USED

1.7 CONTRACTOR'S USE OF PREMISES

- A. Contractor's use of the premises shall be confined to the areas shown on the Drawings.
- B. Contractor shall:

SECTION 01010 - SUMMARY OF WORK

1. Assume full responsibility for protection and safekeeping of products stored on or off premises.
2. Move stored products that interfere with the operations of Owner or other contractors.
3. Obtain and pay for all additional storage or work areas required for his operations.

1.8 Owner's USE OF THE PROJECT

- A. The Contractor shall cooperate with the Owner to minimize interference with the Owner's operations and to facilitate the Owner's operations in accordance with Section 01043.

1.9 NOT USED

1.10 OPERATION OF EXISTING WATER SYSTEM PROHIBITED

- A. The Contractor shall at no time undertake to close off any lines, open any valves or take any other action which would affect the operation of the existing water system, except as specifically required by the Contract Documents and after approval is granted by the Owner. Request approval two (2) working days in advance of the time that interruption of the existing system is required.
- B. Work on existing structures and facilities shall be performed on a schedule and in a manner that will permit the existing facility to operate continuously, unless otherwise approved in writing by the Owner of the existing utility and/or facility affected.

1.11 CONTRACT TERMINATION

- A. The Owner may terminate this Contract without cause by giving seven (7) calendar days prior written notice to the Contractor. In event of a contract termination the Owner will pay the Contractor for that portion of the Contract completed as of the date of termination, less the aggregate of previous payments already disbursed. The Owner will also reimburse the Contractor for all costs necessarily incurred for organizing and carrying out the stoppage of the work and paid directly by the Contractor, not including overhead, general expenses and profit. Contractor shall not be entitled to profit on any portion of the project which has not been completed.

1.12 OWNER'S RIGHT TO STOP WORK

- A. The Owner reserves the right to stop work for any reason, at any time. The Contractor's claim for compensation shall apply to an adjustment in the completion time of the project only. Any additional costs incurred due to any stop work order, shall be incurred by the Contractor.

SECTION 01010 - SUMMARY OF WORK

1.13 HAZARDOUS WASTE

- A. The Contractor shall perform work in such a manner that there will be no hazardous wastes (fuel, oil, chemical, etc.) generated or left on the site. Should the generation of hazardous waste be necessary in order to complete the Work, it shall be the Contractor's responsibility to take all necessary steps to legally dispose of the waste and any contaminated soil or material. All hazardous waste and/or contaminated soil found on the site which has been left by the Contractor shall be properly disposed of by the Contractor. All necessary documentation of the disposal shall be obtained by the Contractor and shall be submitted to the Owner.

Note: It is unacceptable to store fuels and/or oils on site. The Contractor and Subcontractors must make provisions to fuel equipment on a mobile basis only.

1.14 WATER CONSERVATION

- A. Water resources shall be utilized in a manner that promotes maximum efficiency in the conservation of water. Water storage facilities, transport vehicles or systems shall not be permitted to operate in a faulty/leaky condition. Drop tanks, highlines, and other water handling or water-use facilities shall be kept out of public view, whenever possible. Contractor shall be responsible for making all arrangements for temporary water service with the appropriate agency. All water used on the project during construction shall be paid for by the Contractor.
- B. The Contractor shall coordinate pipeline flushing activities with the Owner to ensure clear communication and coordination of those activities.
- C. When "Flushing" new water systems in preparation for agency bacteria testing, a conscientious effort shall be made to recover, store or reuse the water. This may require the use of temporary "High Line" or "Fire Hose" to transport the used water to a temporary holding pond or tank.
- D. Water waste in site preparation, storm drain, sewer, water and miscellaneous operations, is not acceptable in any form. The Contractor shall adjust operations, as required, to meet conservation goals noted herein. If excessive waste occurs, the Owner will direct the Contractor in writing to make the necessary changes within twenty-four (24) hours to conserve water. If water waste continues the Contract may be terminated.

END OF SECTION

SECTION 01010 - SUMMARY OF WORK

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SECTION 01039 – COORDINATION AND MEETINGS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the methods and requirements of coordination and meetings required for project coordination.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01310 – Construction Progress Schedules
- B. Section 01370 – Schedule of Values.

1.3 COORDINATION AND PROJECT CONDITIONS

- A. Contractor shall coordinate scheduling, submittals, and Work of the various sections of the Project to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

1.4 PRECONSTRUCTION MEETING

- A. Owner will schedule a Preconstruction meeting after the Notice of Award.
- B. Attendance Required: Engineer, Project Manager, Resident Engineer, Contractor, Superintendent, Foreman, and Representatives from Subcontractors.
- C. The Owner will distribute an agenda including, but not limited to the following:
 - 1. Distribution of Contract Documents.
 - 2. Submission of list of Subcontractors and project schedule.
 - 3. Designation of personnel representing the parties in Contract.
 - 4. Procedures and processing of field decisions, submittals, and substitutions, applications for progress payment, proposal requests, Change Orders, and Contract closeout procedures.
 - 5. Scheduling.
 - 6. Scheduling activities of Subcontractors.
 - 7. Procedures for testing.
 - 8. Procedures for maintaining record documents.
- D. The Contractor shall submit the following items prior to or at the Preconstruction Meeting:
 - 1. Construction schedule in accordance with Section 01310.
 - 2. Schedule of Values in accordance with Section 01370.
 - 3. Equipment rates and labor rates.
- E. Engineer shall record minutes and distribute copies within five working days after meeting to participants and those affected by decisions made.

SECTION 01039 – COORDINATION AND MEETINGS

1.5 PRECONSTRUCTION MEETING

- A. Engineer shall schedule and administer meetings throughout progress of the Work at a maximum interval of every two weeks.
- B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Engineer, and as appropriate to agenda topics for each meeting.
- D. The scheduled progress meetings will include, but not be limited to, the following agenda items:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work Progress
 - 3. Safety
 - 4. Weather
 - 5. Field observations, problems, and decisions.
 - 6. Identification of problems which impede planned progress.
 - 7. Review of submittals schedule and status of submittals.
 - 8. Review of off-site fabrication and delivery schedules.
 - 9. Review of off-site fabrication and delivery schedules.
 - 10. Maintenance of progress schedule.
 - 11. Corrective measures to regain projected schedules.
 - 12. Planned progress during succeeding work period.
 - 13. Coordination of projected progress.
 - 14. Maintenance of quality and work standards.
 - 15. Effect of proposed changes on progress schedule and coordination.
 - 16. Other business relating to Work.
- E. Engineer will record minutes and distribute copies within two days after meeting to participants and those affected by decisions made.

END OF SECTION

SECTION 01043 - COORDINATION WITH OWNER'S OPERATIONS

PART 1 - GENERAL

1.1 CONTINUATION OF OPERATIONS

- A. The Contractor will be performing work at an operational water reclamation facility. Under these conditions, precautions will be necessary to assure that no damage or unscheduled shutdowns occur to any facilities, including piping, utilities, roads, and structures that are to remain in operation and are not to be modified or replaced. Any temporary facilities, materials, equipment and labor required to achieve this objective shall be provided by the Contractor at his own expense. At the completion of work, all such temporary facilities, materials and equipment remaining shall be removed from the site.
- B. Regarding connection to existing buried piping and facilities at or adjacent to the site, it shall be the responsibility of the Contractor to uncover and verify their locations; elevations; bearings and inclinations; joint locations relative to connection points; materials; and dimensions prior to beginning construction or fabrication of any new materials or facilities which are dependent on the location of existing facilities.

1.2 ORDER OF THE WORK

- A. The work shall be carried on at such places on the project and also in such order or precedence as may be found necessary by the Engineer to expedite the completion of the project. After work has begun on any portion or designated part of the project, it shall be carried forward to its final completion.

1.3 SHUTDOWNS AND TIE-INS

- A. Any proposed shutdowns must be indicated on the Contractor's preliminary schedule to be submitted for review by the Engineer at the Pre-Construction Conference. The actual allowable durations of the shutdowns will be determined during the preparation of the detailed construction schedule.
- B. No water system shutdowns or tie-ins to existing pipes will be allowed on a Monday or a Friday.
- C. The Contractor shall give the Owner a minimum of fourteen (14) calendar days notice prior to any proposed excavation or shutdown of existing mains or services. Scheduling shall be subject to Owner approval.

SECTION 01043 - COORDINATION WITH OWNER'S OPERATIONS

- D. Lockout/Tagouts shall be performed in accordance with the District's procedures or the Contractor's procedures, whichever are more stringent.
- E. The Contractor shall compile a detailed list of all items of work which must be accomplished during any shutdown. The Contractor shall coordinate his work to minimize the required number of shutdowns by accomplishing as many tasks as possible during each shutdown period. The Contractor shall submit this list of items to the District Representative for his review as a part of the construction schedule defined within Section 01310. The schedule shall indicate all periods and duration of each proposed shutdown and the items of work which will be accomplished. The Contractor shall make specific written requests for all shutdowns fourteen (14) calendar days in advance of the proposed shutdown for review and approval by the District Representative. The written request shall include a complete detailed plan of the Contractor's proposed activities including schedule, manpower, equipment, materials and methods which will be utilized to perform the required work during the proposed shutdown. If, in the opinion of the District Representative, the Contractor's proposed plan is insufficient to successfully complete the required work during the period of the shutdown, the Contractor shall make the appropriate revisions in his proposed plan to the satisfaction of the District Representative. The District reserves the right, at its sole discretion, to cancel any planned shutdown at any time for safety or operational reasons. A canceled shutdown will not constitute the basis for an increase in compensation due the Contractor.

1.4 SEQUENCE OF CONSTRUCTION

- A. General: Work under the Contract shall be scheduled and performed in such a manner as to result in the least possible disruption to the operation of the existing District facilities and to the general public. The Contractor shall coordinate all connections to existing meters and mains with the Owner. The Contractor will install all highline piping required by the Owner for continuity of service.
- B. Work shall be sequenced by the Contractor so that only one FEB is offline at a time. Construction that requires shutdowns of both FEBs at the same time is not allowed.
- C. The District will dewater the basins to the maximum extend practical with existing Owner equipment. However, the Contractor shall anticipate a minimum of 1' of water in the basins and shall be responsible for additional dewatering and removal of all sediment remaining after the District's efforts.
- D. Subsequent to dewatering of the basins, the Contractor shall be responsible for removing nuisance water (e.g. from leaking valves or rain events) via pumping, pipe plugs, or other means. Disposal of nuisance water shall be coordinated with the District.
- E. Contractor shall anticipate a minimum of 3 working days between start-up of the first basin and preliminary dewatering of the second basin by the District.

END OF SECTION

SECTION 01045 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 GENERAL

- A. The Section includes all cutting and patching of all Work under construction, completed Work and existing facilities in order to accommodate the coordination of Work, install other Work, uncover Work for access, inspection or testing, or similar purposes. Execute all cutting and patching, including excavation, backfill and fitting required to:
1. Remove and replace defective Work or Work not conforming to requirements of the Contract Documents.
 2. Remove samples of installed Work as required for testing.
 3. Remove all construction required to provide for specified alteration or addition to existing Work.
 4. Uncover Work to provide for the Engineer's inspection of covered Work or inspection by regulatory agencies having jurisdiction.
 5. Connect to completed Work that was not accomplished in the proper sequence.
 6. Remove or relocate existing utilities and pipes which obstruct the Work to which connections must be made.
 7. Make connections or alterations to existing or new facilities.
- B. Restore all existing Work to a state equal to that which it was in prior to cutting and restore new Work to the standards of these Specifications.
- C. Submittals:
1. Prior to cutting which may affect integrity and design function of Project, Owner's operations, or work of another contractor, submit written notice to Engineer, requesting consent to proceed with cutting, including:
 - a. Identification of Project.
 - b. Description of affected Work of Contractor and work of others.
 - c. Necessity for cutting.
 - d. Effect on other work and on structural integrity of Project.
 - e. Description of Proposed Work. Designate:
 - 1) Scope of cutting and patching.
 - 2) Contractor, Subcontractor or trade to execute Work.
 - 3) Products proposed to be used.
 - 4) Extent of refinishing.
 - 5) Schedule of operations.
 - f. Alternatives to cutting and patching, if any.
 - g. Designation of party responsible for cost of cutting and patching.
 2. Should conditions of Work, or schedule, indicate change of materials or methods, submit written recommendation to Engineer, including:
 - a. Conditions indicating change.
 - b. Recommendations for alternative materials or methods.

SECTION 01045 - CUTTING AND PATCHING

- c. Submittals as required for substitutions.
- 3. Submit written notice to Engineer, designating time Work will be uncovered, to provide for observation. Do not begin cutting or patching operations until authorized by the Engineer.
- D. Provide shoring, bracing and support as required to maintain structural integrity of Project and protect adjacent Work from damage during cutting and patching.
- E. Conform to all applicable Specifications for application and installation of materials used for patching.

END OF SECTION

SECTION 01090 - REFERENCE STANDARDS

PART 1 - GENERAL

1.1 GENERAL

- A. Applicable Publications: Whenever in these specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- B. When a reference standard is specified, comply with requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The latest provisions of applicable standards shall apply to the Work.
- C. Reference standards include, but are not necessarily limited to, the following:
 - 1. American Association of State Highway and Transportation Officials.
 - 2. American Concrete Institute.
 - 3. American Gear Manufacturers Association.
 - 4. American Institute of Steel Construction.
 - 5. American Iron and Steel Institute.
 - 6. American National Standards Institute.
 - 7. American Society of Heating, Refrigerating and Air Conditions Engineers.
 - 8. American Society of Mechanical Engineers.
 - 9. American Society for Testing and Materials.
 - 10. American Water Works Association.
 - 11. American Welding Society.
 - 12. City of Encinitas Standard Drawings
 - 13. Concrete Reinforcing Steel Institute.
 - 14. Factory Mutual Association.
 - 15. Institute of Electrical and Electronics Engineers.
 - 16. National Electrical Manufacturer's Association
 - 17. National Fire Protection Association.
 - 18. Prestressed Concrete Institute.
 - 19. Underwriter's Laboratories, Inc.
 - 20. Standard Specifications for Public Works Construction (SSPWC), Current Edition (Greenbook).
 - 21. San Diego Area Regional Standard Drawings, Current Edition
 - 22. State of California, Department of Transportation Standard Specifications (Standard Specifications), Current Edition.
 - 23. All other applicable standards listed in the Specifications, and the standards of utility service companies, where applicable.

1.2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

SECTION 01090 - REFERENCE STANDARDS

- A. Without limiting the generality of other requirements of the specifications, all Work specified herein shall conform to or exceed the requirements of all applicable codes and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of these Specifications nor the applicable codes.
- B. References herein to "Building Code" or shall mean the California Building Code (CBC). The latest edition of the code as approved and used by the local agency as of the date of award, as adopted by the agency having jurisdiction, shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto. The CBC is hereby incorporated in and made a part of these Contract Documents, to the extent of the applicable references thereto.
- C. No provisions of any referenced standard specification, manual or code, whether or not specifically incorporated by reference in the Contract Documents, shall be effective to change the duties and responsibilities of the Owner, Engineer, or Contractor from those set forth in the Contract Documents. Nor shall they be effective to assign to the Engineer any duty of authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of the Contract Documents.
- D. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflict shall be brought to the attention of the Engineer for clarification and directions prior to ordering or providing any materials or labor. The Contractor shall bid the most stringent requirements.
- E. Applicable Standard Specifications: The Contractor shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.
- F. References herein to "SSPWC" or "Green Book" shall mean "Standard Specifications for Public Works Construction," latest addition, including the County of San Diego Regional and City of San Diego Supplement Amendments.
- G. References to "Standard Drawings" shall mean the "San Diego Area Regional Standard Drawings, Current Edition" including all current supplements, addenda, and revisions thereof.
- H. Reference herein to "OMWD Standard Specifications" shall mean the "Olivenhain Municipal Water District Standard Specifications" dated June 2008, and including all current supplements, addenda, and revisions thereof. The specifications and standard drawing details contained in these Contract Documents shall take precedence over the "OMWD Standard Specifications".
- I. References herein to "Cal-OSHA" shall mean State of California, Department of Industrial Relations, Construction Safety Orders, as amended to date, and all changes and amendments thereto which are effective as of the date of construction.
- J. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- K. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

1.3 TRADE NAMES AND ALTERNATIVES

SECTION 01090 - REFERENCE STANDARDS

- A. For convenience in designation in the Contract Documents, materials to be incorporated in the Work may be designated under a trade name or the name of a manufacturer and its catalog information. The use of alternative material which is equivalent in quality and of the required characteristics for the purpose intended will be permitted, subject to the following requirements:
1. The burden of proof as to the quality and suitability of such alternative equipment, products, or other materials shall be upon the Contractor.
 2. The Engineer will be the sole judge as to the comparative quality and suitability of such alternative equipment, products, or other materials and its decision shall be final.
- B. Wherever in the Contract Documents the name or the name and address of a manufacturer or distributor is given for a product or other material, or if any other source of a product or material is indicated therefore, such information is given for the convenience of the Contractor only, and no limit, restriction, or direction is indicated or intended thereby, nor is the accuracy or reliability of such information guaranteed. It shall be the responsibility of the Contractor to determine the accurate identity and location of any such manufacturer, distributor, or other source of any product or material called for in the Contract Documents.
- C. The Contractor may offer any material, process or equipment which it considers equivalent to that indicated. Unless otherwise authorized in writing by the Engineer, submission of data substantiating a request for a substitution of "an equal" item shall be submitted after bid opening and prior to 60 calendar days after award of the Contract. The Contractor, at its sole expense, shall furnish data concerning items it has offered as equivalent to those specified. The Contractor shall provide any materials as required by the Engineer to determine that the quality, strength, physical, chemical, or other characteristics, including durability, finish, efficiency, dimensions, service, and suitability are such that the items will fulfill its intended function.
- Installation and use of a substitute item shall not be made until approved by the Engineer. If a substitute offered by the Contractor is found to be not equivalent to the specified material, the Contractor shall furnish and install the specified material.
- D. The Contractor's attention is further directed to the requirement that its failure to submit data substantiating a request for a substitution of an "equivalent" item within said period prior to and after the award of the contract, shall be deemed to mean that the Contractor intends to furnish one of the specific brand-named products named in the specification, and the Contractor does hereby waive all rights to offer or use substitute products in each such case. Wherever a proposed substitute product has not been submitted within said period, or wherever the submission of a proposed substitute product fails to meet the requirements of the specifications and an acceptable resubmittal is not received by the Engineer within said period, the Contractor shall furnish only one of the products originally named in the Contract Documents.

PART 2 - NOT USED

SECTION 01090 - REFERENCE STANDARDS

PART 3 - NOT USED

END OF SECTION

SECTION 01150 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The items described below in Paragraph 1.4 - Pay Items refer to and are the same pay items listed in the Bid Form. They constitute all of the pay items for the completion of the Work. No direct or separate payment will be made for providing miscellaneous temporary or accessory works, plant, services, Contractor's or Engineer's field offices, layout surveys, job signs, sanitary requirements, testing, safety devices, shop drawings, record drawings, water supplies, power, maintaining traffic, removal of waste, watchmen, bonds, insurance, and all other requirements of the Contract Documents. Compensation for all such services, materials, and items shall be included in the prices stipulated for the lump sum or unit price pay items listed herein.
- B. The lump sum bid prices and unit cost bid prices will be deemed to include an amount considered by the Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

1.2 SCOPE

- A. Payment shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies and manufactured articles and for all labor, operations and incidentals that are appurtenant to the items of Work and necessary to complete the various items of Work in accordance with the requirements of the Contract Documents. This shall include all appurtenances and the costs of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the California Division of Industrial Safety and the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).
- B. Payment shall include all measures necessary to comply with all applicable State and Federal requirements for handling, transporting and disposal of asbestos containing materials (i.e., asbestos cement) including special handling these materials in a manner that will preclude their classification as regulated asbestos containing material and worker protection to reduce health and safety risks resulting from exposure to asbestos containing materials.

1.3 BREAKDOWN OF CONTRACT PRICE OF LUMP SUM CONTRACTS

- A. Prior to the execution of a lump sum contract, the Contractor shall submit a detailed price breakdown showing the allocated portion of the total bid price to the various items of Work. Contractor must submit a preliminary price breakdown for the review and approval of the Engineer. The Owner reserves the right to reject any breakdown submitted by the Contractor which the Owner judges insufficient to allow for the preparation of accurate monthly progress payment estimates or extra work similar in nature to the Work included in the Contractor's bid. The detailed price breakdown shall be listed by specification section number and shall include a separate cost item for all items of equipment or work. The price breakdown shall typically be a unit price type breakdown and shall include quantities, unit prices and total bid cost for each cost item. Where a unit price breakdown is judged

SECTION 01150 – MEASUREMENT AND PAYMENT

impractical, the Owner may allow a breakdown by lump sum for certain cost items. This information will be used by the Owner in preparing monthly progress payment estimates.

1.4 PAY ITEMS

A. Mobilization and Permits

Payment shall include compensation for all labor, materials, tools and equipment including, but not limited to, the following principal items: obtaining and complying with permits not included in any other bid item; mobilizing labor force, equipment and construction facilities; providing storage yard; securing construction water supply; providing all temporary construction fencing and safety barriers; providing on-site sanitary facilities; providing project signs; obtaining groundwater discharge permits or waivers; posting OSHA requirements and establishing safety programs; daily cleanup; preparing the Schedule of Values prior to the pre-construction meeting; preconstruction/progress video and photographs; work not specified for payment in any other bid item; and all incidentals for the mobilization, demobilization, and permitting for construction of the project as described in the Contract Documents.

Payment shall also include bonds, insurance, permit applications and fees and incidentals thereto to construct the project in its entirety in accordance with the Contract Documents.

Earthquake & Tidal Wave Insurance is not required.

Payment for this item shall be limited to five (5) percent of the total contract price.

B. Removal and Reinstallation of Aluminum Railing

Payment shall include compensation for all labor, materials, tools, and equipment including but not limited to the following principal item: removal and reinstallation of the aluminum railing to facilitate installation of the geomembrane including all incidentals for work in accordance with the Contract Documents.

C. Basin Dewatering and Geomembrane Inspection and Cleaning

Payment shall include compensation for all labor, materials, tools and equipment including, but not limited to the following principal item: supplementary dewatering of the basins, removal or nuisance water, inspection of the existing geomembrane liner, grinding sharp protrusions smooth, removal and disposal of all sediment in the basins, and cleaning the liner prior to placement of the new liner including all incidentals for work in accordance with the Contract Documents.

D. Geomembrane and Geotextile Installation

Payment shall include compensation for all labor, materials, tools and equipment including, but not limited to the following principal items: procurement and installation of geotextile and geomembrane, factory production of geomembrane panels, testing of factory and field seams, construction of double welds, construction of liner caps including all incidentals for work in accordance with the Contract Documents.

E. Liner Attachments

SECTION 01150 – MEASUREMENT AND PAYMENT

Payment shall include compensation for all labor, materials, tools, and equipment including but not limited to, procurement and construction of batten bars, bent plates, anchors, including all incidentals for work in accordance with the Contract Documents.

F. Fluid Applied Membrane

Payment shall include compensation for all labor, materials, tools, and equipment including but not limited to installation of a fluid applied membrane, including all incidentals for work in accordance with the Contract Documents.

END OF SECTION

(BLANK)

SECTION 01300 – RECORD DRAWINGS AND SUBMITTALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The term “submittal” as used herein shall be understood to include working drawings, detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, operating instructions, catalog sheets, data sheets, samples, and similar items. Unless otherwise required, such submittals shall be submitted to Engineer. Engineer will review and distribute all submittals in accordance with this specification within thirty (30) calendar days following their receipt by Engineer.

1.2 SECTION INCLUDES

- A. Submittal Procedures
- B. Proposed products list.
- C. Shop drawings and product data.
- D. Manufacturer’s instructions.
- E. Manufacturer’s certificates.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01090 – Reference Standards
- B. Section 01310 – Construction Progress Schedules
- C. Section 01370 – Schedule of Values
- D. Section 01400 – Quality Control
- E. Section 01700 – Project Closeout

1.4 SUBMITTAL PROCEDURES

- A. The Contractor shall submit one (1) electronic copy of each in Adobe Acrobat (pdf) or Microsoft Word (doc) format where possible. When hard copies are required (e.g. material samples) Contractor shall provide a minimum of three hard copies unless otherwise stated in individual specification sections.
- B. Each submittal may contain data from a single specification section only. If data from multiple specification sections are to be submitted, they shall be transmitted as separate submittals, with their own submittal cover sheet and unique submittal number.
- C. A submittal cover sheet shall accompany each submittal. The submittal cover sheet shall clearly indicate the names of the Project, Owner, Contractor, and Subcontractor or supplier (if appropriate), as well as the date, submittal number and contract number. Each item included in the submittals shall be listed on the cover sheet with a description, specification section and paragraph numbers,

SECTION 01300 – RECORD DRAWINGS AND SUBMITTALS

drawing number (as appropriate), location in the Work, quantity required, and whether the item is being submitted as a product listed in the Contract Documents or as an equivalent substitution.

- D. All submittals submitted for approval shall have a title block with complete identifying information satisfactory to the Engineer.
- E. It is the Contractor's responsibility to review submittals made by his Suppliers and Subcontractors before transmitting them to the Engineer to assure proper coordination of the Work and to determine that each submittal is in accordance with his desires and that there is sufficient information about materials and equipment for the Engineer to determine compliance with the Contract Documents. Incomplete or inadequate submittals will be returned for revisions without review.
- F. All submittals shall bear the stamp of approval and signature of Contractor as evidence that they have been reviewed by Contractor. Submittals without this stamp of approval will not be reviewed by the Engineer and will be returned to the Contractor. Contractor's stamp shall contain the following minimum information and shall use the form provided at the end of this section:

Project Name: _____

Contractor's Name: _____

Date: _____

Submittal No.: _____

Approved By: _____

- G. A number shall be assigned to each submittal by the Contractor starting with No. 001 and thence numbered consecutively. Resubmittals shall be identified by the original submittal number followed by the suffix "A" for the first resubmittal, the suffix "B" for the second resubmittal, etc.
- H. Except as may otherwise be provided herein, the Engineer will return prints of each submittal to the Contractor, with his comments noted thereon, within 30 calendar days following their receipt by the engineer. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the Engineer by the second submission of a submittal item. The owner reserves the right to withhold monies due the contractor to cover additional costs of the Engineer' review beyond the second submission.
- I. Code 1 – "NO EXCEPTIONS TAKEN" is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.
- J. Code 2 – "MAKE CORRECTIONS NOTED/CONFIRM". This combination of codes is assigned when a confirmation of the notations and comments is required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This confirmation is to address the omissions and nonconforming items that were noted.
- K. Code 3 – "MAKE CORRECTIONS NOTED/RESUBMIT". This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the package. The Contractor may release the equipment or

SECTION 01300 – RECORD DRAWINGS AND SUBMITTALS

material for manufacture; however, all notations and comments must be incorporated into the final product. This resubmittal is to address all comments, omissions and non-conforming items that were noted.

- L. Code 4 – “AMEND/RESUBMIT”. This combination of codes is assigned when the submittal is in noncompliance with the Contract Documents and must be corrected and entire package resubmitted. This code generally means that the equipment or material cannot be released for manufacture unless the Contractor takes full responsibility for providing the submitted items in accordance with the Contract Documents.
- M. Code 5 – “REJECTED” is assigned when the submittal does not meet the intent of the Contract Documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.
- N. Code 6 – “COMMENTS ATTACHED” is assigned where there are comments attached to the returned submittal which provides additional data to aid the Contractor.
- O. Code 7 – “FOR YOUR INFORMATION” is assigned when the package provides information of a general nature that may or may not require a response.
- P. Codes 1 through 5 designate the status of the reviewed submittal with Code 6 showing there has been an attachment of additional data.
- Q. Code 7 is used as may be necessary.
- R. The Engineer’s review of the Contractor submittal shall not relieve the Contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any misfits due to any errors in Contractor-submitted submittals. Any fabrication or other work performed in advance of the receipt of submittals shall be entirely at the Contractor’s risk and expenses. The Contractor shall be responsible for the dimensions and the design of adequate connection and details.
- S. Submittals shall be submitted well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved.
- T. Identify variations from the Contract Documents and product or system limitation which may be detrimental to successful performance of the completed Work.
- U. Provide space for the Contractor and the Engineer review stamps.
- V. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- W. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.5 PROPOSED PRODUCTS LIST

- A. Within thirty (30) days after date of Notice to Proceed, unless otherwise noted in Bid Documents, submit a final, complete list of major projects proposed for use, with name of manufacturer, trade name, model number of each product, and

SECTION 01300 – RECORD DRAWINGS AND SUBMITTALS

whether the item is being submitted as a product listed in the Contract Documents or as an equivalent substitution.

- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.6 SHOP DRAWING AND PRODUCT DATA

- A. Submit the number of copies specified in Part 1.4.
- B. Make each copy to identify the specific quantity, product, model, options, and other data applicable to each unit being furnished for the Project. Supplement manufacturers' standard data to provide information unique to this Project.
- C. Shop drawings referred to herein shall include shop drawings and other submittals for both shop and field fabricated items. The Contractor shall submit, as applicable, the following for all prefabricated or manufactured structural, mechanical, electrical, plumbing, process systems, and equipment:

SECTION 01300 – RECORD DRAWINGS AND SUBMITTALS

1. Shop drawings or equipment drawings, including dimensions, size, and location of connections to other work, and weight of equipment.
 2. Catalog information and cuts.
 3. Installation or placing drawings for equipment bases.
 4. Supporting calculations for equipment and associated supports specified to be designed by equipment manufacturers or suppliers.
 5. Wiring and control diagrams of systems and equipment.
 6. Complete manufacturer's specifications, including materials description and paint system.
 7. Suggested spare parts list with current price information.
 8. List of special tools required for checking, testing, parts replacement, and maintenance. (Special tools are those which have been specially designed or adapted for use on parts of the equipment, and which are not customarily and routinely carried by maintenance mechanics.)
 9. List of special tools furnished with the equipment.
 10. List of materials and supplies required for the equipment prior to, and during startup.
 11. List of materials and supplies furnished with equipment.
 12. Samples of finish colors for selection.
 13. Special handling instructions.
 14. Material Safety Data Sheets (MSDS) and warning label for each chemical to be used in the work.
 15. Requirements for storage and protection prior to installation.
 16. Requirements for routine maintenance required prior to initial start-up.
 17. List of all requested exceptions to Contract Documents.
- D. After review, distribute in accordance with this specification and provide copies for Records Documents as described in Section 01700.

1.7 MANUFACTURERS' INSTRUCTIONS

- A. When specified in individual Specification Sections, submit manufactures' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufactures' instructions and Contract Documents.

1.8 MANUFACTURERS' CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to the Engineer for review, in quantities specified for Product Data.

SECTION 01300 – RECORD DRAWINGS AND SUBMITTALS

- B. Indicate that the material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to the Engineer.

1.9 RECORD DRAWINGS

- A. Contractor shall provide and maintain on the jobsite one complete set of prints of all plans which form a part of the contract. Immediately after each portion of the work is installed, indicate all deviations from the original design shown on the Plans either by additional sketches or marked in red ink thereon and reviewed by District's Representatives. Upon completion of the job, deliver this record set to the District's Representative.
- B. Record drawings shall be submitted with final request of progress payment.
- C. Make the record drawings available for review by District in Contractor's field office.
- D. Protect the record set from damage or loss.
- E. Detailed Requirements.
 - 1. The Contractor shall provide Record Drawings which shall clearly show all differences between the contract Work as drawn and as installed for all concealed construction, as well as construction added to the Contract, which is not indicated on the Contract Drawings.
 - 2. Concealed shall mean construction installed underground or in an area which cannot be readily inspected by use of access panels, inspection plates, or other removable features.
 - 3. Show all changes in the work or added Work on the Record Drawings in a contrasting color.
 - 4. In showing changes in the Work or added Work, use the same legends that are used on the Contract Drawings. Indicate exact locations by dimensions and exact elevations. Give dimensions from a permanent point.
 - 5. Record by marking on the Drawings all changes in the Work which occur during construction, including adding approved change orders.
 - 6. Show locations by key dimensions, depths, elevations of all underground lines, conduit runs, sensor lines, valves, capped ends, branch fittings, pull boxes, etc.

END OF SECTION

SECTION 01310 – CONSTRUCTION PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Contractor shall provide construction schedules which conform to the requirements below, unless otherwise approved by the Engineer.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01039 – Coordination and Meetings
- B. Section 01370 – Schedule of Values.

1.3 FORMAT

- A. Prepare network analysis system using the critical path method, as outlined in The Associated General Contractors of America (AGC) publication “The Use of CPM in Construction – A Manual for General Contractors”.
- B. Sheet Size: 24-inches by 36-inches.
- C. Time Scale: Indicate first date in each work week.
- D. Organization:
 - 1. Group Shop Drawing submittals and reviews into a separate sub-schedule.
 - 2. Group product deliveries into a separate sub-schedule.
 - 3. Group construction Work into a separate sub-schedule by activity.
 - 4. Group critical activities, which dictate the rate of progress into a separate sub-schedule.
 - 5. Organize each subschedule by Specification Section number.

1.4 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by Specification Section number.
- C. Arrange construction Work into logically grouped activities.
- D. Provide sub-schedules for each stage of Work identified in the Bid Schedule.
- E. Provide sub-schedules to define critical portions of the entire Schedule.
- F. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- G. Provide separate schedule of submittal dates for shop drawings, product data, factor and field testing dates, and dates reviewed submittals will be required from the Engineer.

SECTION 01310 – CONSTRUCTION PROGRESS SCHEDULES

- H. Indicate delivery dates for any Owner furnished items.
- I. Coordinate content with Schedule of Values specified in Section 01370.

1.5 REVISIONS TO SCHEDULES

- A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- C. Provide a narrative report to define problem areas, anticipated delays, and the impact on the Schedule. The Contractor shall report corrective actions taken or proposed and their effects, including changes in the schedules of separate contractors, if any.

1.6 CONTRACTOR SUBMITTALS

- A. Submit initial construction schedules prior to or at the Preconstruction Meeting as described in Section 01039. After review, resubmit initial construction schedules within ten (10) days thereafter. Submit initial construction schedules in both printed and electronic forms.
- B. Submit revised construction progress schedules every month with progress payment, or as directed by the Engineer. Submit revised construction progress schedules in both printed and electronic forms. If an updated schedule is not submitted, progress payment will not be processed.
- C. Attach a letter or transmittal to each submittal and include the following information in the letter:
 - 1. A listing of items which have changed since the previous submittal.
 - 2. Discussion of problems causing delays, anticipated length of delays, and proposed solutions.
 - 3. Schedule narrative including the following:
 - a. Critical path;
 - b. Activities started, in progress and completed;
 - c. Description of logic changes from previous update;
 - d. Current problems;
 - e. Milestone status;
 - f. Potential problem areas.

1.7 DISTRIBUTION

- A. Distribute copies of reviewed construction schedules to project site file, Subcontractors, suppliers, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in construction schedules.

END OF SECTION

SECTION 01370 – SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Schedule of Values is an itemized list of the value or cost of each Bid Item of Work and the associated time of expenditures. It shall be used as the basis for submitting progress payments and projecting future payment schedule.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01039 – Coordination and Meetings

1.3 PREPARATION

- A. Schedule of Values shall be based on bid items and anticipated units completed each month.
- B. Schedule of Values shall be prepared on 8-1/2-inch by 11-inch white paper.
- C. The sum of the individual values shown on the Schedule of Values must equal the total Contract Price.
- D. Schedule shall show the purchase and delivery costs for materials and equipment that the Contractor anticipates he may request payment for prior to their installation.

1.4 CONTRACTOR SUBMITTAL

- A. A tentative schedule of values shall be submitted prior to or at the pre-construction meeting in accordance with Section 01039.
- B. The Contractor and Engineer shall meet and jointly review the preliminary schedule of values and make any adjustments in value allocation if, in the opinion of the Engineer, these are necessary to establish fair and reasonable allocation of values for the major Work components. Front end loading will not be permitted. This review and any necessary revisions or reallocation of the schedule of values shall be completed within 10 working days from the date of the Notice to Proceed.
- C. Submit three copies of monthly updates of the schedule of values to the Engineer with requests for project payments.

END OF SECTION

SECTION 01370 – SCHEDULE OF VALUES

(BLANK)

SECTION 01400 – QUALITY CONTROL

PART 1 - GENERAL

1.1 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. The Contractor shall verify all dimensions in the field and shall check field conditions continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the Work due to its failure to comply with this requirement.
- B. The Contractor shall inspect related and appurtenant Work and shall report in writing to the Owner's Representative any conditions which will prevent proper completion of the Work. Failure to report any such conditions shall constitute acceptance of all site conditions, and any required removal, repair, or replacement caused by unsuitable conditions shall be performed by the Contractor at its sole cost and expense.
- C. Points of connections to any existing pipelines must be accurately located by the Contractor. Information such as vertical elevations, pipe outside diameters, joints, materials of construction, shape, and pipe conditions must be obtained prior to beginning Work in the affected area and this information shall be transmitted to the Owner's Representative. The Owner's Representative shall make any necessary adjustments to the Drawings to reflect the actual field conditions. No additional payments will be made to the Contractor for any required adjustments in the Drawings at the points of connection to existing pipelines. No payment will be allowed for special transition couplings or jointing materials required for connections to existing pipelines.

1.2 INSPECTION OF THE WORK

- A. The Work shall be conducted under the general observation of the Owner's Representative and shall be subject to inspection by representatives of the Owner to ensure strict compliance with the requirements of the Contract Documents. Such inspection may include mill, plant, shop, or field inspection, as required. The Owner's Representative shall be permitted access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated.

1.3 SAMPLING AND TESTING

- A. When not otherwise specified, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered; however, the Owner's Representative reserves the right to use any generally-accepted system of inspection which, in the opinion of the Owner's Representative will ensure that the quality of the workmanship is in full accord with the Contract Documents.

SECTION 01400 – QUALITY CONTROL

- B. Any waiver of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver of any technical or qualitative requirements of the Contract Documents.

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION

SECTION 01410 – TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 GENERAL

- A. Not Used
- B. Inspection, sampling and testing shall be as specified in the individual Sections. These include, but are not limited to:
 - 1. Section 02774 - Geotextiles.
 - 2. Section 02776 – Reinforced EIA Geomembrane Liner.
 - 3. Section 03250 - Concrete Anchors
- C. The Contractor shall pay for the testing listed above, including repeat testing which results from the Contractor's failure to meet Specification requirements.
- D. Additionally, the Contractor shall pay for:
 - 1. Tests not listed above.
 - 2. Tests made for the Contractor's convenience.
 - 3. Repeat tests required because of the Contractor's failure to meet Specification requirements.
- E. The testing laboratory is not authorized to approve or accept any portion of the Work; rescind, alter or augment the requirements of the Contract Documents; or perform any duties of the Contractor.

1.2 QUALIFICATIONS OF LABORATORY

- A. Where applicable, the testing laboratory will meet "Recommended Requirements for Independent Laboratory Qualification", latest edition, published by American Council of Independent Laboratories and the basic requirements of ASTM E329 "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction".
- B. Testing equipment used by the laboratory will be calibrated at maximum 12-month intervals by devices of accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

SECTION 01410 – TESTING LABORATORY SERVICES

1.3 LABORATORY DUTIES

A. The testing laboratory will:

1. Cooperate with Owner's Representative and Contractor and provide qualified personnel promptly on notice.
2. Perform specified inspections, sampling and testing of materials and methods of construction; comply with applicable standards; ascertain compliance with requirements of Contract Documents.
3. Promptly notify Owner's Representative and Contractor of irregularities or deficiencies of Work which are observed during performance of services.
4. Promptly submit 5 copies of reports of inspections and tests to Owner's Representative, including:
 - a. Date issued.
 - b. Project title and number.
 - c. Testing laboratory name and address.
 - d. Date of inspection or sampling.
 - e. Record of temperature and weather.
 - f. Date of test.
 - g. Identification of product and Specification Section.
 - h. Location in Project.
 - i. Type of inspection or test.
 - j. Results of tests and observations regarding compliance with Contract Documents.
5. Perform additional tests and services as required by Owner.

1.4 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall:

- A. Cooperate with laboratory personnel; provide access to Work and to manufacturer's operations.
- B. Provide preliminary representative samples of materials to be tested to the laboratory in the required quantities.
- C. Furnish copies of product test reports.
- D. Furnish labor and facilities:
 1. To provide access to Work to be tested.
 2. To obtain and handle samples at the site.
 3. To facilitate inspections and tests.
 4. For the laboratory's exclusive use for storage and curing of test samples.
 5. Forms for preparing concrete test beams and cylinders.
- E. Notify laboratory and Owner's Representative sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

SECTION 01410 – TESTING LABORATORY SERVICES

- F. Arrange with laboratory and pay for additional samples and tests required for Contractor's convenience.

END OF SECTION

(BLANK)

SECTION 01510 – TEMPORARY CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.1 GENERAL

- A. Contractor shall be responsible for all temporary construction facilities required for the Work. Contractor shall make all arrangements with utility service companies for temporary services and shall pay all costs associated therewith.
- B. Temporary construction facilities include:
 - 1. Water.
 - 2. Electricity, Heating, Air Conditioning and Lighting.
 - 3. Telephone.
 - 4. Sanitary and First Aid Facilities.
- C. Contractor shall abide by all rules and regulations of the utility service company or authority having jurisdiction.
- D. Provide all materials, equipment and power required for temporary electricity and lighting. Include continuous power for construction site offices. Provide all outlets with circuit breaker protection and comply with ground fault protection requirements of NEC.
- E. Suitably enclosed chemical or self-contained toilets shall be provided for the use of the men employed on the Work. Toilets shall be located near the Work site and secluded from observation insofar as possible. Toilets shall be serviced at regular intervals, kept clean and supplied throughout the course of the Work.
- F. Contractor shall furnish and maintain a safe drinking water supply readily available to all workers.
- G. Contractor shall be responsible for all utility service costs until the Work is substantially complete. Included are all fuel, power, light, heat and other utility services necessary for execution, completion, testing and initial operation of the Work.
- H. Contractor shall:
 - 1. Maintain and operate systems to assure continuous service.
 - 2. Modify and extend systems as Work progress requires.
 - 3. Completely remove temporary materials and equipment when their use is no longer required.
 - 4. Clean and repair damage caused by temporary installations or use of temporary facilities.

SECTION 01510 – TEMPORARY CONSTRUCTION FACILITIES

5. Restore existing facilities used for temporary services to the specified condition or to the original condition.

END OF SECTION

SECTION 01545 – PROTECTION OF THE WORK AND PROPERTY

PART 1 - GENERAL

1.1 GENERAL

- A. Contractor shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage as specified in the General Conditions and herein.
- B. In order to prevent damage, injury or loss, Contractor's actions shall include but not be limited to, the following:
 - 1. Store apparatus, materials, supplies, and equipment in an orderly safe manner that will not unduly interfere with the progress of the Work or the Work of any other contractor or utility service company.
 - 2. Provide suitable storage facilities for all materials which are subject to injury by exposure to weather, theft, breakage, or otherwise.
 - 3. Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.
 - 4. Clean up daily all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the Work shall present a safe, orderly and workmanlike appearance. Perform major cleaning every Friday, or Thursday if Friday is a holiday.
 - 5. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other hazardous areas, including the FEBs while the aluminum railing is temporarily removed.
- C. Contractor shall not, except after written consent from proper parties, enter or occupy privately-owned land with men, tools, materials or equipment, except on easements provided herein.
- D. Contractor shall assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the Work by the Contractor, it shall be restored by the Contractor, at his expense, to a condition equal to that existing before the damage was done.

1.2 PROTECTION OF EXISTING STRUCTURES

- A. Underground Structures:
 - 1. Underground structures are defined to include, but not be limited to, all sewer, water, gas, storm drains, and other piping, and manholes, chambers, electrical conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.

SECTION 01545 – PROTECTION OF THE WORK AND PROPERTY

2. All underground structures known to Engineer except water, sewer, electric, and telephone service connections are shown. This information is shown for the assistance of Contractor in accordance with the best information available, but is not guaranteed to be correct or complete.
3. Contractor shall explore ahead of his trenching and excavation Work and shall uncover and pothole all obstructing underground structures a minimum of two (2) weeks prior to start of excavation per Section 01043 to determine their location, to prevent damage to them and to prevent interruption to the services which such structures provide. If Contractor damages an underground structure, he shall restore it to original condition at his expense.
4. Necessary changes in the location of the Work may be made by Engineer, to avoid unanticipated underground structures.
5. If permanent relocation of an underground structure or other subsurface facility is required and is not otherwise provided for in the Contract Documents, Engineer will direct Contractor in writing to perform the Work, which shall be paid for under the provisions of the General Conditions.
6. The Contractor shall call U.S.A. Dig Alert at 811 a minimum of two working days prior to any excavation.

B. Surface Structures:

1. Surface structures are defined as all existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, railings, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

C. Protection of Underground and Surface Structures:

1. Contractor shall sustain in their places and protect from direct or indirect injury all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the Work of sustaining and supporting such structure, Contractor shall satisfy the Engineer that the methods and procedures to be used have been approved by the party owning same.
2. Contractor shall assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work. Contractor shall be responsible for all damage and expense for direct or indirect injury caused by his Work to any structure. Contractor shall repair immediately all damage caused by his Work, to the satisfaction of the Owner of the damaged structure.

SECTION 01545 – PROTECTION OF THE WORK AND PROPERTY

- D. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers, and curbs which are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at Contractor's expense.

1.3 PROTECTION OF INSTALLED PRODUCTS

- A. Provide protection of installed products to prevent damage from subsequent operations. Remove protection facilities when no longer needed, prior to completion of Work.
- B. Control traffic to prevent damage to equipment, materials and surfaces.

1.4 PROTECTION OF SURVEY OR ROADWAY MARKERS

- A. The Contractor shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced for easy and accurate restoration. It shall be the Contractor's responsibility to notify the proper representatives of the Owner of the time and location that Work will be done. Such notification shall be sufficiently in advance of construction so that there will be no delay due to waiting for survey points to be satisfactorily referenced for restoration. All survey markers or points disturbed without proper authorization by the Engineer will be accurately restored by the Owner at the Contractor's expense after all street or roadway resurfacing has been completed.

1.5 PROTECTION OF TREES AND LANDSCAPING

- A. The Contractor shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs or other existing landscaping, including those lying within or beyond street rights-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal as described on the Plans, or by the Owner's Representative and the jurisdictional agency. All existing trees and landscaping which are damaged during the construction shall be trimmed or replaced by the Contractor or a certified landscape maintenance company under permit from the jurisdictional Owner and to the satisfaction of said agency and/or the Owner. All costs shall be borne by the Contractor.

END OF SECTION

(BLANK)

SECTION 01550 – SITE ACCESS

PART 1 - GENERAL

1.1 HIGHWAY LIMITATIONS

- A. The Contractor shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the Work. It shall be the Contractor's responsibility to construct and maintain, at its own expense, any haul roads required for its construction operations.
- B. Access to and from the site shall be from Dove Canyon Road.

1.2 SITE ACCESS

- A. The 4S Ranch Water Reclamation Facility is an operational water reclamation facility. Access to the site shall be provided by the District to allow work to commence in accordance with these contract documents. Contractor shall abide by the District's terms of site access at all times including but not limited to abiding by approved working hours, restrictions to access, and maintaining designated laydown areas. The Contractor shall follow the District's safety protocols or the Contractor's safety protocols (whichever is more restrictive) at all times while on District Property.

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION

(BLANK)

SECTION 01560 – TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 GENERAL

- A. The Contractor shall provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and adjacent areas. Remove physical evidence of temporary facilities at completion of Work.

1.2 NOISE CONTROL

- A. Vehicles and equipment shall be such as to minimize noise to the greatest degree practicable. Noise levels shall conform to the latest OSHA standards and in no case will noise levels be permitted which interfere with the work of the Owner or others.

1.3 DUST CONTROL

- A. Control objectionable dust caused by the operation of vehicles and equipment, clearing or any reason whatsoever. Apply water and calcium chloride or use other dust control methods subject to the Engineer's approval.

1.4 PEST AND RODENT CONTROL

- A. Provide rodent and pest control as necessary to prevent infestation of construction or storage area. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

1.5 WATER CONTROL

- A. Provide methods to control surface water and water from excavations and structures to prevent damage to the Work, the site, or adjoining properties.
 - 1. Control fill, grading and ditching to direct water away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff courses so as to prevent any erosion, damage or nuisance.
- B. Provide, operate and maintain equipment and facilities of adequate size to control surface water.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and in conformance with all environmental requirements.

SECTION 01560 – TEMPORARY CONTROLS

1.6 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, and perform emergency measures required to contain any spillages, and to remove soils or liquids contaminated as a result of Contactor's activities.
 - 1. Excavate and dispose offsite any contaminated soil or liquid and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
 - 1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.
 - 1. Prevent toxic concentrations of chemicals.
 - 2. Prevent harmful dispersal of pollutants into the atmosphere.
- E. Equipment used during construction shall conform to all current federal, state and local laws and regulations.

1.7 EROSION CONTROL

- A. Plan and execute construction and earthwork by methods to control surface drainage from cuts and fills and from borrow and waste disposal areas, and to prevent erosion and sedimentation.
 - 1. Hold the areas of bare soil exposed at one time to a minimum.
 - 2. Provide temporary control measures such as berms, dikes and drains.
- B. Construct fills and waste areas by selective placement to eliminate surface silts or clays which will erode.
- C. Periodically inspect earthwork to detect any evidence of the start of erosion, apply corrective measures as required to control erosion.

END OF SECTION

SECTION 01700 – PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 GENERAL

- A. The Contractor shall thoroughly clean the project site, as described in Section 01710, prior to final acceptance of the Work by the Owner.
- B. The Contractor shall conduct Performance Tests for each element of the Work as described in the individual Sections. Where no performance test is specified, the Contractor shall demonstrate satisfactory performance for a period of one week prior to final acceptance.
- C. The Contractor shall establish dates for equipment testing and acceptance periods. The times shall be within the Contract time.

1.2 TECHNICAL MANUAL SUBMITTALS

- A. The Contractor's attention is directed to the condition that five percent of the Contract price will be deducted from any monies due the Contractor as progress payments until the approved technical manuals have been submitted in accordance with Section 01730. The aforementioned amount will be retained by the Owner as the agreed, estimated value of the approved technical manuals.

1.3 FINAL SUBMITTALS

- A. The Contractor, prior to requesting final payment, shall obtain and submit the following items to the Engineer for transmittal to the Owner:
 - 1. Written guarantee, where required.
 - 2. Operating manuals and instructions.
 - 3. Maintenance stock items; spare parts, special tools.
 - 4. Completed record drawings shall be submitted on the original signed mylars. All construction changes shall be hand drafted onto the original signed mylar and approved by the Owner prior to project completion. Approved Record Drawings shall be scanned and submitted to the Owner.
 - 5. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

END OF SECTION

(BLANK)

SECTION 01710 – CLEANING

PART 1 - GENERAL

1.1 GENERAL

- A. The Contractor shall execute cleaning during progress of the Work, at completion of the Work, and as required by General Conditions.
- B. Requirements of Regulatory Agencies:
 - 1. In addition to the requirements herein, maintain the cleanliness of the Work and surrounding premises within the Work limits so as to comply with federal, state, and local fire and safety laws, ordinances, codes and regulations.
 - 2. Comply with all federal, state and local anti-pollution laws, ordinances, codes and regulations when disposing of waste materials, debris and rubbish.
- C. Scheduling of Cleaning and Disposal Operations:
 - 1. Schedule all cleaning and disposal operations so that dust, wash water or other contaminants generated during such operations do not damage or mar painted or finished surfaces.
 - 2. Prevent accumulation of dust, dirt, debris, rubbish and waste materials on or within the Work or on the premises surrounding the Work.
- D. Waste Disposal:
 - 1. Dispose of all waste materials, surplus materials, debris and rubbish off the site.
 - 2. Do not burn or bury rubbish and waste materials on the site.
 - 3. Do not dispose of volatile or hazardous wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 4. Do not discharge wastes into streams or waterways.
- E. Cleaning Materials:
 - 1. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
 - 2. Use each type of cleaning material on only those surfaces recommended by the cleaning material manufacturer.
 - 3. Use only materials, which will not create hazards to health or property.

SECTION 01710 – CLEANING

F. During Construction:

1. Keep the Work and surrounding premises within work limits free of accumulations of dirt, dust, waste materials, debris and rubbish.
2. Keep dust generating areas wetted down.
3. Provide suitable containers for storage of waste materials, debris and rubbish until time of disposal.
4. Dispose of waste, debris and rubbish off site at legal disposal areas.

G. At Project Completion:

1. Remove and dispose of all excess or waste materials, debris, rubbish, and temporary facilities from the site, structures and all facilities.
2. Repair pavement, roads, sod, and all other areas affected by construction operations and restore them to original condition or to minimum condition specified.
3. Remove spatter, grease, stains, fingerprints, dirt, dust, labels, tags, packing materials and other foreign items or substances from interior and exterior surfaces, equipment, signs and lettering.
4. Repair, patch and touch up chipped, scratched, dented or otherwise marred surfaces to match specified finish.
5. Remove paint, clean and restore all equipment and material nameplates, labels and other identification markings.
6. Wash and shine mirrors, glazing and polished surfaces.
7. Clean all floors, slabs, pavements, and ground surfaces.
8. Maintain cleaning until acceptance of the Project by the Owner.

END OF SECTION

SECTION 02220 – SITE DEMOLITION

PART 1 - GENERAL

1.1 DEMOLITION

- A. Provide all demolition required to perform the work covered under this contract including without limitation:
1. Remove existing construction as shown or identified to be removed.
 2. Remove and reinstall existing construction and/or finishes as required to provide access to perform other work included in this contract.
 3. Include removal of mechanical and electrical work that is to be abandoned and is contained in construction to be removed whether or not the mechanical and electrical work is shown. Disconnect and cap off utilities in accordance with applicable codes and safety regulations.
 4. Where utilities that are not shown pass through construction that must be removed and those utilities serve other areas notify the OWNER's Representative before disrupting service. If rerouting is required to maintain service, the Owner may issue a Change Order to accomplish the required work.
 5. Store and protect items intended for reuse.
 6. Assume ownership of debris and unwanted materials, remove from the site, and dispose of legally.
 7. Include the cost of removing and disposing of hazardous material including without limitation asbestos or asbestos-containing material, lead-containing paint, and PCBs. If the presence of a hazardous material is suspected, have material tested. If material is identified as hazardous, retain qualified and licensed specialist to remove and dispose of it legally.

PART 2 – MATERIALS (NOT USED)

PART 3 - EXECUTION

3.1 REMOVAL OF LIMITED PORTIONS OF EXISTING CONSTRUCTION TO PERMIT MODIFICATIONS

- A. Provide careful, selective cutting and removal of existing construction as required to permit installation of the geomembrane liner and batten bars. Cut and remove the least amount of work possible except when a larger area needs to be removed to permit strengthening existing construction or when required to remove finishes to a natural break line such as a corner or change in material.

SECTION 02220 – SITE DEMOLITION

- B. Protect existing construction to remain with temporary coverings.
- C. When modifications are complete, replace removed work with existing work (or new construction if damaged) and finishes to match adjacent existing work. Standards of material and workmanship shall be in accordance with other portions of this Specification or if not covered then in accordance with current practice for this class of work. Salvaged materials may be used for replacement if in good condition.

3.2 REMOVAL OF EXISTING CONSTRUCTION TO PROVIDE ACCESS TO PERFORM WORK

- A. Provide careful selective cutting and removal of existing construction where required to permit installation of new concealed mechanical or electrical work, or installation of equipment, fixtures or devices.
- B. Treat existing mechanical, electrical or structural work as described in other parts of this Section.
- C. Replace and/or patch removed construction and finishes in accordance with other parts of this Section.

3.4 PROTECTION OF WORK TO REMAIN

- A. Protect all work to remain. Repair damage with materials, workmanship and finishes matching existing work when new.
- B. Most existing floor finishes will not be replaced in this contract. It is essential that these floors be protected from any damage due to impact, dirt, abrasion, paints and solvents.

3.5 REMOVAL AND DISPOSAL OF MATERIAL

- A. Use debris chutes with covered tops emptying into covered containers.
- B. Use rubber tired covered buggies with rubber bumpers to transport debris through occupied sections of buildings.
- C. Store debris in suitable covered containers located where directed by the Owner and remove from site when full. Burning on the site is not permitted.
- D. Removed material (other than the material to be reused) shall become the property of the Contractor who shall remove it from the site and dispose of it in a legal manner.

END OF SECTION

SECTION 02774 - GEOTEXTILES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This Section includes providing geotextiles as shown on the Drawings and specified in this Section.

1.02 REFERENCES

A. General

- 1. The publications listed below form a part of this Specification to the extent referenced.
- 2. Where a date is given for reference standards, the edition of that date shall be used. Where no date is given for reference standards, the latest edition available on the date of Notice Inviting Bids shall be used.

B. American Society for Testing and Materials (ASTM)

- 1. ASTM D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity
- 2. ASTM D4533, Standard Test Method for Trapezoidal Tearing Strength of Geotextiles
- 3. ASTM D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
- 4. ASTM D4833, Standard Test Method for Index Puncture of Geomembranes and Related Products
- 5. ASTM D5261, Standard Test Method for Measuring Mass Per Unit Area of Geotextiles
- 6. ASTM G53, Operating Light and Water Exposure Apparatus (Fluorescent UV- Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials

1.03 SUBMITTALS

- A. Submittals shall be made in accordance with Specification Section 01300, Record Drawings and Submittals, and the following special provisions provided herein.
- B. The Contractor shall submit the following items for review and approval:
 - 1. Geotextile manufacturer's product data sheets.
 - 2. Geotextile installation and weld seaming procedure.

SECTION 02774 - GEOTEXTILES

3. Geotextile manufacturer's quality assurance certified test reports to show compliance with the material requirements stated in this Section.
4. Samples:
 - a. Prior to ordering geotextile material, four 12-inch by 12-inch geotextile material samples.
 - b. Four 12-inch by 12-inch geotextile welded seam samples.

1.04 QUALITY ASSURANCE

- A. The materials supplied under these Specifications shall be first quality products designed and manufactured specifically for the purposes of this Work.
- B. Certified test report(s) by the manufacturer shall be submitted prior to installing the products.
- C. The Contractor shall be responsible for field handling, storing, deploying, seaming or connecting, temporary restraining against wind, and other site aspects of the geotextile material.
- D. The Contractor shall be trained and qualified to install geotextiles.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Delivery, storage, and handling shall be in accordance with the following special requirements:
 1. Geotextiles shall be supplied in rolls wrapped in impermeable and opaque protective covers. Geotextile rolls shall be marked or tagged with the following information:
 - a. Manufacturers name.
 - b. Product identification.
 - c. Lot number.
 - d. Roll number.
 - e. Roll dimensions.
 2. During shipment and storage, geotextile rolls shall be protected from ultraviolet light exposure, precipitation, or other inundation, mud, dirt, dust, puncture, cutting or any other damaging or deleterious condition.
 3. For long-term outdoor storage of geotextile rolls, the material shall be placed on pallets, or dunnage, off the ground and covered with a light-colored, heat reflective, opaque cover.

SECTION 02774 - GEOTEXTILES

PART 2 - PRODUCTS

2.01 NONWOVEN GEOTEXTILE

- A. The geotextile shall be nonwoven polypropylene filaments, formed into a stable network by needle punching. The geotextile shall be inert to commonly encountered chemicals and hydrocarbons and shall also be resistant to mildew, rot, ultraviolet light exposure, insects, and rodents.
- B. The geotextile shall be colored (not white) to avoid "snow blindness" of the installation and inspection personnel.
- C. The geotextile shall contain a UV inhibitor.
- D. The geotextile weight at specific locations and uses shall be as specified on the Drawings.
- E. The minimum average roll value (MARV), in the weakest principal direction, for properties of any individual roll tested from a particular shipment shall be equal to or in excess of the values listed below:

Property	Test Method	Value
Weight	ASTM D5261	12 oz/sq. yd.
Grab Tensile Strength	ASTM D4632	320 lbs.
Grab Tensile Elongation	ASTM D4632	50%
Puncture Strength	ASTM D4833	190 lbs.
Trapezoid Tear Strength	ASTM D4533	125 lbs.
Water Flow Rate	ASTM D4491	60 gpm/sq ft
UV Resistance	ASTM G53	70% strength retained @ 500 hours

MARV is based on typical values minus 2 standard deviations

- F. During manufacturing, the manufacturer shall test the geotextile material at a frequency of not less than every 50,000 sf of geotextile material produced. The manufacturer shall certify that the physical properties of the finished geotextile material meets or exceeds these project specifications and submit certified test reports to validate conformance.

SECTION 02774 - GEOTEXTILES

- G. Geotextile Manufacturers:
 - a. Agru America, Inc.
 - b. American Engineering Fabrics
 - c. GSE Lining Technology, Inc.
 - d. Propex Geotextile Systems
 - e. SKAPS Industries
 - f. TenCate Geosynthetics North America
 - g. US Fabrics, Inc.

PART 3 - EXECUTION

3.01 PROTECTION

- A. The Contractor shall take all necessary precautions to protect the existing liner from damage and existing soil subgrade from movement during geotextile installation.
- B. Damaged areas shall be repaired or removed and replaced at the Owner's direction.
- C. Under no circumstances shall the geotextile material be subjected to rough treatment or have sandbags, equipment, or other material dragged on geotextile material. Neither materials nor workers shall slide down slopes on top of the geotextile material.
- D. No wheeled vehicles will be permitted on the geotextile material. Miscellaneous equipment with pneumatic tires may be permitted with the Owner's prior written approval.

3.02 GEOTEXTILE INSTALLATION

- A. Prior to installation of the geotextile, the Contractor shall inspect the existing geomembrane liner the geotextile shall be placed upon. All foreign matter and protrusions which may damage the geotextile shall be removed. Existing geomembrane extrusion welds shall be inspected and all sharp points and edges shall be ground smooth.
- B. The Contractor shall handle all geotextile in such a manner to prevent damage and in accordance with the following minimum requirements:
 - 1. To protect against wind, all geotextiles shall be weighted with sandbags or the equivalent. Sandbags losing their contents shall be removed from

SECTION 02774 - GEOTEXTILES

construction area and replaced. Spillage shall be immediately cleaned up.

2. Care shall be taken to protect other geosynthetic materials from damage that could be caused by the cutting of the geotextile fabric.
3. Geotextile shall be deployed in a manner to avoid wrinkles. Any wrinkles shall be removed by repositioning the geotextile prior to anchoring or seaming adjacent edges.
4. Any cuts to the geotextile shall be made with a geotextile cutter and done in a manner to prevent damage to the adjacent geosynthetic materials.
5. An examination of the geotextile surface after installation shall be conducted to ensure that no potentially harmful foreign objects are present above or below the geotextile. Any foreign objects so encountered shall be removed by the Contractor.
6. Geotextile shall not be exposed to sunlight or ultra-violet rays prior to installation. Additionally, to minimize exposure at the site, the geotextile shall not be placed, and exposed to sunlight and ultra-violet rays for more than 7 calendar days in advance of the time it will be covered by the subsequent geomembrane liner material layer.

3.03 GEOTEXTILE SEAMING

- A. Geotextile shall be overlapped a minimum of 6 inches and heat welded 3 inch wide by continuous, unless otherwise shown on the Drawings.

3.04 GEOTEXTILE REPAIRS

- A. Holes or tears in the geotextile shall be repaired with a patch made from the same geotextile material, and shall be a minimum of 6 inches larger in all directions than the area to be repaired, and shall be continuously heat welded all around.
- B. Care shall be taken to remove any soil or other material that may have penetrated the torn geotextile.

END OF SECTION

SECTION 02774 - GEOTEXTILES

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SECTION 02776 - REINFORCED EIA GEOMEMBRANE LINER

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This Section includes providing materials and fabricated items for a new flexible, fabric, reinforced Ethylene Interpolymer Alloy (EIA) geomembrane liner and appurtenant Work as shown on the Drawings and specified in this Section.
- B. The term "geomembrane" stated in this Section shall be defined as a flexible, fabric reinforced EIA geomembrane, as specified herein.

1.02 REFERENCES

- A. General
 - 1. The publications and standards referenced herein form a part of the Specifications.
 - 2. Where a date is given for referenced standards, that edition shall be used. Where no date is given for referenced standards, the latest edition shall be used.
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM D413, Standard Test Methods for Rubber Property - Adhesion to Flexible Substrate
 - 2. ASTM D471, Test Method for Rubber Property - Effect of Liquids
 - 3. ASTM D696, Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer
 - 4. ASTM D751, Standard Test Methods for Coated Fabrics
 - 5. ASTM D1204, Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature
 - 6. ASTM D2136, Test Method for Coated Fabrics-Low-Temperature Bend Test
 - 7. ASTM D2240, Standard Test Method for Rubber Property – Durometer Hardness
 - 8. ASTM D3389, Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader)
 - 9. ASTM D4833, Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products

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10. ASTM G153, Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials
 - B. Federal Test Method Standards (FTMS)
 1. FTMS 101C, Method 2031, Federal Test Method Standard, Puncture Resistance and Elongation Test
 - C. International Code Council (ICC)
 1. International Fire Code (IFC), latest edition
 - D. NSF International (NSF)
 1. NSF Standard 61, Drinking Water System Components - Health Effects
- 1.03 SUBMITTALS
- A. Submittals shall be made in accordance with Specifications Section 01300, Record Drawings and Submittals, and the following special provisions provided herein.
 - B. The Contractor shall submit the following with their bid:
 1. Proposed reinforced EIA geomembrane manufacturer name and qualifications
 2. Proposed fabricator name and qualifications
 3. Installation contractor qualifications
 - C. Shop Drawings:
 1. The Contractor shall submit, for the Owner's approval, shop drawings showing the liner panel layout with proposed size, number, position, weight, and sequence of placing all factory fabricated panels; indicating the location and overlap of all field joints; and the direction of all factory joints on each panel. Panel size shall account for shrinkage, wrinkles, and waste.
 2. If the Contractor proposes alternate design details, seaming procedures or methods of construction which are different than those shown on the Drawings and stated in the Specifications, the Contractor shall submit complete shop drawings and other pertinent information to the Owner for approval. Such proposed alternates shall not be used unless approved in writing by the Owner prior to the Contractor starting that portion of Work.
 3. Approval of any alternate design, method, or procedure proposed by the Contractor may be granted only if, in the Owner's sole opinion, such proposal will produce an end result equal to or better than the design, method, or procedure shown in the Drawings and Specifications.
 4. The Contractor shall provide all additional details required but not provided in the Drawings or Specifications. Those details provided by the Contractor

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shall be subject to the review and approval of the Owner prior to commencement of Work.

D. Procedures:

1. Contractor's thermal seaming procedures including surface preparation, cleaning, prewelding procedures, and testing.
2. Contractor's extrusion welding procedures including surface preparation, cleaning, prewelding procedures, and testing.
3. Contractor's procedures for application of EIA sealant including surface preparation, cleaning, and application procedures.

E. Product Information:

1. Flexible, fabric reinforced EIA geomembrane liner material product data.
2. EIA extrusion weld rod material product data.
3. EIA sealant material product data and application recommendations.

F. Samples:

1. Prior to ordering flexible, fabric reinforced EIA geomembrane liner material, (4) 8-inch by 10-inch samples shall be submitted to the Owner for approval.

G. Material Safety Data Sheets (MSDS):

1. Material Safety Data Sheets for all cleaners, solvents, caulks, adhesives, and other chemicals proposed for use shall be submitted to the Owner for review.
2. A copy of all Material Safety Data Sheets shall be posted on the Contractor's job bulletin board at all times.

H. Material Warranty:

1. Prior to manufacturing flexible, fabric reinforced EIA geomembrane material, the Contractor shall submit a written material warranty from the manufacturer for the Owner's review and approval.
2. Material warranty shall be executed after the acceptance of Work and warranty documents fully executed.

I. Certified Testing Laboratories:

1. The name of Contractor's proposed independent testing laboratory shall be submitted to the Owner for approval a minimum of 10 work days prior to any material testing.
2. The laboratory shall be certified by the Geosynthetic Research Institute (GRI).

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J. Geomembrane Manufacturer's Quality Assurance Plan:

1. The Contractor shall submit the geomembrane manufacturer's quality assurance plan for the Owner's review and approval.
2. Geomembrane manufacturer's quality assurance plan shall state all tests to be performed, frequency of tests, number of coupons per test sample, minimum passing values, and include project specific blank forms which test data will be recorded.
3. Prior to the Contractor's submittal to the Owner, the Contractor shall have reviewed and approved the geomembrane manufacturer's quality assurance plan.
4. The geomembrane manufacturer's quality assurance plan shall be approved in writing by the Owner prior to manufacturing flexible, fabric reinforced EIA materials.

K. Geomembrane Fabricator's Quality Assurance Plan:

1. The Contractor shall submit the geomembrane fabricator's quality assurance plan for the Owner's review and approval.
2. The geomembrane fabricator's quality assurance plan shall state all tests to be performed, frequency of tests, number of coupons per test sample, minimum passing values, and include project specific blank forms which test data will be recorded.
3. Prior to the Contractor's submittal to the Owner, the Contractor shall have reviewed and approved the geomembrane fabricator's quality assurance plan.
4. The geomembrane fabricator's quality assurance plan shall be approved in writing by the Owner prior to fabricating the fabric-reinforced material into panels.

L. Installation Contractor's Quality Assurance Plan:

1. Prior to installing flexible, fabric reinforced EIA geomembrane materials, the Contractor shall submit a project-specific quality assurance plan covering installation for the Owner's review and approval.
2. Installation Contractor's quality assurance plan shall state all tests to be performed, frequency of tests, number of coupons per test sample, minimum passing values, and include project specific blank forms which test data will be recorded.
3. The Installation Contractor's quality assurance plan shall be approved in writing by the Owner prior to starting any on-site reinforced EIA geomembrane liner installation Work.
4. The Contractor shall submit the Quality Assurance Final Report at the completion of installation in accordance with the provisions in this Section.

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1.04 REGULATORY REQUIREMENTS

- A. The Contractor shall obtain permits and comply with all regulations from all regulatory agencies as required for the use of solvents, adhesives, and other chemicals.
- B. The Contractor shall ensure that their employees, subcontractors, and others exposed to solvents, adhesives, and other chemicals comply with limitations for exposure and handling in accordance with OSHA, and other regulatory agencies' regulations.

1.05 QUALIFICATIONS

- A. Specialty Installation Contractor:
 - 1. The Work shall be performed by a specialty installation contractor who has been regularly engaged in the installation of reinforced flexible geomembrane liners for a minimum period of 5 years immediately prior to the bid opening date and shall have installed not less than 1 million square feet of flexible, fabric reinforced geomembrane material. Other relevant experience may be considered, in which case the Owner's opinion as to the acceptability of all experience shall be final and conclusive.
 - 2. With their bid, the Contractor shall provide to the Construction Manager the Contractor's representative experience consisting of not less than five (5) projects of flexible reinforced geomembrane installation projects and indicating the project name, project description project address, contact person, and telephone number.
- B. Geomembrane Project Manager:
 - 1. The Contractor shall assign to the Project a project manager who has been regularly engaged in the installation of reinforced flexible geomembrane liners for a minimum period of 3 years immediately prior to the bid opening date and shall have installed not less than 1 million square feet of flexible, fabric reinforced geomembrane material.
- C. Geomembrane Superintendent:
 - 1. The Contractor shall assign, exclusively to the project, a superintendent who has served in a similar capacity for not less than 2 years immediately prior to the bid opening date and has not less than 1 million square feet of experience in the installation of flexible, fabric reinforced geomembrane liner material.
 - 2. The only experience of the superintendent that will be considered as qualifying is on projects where the superintendent was full time at the point of installation directly overseeing and supervising the labor and the Work. Time spent in a field office does not qualify.

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3. If the superintendent is deemed not qualified by the Owner, the Contractor shall not employ such superintendent on this Project. Any superintendent employed by the Contractor shall be discharged if his performance on the Work is determined by the Owner to be unsatisfactory.
4. Any superintendent substituted for a superintendent originally assigned by the Contractor shall meet the same minimum requirements specified herein.

D. Geomembrane Installation Quality Assurance Manager

1. The Contractor shall assign, exclusively to the Project, a geomembrane installation quality assurance manager who has served in a similar capacity on at least three prior flexible, fabric reinforced geomembrane liner installations involving a total of not less than 1 million square feet.

E. Geomembrane Fabricator

1. Individual sheets of flexible, fabric reinforced EIA geomembrane material shall be factory-fabricated into large panels by an experienced fabricator regularly engaged in fabricating flexible, fabric reinforced geomembrane panels for a minimum period of 5 years immediately prior to award of the Contract and fabricated not less than 1,000,000 square feet of flexible, fabric reinforced geomembrane prefabricated panels. Other experience relevant to fabrication which does not meet the above requirements may be considered. The Owner's opinion as to the acceptability of all experience shall be final and conclusive.
2. With their bid, the Contractor shall provide to the Owner the Geomembrane Fabricator's representative experience consisting of not less than five (5) projects of flexible, fabric reinforced geomembrane fabrication projects and indicating the project name, project description project address, contact person, and telephone number.

F. Flexible Fabric Reinforced EIA Geomembrane Material Manufacturer

1. Flexible, fabric reinforced EIA geomembrane materials shall be manufactured by an experienced firm regularly engaged in manufacturing flexible, fabric reinforced EIA geomembrane material sheeting for a minimum period of 2 years immediately prior to the award of the Contract and which has produced a minimum of 10,000,000 square feet of flexible, fabric reinforced EIA geomembrane materials.
2. With their bid, the Contractor shall provide to the Owner the Manufacturer's representative experience consisting of not less than five (5) projects of flexible, fabric reinforced EIA geomembrane projects and indicating the project name, project description project address, contact person, and telephone number.

G. The Owner reserves the right to verify all reference information provided.

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1.06 QUALITY ASSURANCE

A. Quality Assurance Plan:

1. The Contractor shall thoroughly review and comprehend the Project Drawings and Specifications prior to the development of the project specific Quality Assurance Plan. The Contractor's Quality Assurance Plan shall be in accordance with the Drawings and Specifications. Any deviations or conflicts with the Drawing or Specifications shall be clearly marked, immediately brought to the Owner's attention, and shall not be used without the Owner's prior written consent.
2. The Contractor's quality assurance plan shall state how the following items shall be accomplished and shall include sample forms to be used to document each quality assurance activity. The major headings and subheadings list those tasks, as a minimum, which shall be included in the Quality Assurance Plan. The Contractor shall include any additional pertinent information and topics.
3. Materials:
 - a. Monitor and document the unloading, handling, and on-site storage of fabricated panels and other materials.
 - b. Monitor material, process, and equipment certifications required by the Specifications to ensure their adequacy and timely submittal. The Owner shall be notified of any deviations.
 - c. Label, package and ship geomembrane test samples to the independent testing laboratory for Specifications compliance testing.
4. Deployment/Installation:
 - a. Evaluate and document the suitability of weather conditions to insure proper installation.
 - b. Monitor and document placement and condition of all geomembrane panels while being placed.
 - c. Monitor and document the proper installation of geomembrane panels in accordance with approved shop drawings.
 - d. Perform overall visual observations of entire geomembrane surface to locate and document all damage and defects.
 - e. Monitor and record the repair of all damage, defects, and all destructive testing.
5. Seaming:
 - a. Monitor and document trial seaming procedure and test results to evaluate seaming personnel and equipment.
 - b. Monitor and document seaming procedures.

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- c. Devise seam identification numbering system unique to each seam such that the seam location, seaming crew, equipment used, date, time, and weather conditions are properly documented.
 - d. Include a list of all equipment, with pertinent technical information, to be used for seaming.
 - e. Describe in detail each seaming procedure the Contractor proposes to use in executing the Work. Each seaming procedure shall be approved by the Owner prior to use. The seaming procedures shall include cleaning of geomembrane material to be seamed, cleaners/solvents, preheating, seaming temperatures, and seaming rate.
 - f. Indicate adverse weather or other conditions that could limit or halt seaming operations.
 - g. Describe measures to account for and compensate for temperature changes in ambient air or material that may affect seam quality.
 - h. Describe equipment calibration frequency and procedure.
6. Seam Testing Samples:
- a. Monitor and document nondestructive testing of seams.
 - b. Select locations for destructive seam samples, when selection is not made by the Owner.
 - c. Monitor and document the cutting of seam test samples and patching of test sample holes, if required.
 - d. Utilizing the test seam identification numbering system, document the location, seaming crew, equipment used, date, time, and weather conditions for each test sample.
 - e. Label, package, and ship test samples to independent testing laboratory for Specifications compliance testing.
 - f. Interpret all laboratory test results on material and seam compliance with Specifications.
 - g. Distribute (5) copies of the certified laboratory test results with interpretation to the Owner.
 - h. Monitor and document the repair of all rejected seams.
 - i. Monitor and document destructive and nondestructive testing of repaired seams.

B. Field Seaming Demonstration:

- 1. Following the submittal of the Quality Assurance Plan and prior to the Owner's approval, the Contractor shall conduct a field demonstration

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utilizing the seaming procedures, equipment usage, calibration procedures, and all other aspects of the proposed seaming methods.

2. The Contractor shall conduct on site seam strength tests in compliance with the requirements stated in this Section.
3. The Contractor shall provide seaming demonstration for each type of seaming method proposed (e.g., hot air, wedge welder, etc.).
4. At least (4) 10-foot long demonstration seams shall be made for each type of panel-to-panel seaming system proposed.
5. Each demonstration seam shall include a tee joint where three layers of material are bonded together.
6. Contractor shall provide onsite field testing of field seaming demonstration samples.
7. Samples may be taken from the demonstration seams and tested by the Owner.
8. Approval of the Quality Assurance Plan will be contingent upon the results of the demonstration test samples.

C. Pre-Deployment Seaming Training

1. Prior to starting geomembrane material deployment and field seaming the geomembrane material manufacturer shall conduct a material seaming training session for the deployment, cleaning and seaming of geomembrane materials.
2. The Contractor shall coordinate training date, time, and requirements with geomembrane material manufacturer. Training shall be conducted onsite with the Contractor's onsite material and equipment to be used for Project Work.
3. The Contractor shall notify the Owner not less than 1 week prior to establishing training date and time. The Owner shall have the opportunity to attend, observe and participate in the training.
4. Training attendees shall include all Contractor onsite personnel including, but not limited to, project manager, superintendent, quality assurance manager, foremen, apprentices, and laborers.
5. The purpose of the training is to review the proper installation techniques and minimum requirements recommended by the geomembrane material manufacturer. Training shall, at a minimum, shall include:
 - a. Geomembrane panel material deployment techniques.
 - b. Geomembrane material cleaning requirements.
 - c. Field seaming with wedge welders, hot air welders, and hand welding.

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- d. Reinforced and unreinforced cap strips application.
 - e. Field patching.
- D. Execution of the Quality Assurance Plan:
 - 1. Upon the Owner's written approval of the Contractor's Quality Assurance Plan, the Contractor shall implement and continuously monitor the Quality Assurance Plan, as described above, through an active and ongoing Quality Assurance Program.
 - 2. The Contractor's quality assurance manager shall report directly to off-site senior management, shall be completely independent from the on-site installation personnel, and shall have no production responsibilities that could infringe upon the proper execution of the Contractor's Quality Assurance.
 - 3. The Quality Assurance Program shall include, but not necessarily be limited to, the above specified items and the following items:
 - a. Review of all Drawings and Specifications for clarity, completeness, and to acquire a thorough knowledge of Project materials and construction procedure requirements.
 - b. Review, revise as deemed necessary, and approve the geomembrane manufacturer's quality assurance plan.
 - c. Review, revise as deemed necessary, and approve the geomembrane fabricator's quality assurance plan.
 - d. Continuous review and revision, as necessary, of the quality assurance plan for thoroughness, adequacy, and feasibility.
 - e. Use special project specific and task specific forms or logs for monitoring all activities involved with the Quality Assurance Plan. Project specific forms shall include the project name and minimum test values for each specific test (e.g., shear strength, peel strength, etc.).
 - f. Maintain logs summarizing all daily activities.
 - g. Interpret all laboratory test results on materials and seams for compliance with Specifications.
 - h. Distribute (5) copies of certified laboratory test results with interpretation to the Owner.

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- E. Quality Assurance Final Report: At the completion of the geomembrane installation and prior to final acceptance of all Work by the Owner, a final quality assurance report shall be submitted to the Owner. The Contractor shall submit to the Owner a draft report for review prior to the issuance of the final report. The Contractor shall positively address all of the Owner's comments prior to the issuance of the final report. The quality assurance report shall include, but not necessarily be limited to, the following items:
1. A brief description of the project, including the project name, type of facility, location, design engineer, material supplier(s), shop fabricator(s), subcontractors, and the Contractor's project manager and superintendent.
 2. Detailed description of geomembrane liner system, including, area, and geomembrane materials installed.
 3. Copy of liner Project Drawings with as-built mark ups.
 4. Record of daily activities, including all special problems and associated resolutions encountered during the Project.
 5. Copies of all field and laboratory, destructive and nondestructive test results, with interpretations.
 6. Copies of all standard forms and logs completed as part of the Quality Assurance Plan.
 7. Copy of approved shop drawings and Contractor provided details.
 8. Copy of quality assurance record drawings indicating panel numbers, seam identification numbers, seaming dates, location of defects, type of defect, repairs, repair dates, location of all samples.
 9. Statement from the Contractor certifying the geomembrane liner has been installed in accordance with Project Drawings and Specifications.
 10. The Contractor's, fabricator's, and manufacturer's approved quality assurance plans.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, storage, and handling shall be in accordance with the following special requirements:
1. Packing and Shipping:
 - a. Each factory-fabricated panel shall be individually packaged. Geomembrane liner panels shall be rolled onto pipes with an outside diameter not less than 6 inches and shall be rolled in a manner that keeps the material properly aligned. Each rolled panel shall be wrapped in cardboard, geotextile or other suitable material and enclosed in an opaque, light-reflective airtight bag to protect and prevent damage during shipment and storage. Each roll enclosure shall be prominently marked in the same fashion as the panel within.

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2. Storage and Protection:

- a. Packaged factory-fabricated geomembrane panel rolls shall be stored in their original unopened condition, on a flat and clean surface, in a dry free draining area, and protected from direct sunlight under an opaque, light colored heat-reflective cover.

1.08 PROJECT/SITE CONDITIONS

A. Safety Requirements

1. Construction personnel shall be trained in and be instructed on the use of barrier creams or gloves as necessary, for working with the solvents and cleaning agents. All used cloths impregnated with solvent shall be kept separately in metal containers with close-fitting lids suitable for use as necessary and in compliance with the requirements of the International Fire Code (IFC) and local Fire Marshal. Construction personnel at the site will not be permitted to have open flames within 50 feet of any open solvent container and will be required to wear and be trained in the use of appropriate approved breathing apparatus, where necessary.

1.09 GUARANTEE AND WARRANTY

- A. Prior to manufacturing the flexible, fabric reinforced EIA geomembrane material, the Contractor shall submit a written material warranty from the manufacturer for the Owner's review and approval.
- B. The flexible, fabric reinforced EIA geomembrane material shall be warranted in writing by the manufacturer against manufacturing defects or workmanship and against deterioration due to ozone, ultraviolet rays, or other than normal weather aging. Vandalism, acts of animals, and acts of God are excluded. The warranty shall be limited to the replacement of material only. Installation labor is not included in the material warranty.
- C. The flexible, fabric reinforced EIA geomembrane material warranty shall be for a total of 10 years. The warranty may be prorated on a constant and linear proration rate.
- D. The flexible, fabric reinforced EIA geomembrane material warranty period shall not commence until the material has been installed by the Contractor and accepted by the Owner.
- E. The flexible, fabric reinforced EIA geomembrane material manufacturer shall perform site inspections during the liner fabrication and on site installation to verify the geomembrane material has not been damaged as a result of the fabrication or installation and no part of the geomembrane material warranty has been voided.
- F. The Contractor shall warrant and guarantee that all Work shall be free of deficiencies and defects for a period of 2 years after the date of final acceptance of Work by the Owner.
- G. The warranties and guarantees specified herein are not the only ones involved in the Contract, and are in addition to those specified elsewhere in the Specifications.

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PART 2 - PRODUCTS

2.01 MATERIALS

A. Flexible, Fabric Reinforced EIA Geomembrane Liner:

1. The flexible, fabric reinforced EIA geomembrane liner material shall be manufactured from a composition of high quality ingredients and shall be an Ethylene Interpolymer Alloy (EIA) fabric reinforced material.
2. The Owner may, at its discretion, have a representative at the geomembrane manufacturer's facility during the production of the flexible, fabric reinforced EIA geomembrane material for the Project. The Contractor shall notify the Construction Manager no less than 2 weeks in advance of starting manufacturing so that shop inspection may be arranged.
3. The flexible, fabric reinforced EIA geomembrane material shall consist of thoroughly bonded, reinforced EIA sheeting. All geomembrane materials shall be uniform in color, thickness, size, and surface texture. The fabric shall be totally encapsulated. The flexible, fabric reinforced EIA geomembrane shall be a balanced sheet with the fabric approximately centered in the geomembrane. The material shall be a flexible, durable, watertight product free of pinholes, blisters, and contaminants and shall not delaminate in a water environment.
4. All flexible, fabric reinforced EIA geomembrane material and geomembrane liner accessories shall be provided from a single geomembrane manufacturer.
5. Unless otherwise indicated, all flexible, fabric reinforced EIA geomembrane material used in appurtenances shall be the same flexible, fabric reinforced EIA geomembrane material used for the geomembrane liner.
6. The finished color of the flexible, fabric reinforced EIA geomembrane material sheet shall be either white or tan top side / black bottom side. The color shall not vary between sheets.
7. The geomembrane material manufacturer shall certify in writing prior to manufacturing material that the flexible, fabric reinforced EIA geomembrane material has the following material property values:

Property	Test Method	Liner Material Test Value
Base Fabric Type		Polyester
Base Fabric Weight		3.0 oz./sq. yd.
Thickness (nominal)	ASTM D751	30 mils
Finished Coated Weight	ASTM D751	28.0 ± 2.0 oz./sq. yd.
Tear Strength (minimum)	ASTM D751 Trapezoidal Tear	30 lbs. / 30 lbs.

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Property	Test Method	Liner Material Test Value
Break Yield Strength (minimum)	ASTM D751 Grab Method	250 lbs. / 200 lbs.
Low Temperature Resistance	ASTM D2136 4 hrs., 1/8 in. mandrel,	Pass at -25°F
Dimensional Stability (maximum)	ASTM D1204 212°F, 1 hr., each direction	5%
Hydrostatic Resistance (minimum)	ASTM D751 Method A	300 psi
Blocking Resistance (maximum)	ASTM D751 180°F	#2 Rating
Adhesion – Ply (minimum)	ASTM D413 Type A	15 lbs./in. and film tear bond
Adhesion – Welded Seam (minimum)	ASTM D751	10 lbs./in.
Dead Load Seam Strength (minimum)	ASTM D751 4 hrs.	100 lbs./in. @ 70°F 50 lbs./in. @ 160°F
Bonded Seam Strength (minimum)	ASTM D751 Procedure A Grab Test	550 lbs.
Abrasion Resistance (minimum)	ASTM D3389 H-18 wheel, 1kg. load	2,000 cycles minimum before fabric exposure 50mg/100 cycles max. weight loss
Weathering Resistance (minimum)	ASTM G153	8,000 hrs. no appreciable change or stiffening or cracking of coating
Water Absorption (maximum)	ASTM D471 Section 12 7 days	0.025 kg/m ² at 70°F 0.14 kg/m ² at 212°F
Wicking (maximum)	ASTM D751	1/8 in.
Bursting Strength (minimum)	ASTM D751 Ball Tip	350 lbs.
Puncture Resistance (minimum)	ASTM D4833	50 lbs.
	FTMS 101C, Method 2031	205 lbs.
Coefficient of Thermal Expansion/Contraction (maximum)	ASTM D696	8x10 ⁻⁶ in/in/°F

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8. During manufacturing, the geomembrane material manufacturer shall test the geomembrane material at a frequency of not less than every 50,000 sf of geomembrane produced. The geomembrane manufacturer shall certify that the physical properties of the finished sheet meet or exceed the specifications and submit certified test reports to validate conformance.
9. Flexible, fabric reinforced EIA geomembrane material shall be:
 - a. 8228 XR-3, manufactured by Seaman Corporation
 - b. Coolguard MPK36, manufactured by Cooley Group
- B. Use of EIA: Unless otherwise indicated, all geomembrane liner material used in the liner and appurtenances shall be the same type of flexible, fabric reinforced EIA geomembrane material as that used for the liner geomembrane. Exposed surfaces or outside surfaces of liner appurtenances shall be same color as geomembrane liner material topside.
- C. Rope:
 1. Rope shall be 100% Dacron or 3 strand, twisted, polypropylene.
 2. Rope shall be suitable for marine use.
 3. Rope size shall be as shown on the Drawings.
- D. Rubber Gaskets:
 1. Rubber gaskets shall be black potable grade EPDM.
 2. Rubber gaskets shall have a durometer hardness of 35 ± 5 , as tested by the Type A durometer, in accordance with ASTM D2240.
- E. Sandbags:
 1. Sandbags shall contain a minimum of 40 pounds and a maximum of 60 pounds of sand. The sand gradation shall be 100% passing a No. 8 sieve.
 2. Double bags shall be utilized. Both bags shall be made of 6-mil minimum solid (non-woven) polyethylene with ultraviolet inhibitors (UVI) sufficient to guarantee a minimum life of 12 months. Each bag shall be tied off separately. Wire ties will be permitted on the inner bag. Twine or black nylon cable ties with a minimum tensile strength of 30 pounds, shall be used on the outer bag.
- F. Patches:
 1. Structural patches shall be the same flexible, fabric reinforced EIA geomembrane liner material.
 2. Non-structural patches shall be 40-mil unreinforced EIA geomembrane material manufactured from the same formulation as the flexible, fabric reinforced EIA geomembrane liner material.

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3. Color shall be same as the exposed surface of geomembrane liner material.

G. Cleaning Solvents:

1. Solvents for cleaning contact surfaces of factory and field joints and other surfaces shall be suitable for the intended use, subject to the approval of the Owner.
2. Solvents for cleaning contact surfaces of field joints and other surfaces shall satisfy the recommendations of the geomembrane material manufacturer, subject to the approval of the Owner.

H. Unreinforced Cap Strips

1. Unreinforced cap strips shall be size and thickness stated on the Drawings and shall be unreinforced EIA geomembrane material manufactured from the same formulation as the flexible, fabric reinforced EIA geomembrane liner material.
2. Color shall be same as the exposed surface of geomembrane liner material.

I. EIA Extrusion Weld Rods

1. EIA extrusion weld rod shall be the same formulation as the EIA geomembrane liner material.
2. EIA extrusion weld rod shall be the same color as the exposed surface of geomembrane liner material.
3. Extrusion weld rod material shall be produced by the same manufacturer as the geomembrane liner material.

J. EIA Sealant:

1. EIA sealant shall be the same formulation as the geomembrane liner material.
2. EIA sealant shall be the same color as the exposed surface of geomembrane liner material.
3. EIA sealant shall be shall be produced by the same manufacturer as the geomembrane liner material.

2.02 FABRICATION

A. Fabricators shall be one of the following:

1. Colorado Linings
2. EC Applications, Inc.
3. Field Lining Systems, Inc.

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4. Lange Containment Systems, Inc.
 5. Layfield Environmental Corporation
 6. Or approved equal
- B. The Owner may, at its discretion, have a representative at the geomembrane fabricator's facility during the fabrication of geomembrane panels and liner accessories. The Contractor shall notify the Owner no less than 14 days in advance of starting fabrication so that shop inspection may be arranged.
- C. The factory seams shall be machine-made with hot air welding, hot wedge welding, or RF welding techniques. The fabricator shall perform 100% continuous visual inspection of each linear foot of seam as it is produced.
- D. The surface of the welded areas must be dry and clean. Pressure must be applied to the full width of the seam on the top and bottom surface while the welded area is still in a melt-type condition. On a hot air welder, the bottom surface must be flat to insure that the entire seam is welded properly. Enough heat shall be applied in the hot air welding process that a visible bead is extruded from both edges being welded. The bead insures that the material is in a melt condition and a successful chemical bond between the two surfaces is accomplished.
- E. Liner factory seams shall be fully bonded on the top side so that no loose edge is present on the exposed, top side of the fabricated panel.
- F. All factory-fabricated panels shall be fabricated such that the materials are rolled. Accordion folded panels shall not be permitted. Roll widths shall be not less than 24 feet nominal width. "Wall papering" the installation with manufacturers roll stock material shall not be permitted.
- G. Factory-fabricated sections or panels shall be given prominent, unique indelible identifying markings in accordance with the approved panel layout drawing and shall indicate the proper direction for unrolling to facilitate their layout and positioning in the field.
- H. Horizontal factory-made and field-made seams will not be permitted on slopes, except for factory roll stock splices, which shall be offset by at least 5 feet from such splices in adjacent roll stock in the same panel. Rollstock splices will not be permitted on either outside edge of a geomembrane panel. Roll stock splices shall only be permitted in the center rolls of fabricated geomembrane panels.
- I. All factory seams shall be staggered as required to ensure that no more than 3 layers of geomembrane meet at a joint.
- J. Where 3 layers of flexible, fabric reinforced geomembrane material occur at a "T" joint (factory rollstock splices), care shall be taken to seal the small leak path that would otherwise occur along the edge of the middle layer. The area shall be solvent wiped, heated, sealed, and then covered with an unreinforced geomembrane cap strip, as shown on the Drawings.

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- K. Fishmouths, pleats, folds, wrinkles, and similar defects shall not be permitted in any seams.
- L. Treatment of exposed the fabric shall be as stated in Part 3 - Execution and as shown on the Drawings.
- M. The Contractor may have portions of the geomembrane liner and appurtenances fabricated in the factory. Factory seams for all such items shall comply with the requirements shown on the Drawings.
- N. Equipment Calibration:
 - 1. Seaming equipment shall be calibrated in accordance with the fabricator's quality assurance plan by testing trial seam samples, but shall not be less than at the beginning of each shift, every 4 hours, and at any significant environmental changes.
 - 2. Shop seam equipment calibration samples shall be collected and tested in accordance with the Quality Control provisions stated in Part 3 - Execution. Shop seam equipment calibration testing may be performed by in-house personnel. No shop seaming shall be performed until all equipment calibration test samples have been tested and passed. Contractor shall submit the equipment calibration test results to the Construction Manager as part of the final quality assurance report.
- O. All factory fabricated geomembrane panel seams shall be visually inspected for polymer extrusion verification (PEV) and probe and air lance tested in accordance with the Quality Control provisions stated in Part 3 - Execution.
- P. Factory fabricated seam samples shall be collected and tested in accordance with the Quality Control provisions stated in Part 3 - Execution. The Contractor shall have factory fabricated shop seams destructive testing performed by independent laboratory.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Protection:
 - 1. Under no circumstances shall the geomembrane liner be subjected to rough treatment or have sandbags, equipment, or other material dragged across its surface. Neither materials nor workers shall slide down slopes on top of the geomembrane liner.
 - 2. Scuffed surfaces resulting from abuse of any kind by the Contractor, the Owner personnel overseeing the work, or others, shall be repaired by the Contractor in accordance with the Specifications.

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3. All persons walking on the geomembrane liner material shall wear smooth rubber-soled shoes. Shoes with patterns in relief (like those popularly known as "sneakers") that could pick up rocks and debris will not be permitted.
4. The Contractor shall protect the new geomembrane liner by deploying a 24 ounce nonwoven geotextile temporary protection on top of the new geomembrane liner in all high foot traffic areas. This provision shall be included in the Contractor's Quality Assurance Plan. The location and extent shall be at the Owner's sole judgment. The temporary geotextile protection shall be removed at the completion of Work.
5. Scissors used in the Work shall have blades with rounded points. Knives used in the Work shall have hook blades. Marking pens or pencils used for identifying areas requiring work shall not contain wax, oil, or grease.
6. Tarpaulins of reinforced EIA material, about 10 feet by 10 feet in size, shall be spread out on the geomembrane liner material, as a work area for seaming, preparing patches, storing tools, supplies, or rags. Under no circumstances shall gasoline or diesel driven engines or cans of fuel be placed directly on the geomembrane liner or be stored within the basin overnight. Buckets containing solvent and cleaning agents for use by the seaming crew(s) shall be plastic, the exterior of which shall be clean and dry and shall not be stored within the basin overnight.
7. No wheeled vehicles will be permitted on the geomembrane liner. Miscellaneous equipment with pneumatic tires may be permitted, with the prior written approval from the Owner.
8. The Contractor shall place the reinforced EIA geomembrane liner over the geotextile, existing geomembrane liner, and earthen subgrade as shown on the Drawings.

B. Surface Preparation:

1. The cleaning of the underlying surface shall keep pace with the deployment of geomembrane liner materials. No geomembrane liner materials shall be deployed until the underlying surface has been cleaned and approved by the Owner for deployment. The underlying surface shall be cleaned and prepared no more than 1 day in advance of geomembrane liner material deployment. This timeframe may be shortened, as determined by the Owner, under less than ideal weather conditions.
2. Prior to the installation of geomembrane liner material, the Contractor shall inspect and clean the underlying surfaces. All foreign matter, debris, trash, rocks, and any other materials that may potentially damage the geomembrane liner shall be removed or treated.

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3. The Contractor shall conduct his Work to minimize the movement of fugitive dusts from the site boundaries by using suitable Reasonably Available Control Measures (RACM).

3.02 INSTALLATION

A. Application:

1. The Contractor shall identify and repair any damage or defects to geomembrane liner panels that occurred during shipping, unloading, storage, and installation.
2. Geomembrane liner panels shall be carefully placed on the slopes and bottom of the basin in accordance with approved shop drawings and with minimum handling.
3. During installation of the geomembrane liner, the Owner shall have complete authority to order an immediate stoppage of the Work due to inclement weather, the use of improper installation procedures, or for any reason, which in his absolute discretion, may result in a defective geomembrane liner.
4. Only those panels of geomembrane liner material that can be anchored, sealed, and seamed together in the same day shall be unpackaged and placed in position.
5. Geomembrane liner panels shall be deployed in sufficient time to allow panels to shrink, as a result of panel stretch during the manufacturing and/or fabrication process, prior to field seaming. The Contractor shall account for the panel stretch during the manufacturing process and incidental wrinkles in the field when ordering panel lengths.
6. Bridging of geomembrane liner materials shall not be permitted. The geomembrane liner materials shall be continuously supported and in direct contact with the underlying layers. The Contractor shall provide adequate temporary ballast at the top of slope and bottom of slope to prevent bridging. Temporary ballast at top of slope shall remain in place until bent plate installation is completed. Temporary ballast at bottom of slope shall remain in place until all field seaming is completed.
7. Prior to punching holes in an individual geomembrane liner panel to attach it to the anchor studs and prior to seaming it to previously installed adjacent panels, the Contractor shall straighten the geomembrane liner panel being installed. If seaming equipment lifts the geomembrane liner material off the substrate and leaves slack material along the seam, wherever possible the wrinkle so formed shall also be pulled out before the material is punched for anchor studs or seamed to adjacent geomembrane liner panels. The geomembrane liner final position shall lay flat and in a relaxed condition. Geomembrane liner shall not be taut or stressed condition.

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B. Temporary Anchorage:

1. Sandbags shall be used as required to hold the geomembrane liner material in position during installation of the geomembrane liner and to protect it from damage, displacement due to wind, bridging, and down slope creep.
2. Adequate sandbags shall be used at the top of slope to prevent geomembrane liner panels from down slope movement after the geomembrane liner panel has been placed on studs and prior to batten bar attachment.
3. During any discontinuity of the Work exceeding one hour in length, the leading (unseamed) edges of all geomembrane liner panels or sheets shall be secured with sandbags at not more than 3-feet on center. The Contractor shall be responsible for maintaining closer spacing as required to protect the Work during all weather conditions.
4. All sandbags placed on side slopes shall be tied off and secured to insure against their shifting or sliding down the slope.
5. Bags that are split, torn, or otherwise losing their contents shall be immediately removed from the basin area and any spillage immediately cleaned up.

C. Heat Seaming:

1. Machine-made heat seams shall be used on all field seams wherever practical.
2. Heat seams shall be made using hot air or hot wedge welding equipment. All machine heat seaming equipment shall be equipped with gauges which monitor speed and temperature. Gauges shall be provided at electrical power source to monitor voltage and amperage.
3. Contractor shall provide a minimum of one spare wedge welder for every two wedge welders on site for production work.
4. Hand-held heat seaming equipment may be used where machine-made heat seams are not practical and for miscellaneous seaming, as approved by the Owner.
5. Heat seaming shall comply with the Contractor's approved Quality Assurance Plan.
6. Contact surfaces of geomembrane liner material to be seamed shall be wiped clean with a cloth until all foreign matter, dust, and dirt has been removed. Only clean, white, lint-free, cotton cloths shall be used in the Work. Cleaning of contact surfaces shall not be completed more than 10 minutes ahead of seaming. When conditions are adverse to proper workmanship, such as high heat or winds, or when other conditions

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increase the probability of dirt or other foreign material being deposited on the contact surfaces, the time between cleaning and seaming shall be reduced as necessary to produce acceptable seams.

7. The Contractor shall follow immediately behind the heat seaming equipment, while the material is still hot from the initial seam, bonding the top edge of the seam. The top edge of the seam shall be "stitched" by manually rolling the seam area with firm pressure with a 2-inch wide roller.
8. In the event geomembrane liner material has been laid out and not seamed for a period of 3 days or more, the contact surfaces shall be solvent scoured and buffed to ensure a positive bond at the seam. The scouring procedure shall consist of hand buffing the contact surfaces with stainless steel scouring pads soaked in solvent to effectively penetrate and remove the oxidation layer. This scouring procedure shall be applicable to all panel-to-panel seams, patches, and seams for attachment of accessories.

D. Joinings:

1. Geomembrane liner panels to be joined in the field shall be lapped as shown on the Drawings. After the initial seal of the lap joint has been made, all exposed free edges of the geomembrane liner material shall be resealed, using the same procedure, to eliminate all free edges. The top edge of all seams shall be fully bonded. Loose edges will not be allowed on the top side of the geomembrane liner.
2. Butt joints shall be used only where lap joints are not possible and as approved by the Owner. Butt joints shall be formed using joint cover strips made from the same flexible, fabric reinforced EIA geomembrane liner material, continuous in length, and as shown on the Drawings. The joint cover strip shall be centered over the butt joint and shall be fully bonded across its entire width. Butt joints shall be installed in accordance with the same procedures for lap joints specified herein.
3. All field seams and factory seams shall be staggered a minimum of 12 inches to ensure that no more than 3 layers of material meet at a joint.
4. Where 3 layers of liner material occur at a "T" joint (field seams, factory seams, and rollstock splices), care shall be taken to seal the small leak path that would otherwise occur along the edge of the middle layer. The area shall be solvent wiped heated, sealed, and covered with an unreinforced cap strip, as shown on the Drawings.
5. Except where specifically stated, all field seams shall be covered with a fully bonded 40-mil unreinforced EIA cap strip, as shown on the Drawings. The cap strip shall be fully bonded and centered on edge of the top geomembrane liner panel edge.

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6. Care shall be taken to avoid fishmouths, wrinkles, pleats, folds, and tucks in seams. Any such defects shall be prevented by tugging on the seam just completed in the opposite direction from which the seam is progressing, during the seaming process. The Contractor's seaming crew shall give continuous attention to the elimination of all such defects to prevent their occurrence. Regardless of the location or cause of such defects, they shall be slit out far enough from the seam to dissipate the defect. The slit edges shall then be lapped and field seamed. Wherever the lap width is less than 4 inches, the defect shall be repaired with a joint cover strip made from the same geomembrane liner material.
7. Field seams shall not be made if the ambient temperature or humidity would result in inferior seams.

E. Anchorage:

1. The geomembrane liner material shall be anchored at the top of slope and underwater concrete structures as shown on the Drawings.
2. The geomembrane liner material at the top of slope shall be installed on the anchor studs by either of the following methods:
 - a. Anchor bolt holes shall be neatly punched using a tool that removes the material to form a neat hole the same diameter or 1/8-inch less in diameter than the penetrating stud diameter. The geomembrane liner material shall be forced over the stud in such a manner to prevent damage to the liner material or the stud.
 - b. The solid geomembrane liner material may be forced onto the anchor studs using a pipe section with an inside diameter slightly larger than the anchor stud diameter (3/8-inch, schedule 40 pipe for 3/8-inch anchor studs), thus punching the geomembrane liner material around the anchor stud. This method will result in no removal of geomembrane liner material at the anchor bolts. Precutting or slicing the geomembrane liner material prior to attachment onto anchor studs shall not be permitted.
3. At underwater structures and other underwater attachments, anchor bolt holes in the geomembrane liner attachment strip material for attachment to underwater anchor studs shall be neatly punched using a tool that removes the material to form a neat hole 1/8-inch less in diameter than the penetrating stud diameter. The geomembrane liner material shall be forced over the stud in such a manner to prevent damage to the geomembrane liner material or the stud.
4. Oversized, cut, or irregular shaped holes shall not be permitted.
5. Anchor bolt holes created by any other means shall not be accepted, unless specifically approved by the Owner.

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6. Seams in the liner attachment strip underneath the flat bar at underwater seals to structures shall be minimized to the maximum extent possible. Seams shall be butt joints with joint cover strips and with no gaps, as shown on the Drawings. Lap seams at underwater seals to structures shall not be permitted under the batten bar. Joints in liner attachment strip shall be butt joints with joint cover strip as shown on the Drawings.

F. Anchor Studs:

1. All holes for studs to be set with concrete adhesive anchors shall be drilled normal to the concrete surface and shall be accurately spaced to the dimensions shown on the Drawings. The Contractor shall use jigs and templates as required to ensure that drilling meets these standards and shall submit drawings of all jigs and templates for the Owner's written approval.
2. Studs that lean as a result of holes that were not drilled normal to the concrete surface shall not be bent straight or tapped with a hammer to reposition them. Studs that were initially set correctly and which were subsequently bent may be repositioned.
3. Leaning studs and studs that were improperly spaced, so as not to accommodate the anchor bar, shall be removed and replaced.

G. Rubber Gaskets:

1. Rubber gaskets shall be installed at all underwater seals, as shown on the Drawings.
2. Holes in the rubber gaskets shall be neatly punched using a tool that removes the material to form a neat hole 1/8-inch less in diameter than the penetrating stud diameter.
3. Oversized or irregular shaped holes shall not be permitted.
4. Rubber gaskets shall provide continuous bearing along the entire length of the flat bar. All splices in the rubber gasket shall be butt joints with no gap between the butt joint ends of the rubber gasket. Spliced ends of the rubber gasket shall not overlap.

3.03 REPAIRS

- A. All punctures, cuts, tears, abrasions, and similar damage or abuse to the geomembrane liner material shall be repaired to the satisfaction of the Owner and at no additional cost.
- B. All repairs shall be considered either structural or non-structural.
 1. Non-structural repairs shall be defined as pinholes and abrasions where the fabric reinforcement is intact.

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2. Structural repairs shall be defined as all other defects.
- C. Patches shall be cut from flat, unwrinkled material free of defects, field seams, and factory seams.
- D. Patches shall be of sufficient size to extend a minimum of 4 inches in all directions beyond the limits of any puncture, pinhole, cut, tear, abrasion, fishmouth, pleat, fold, tuck or any other defect.
- E. All patches shall be neat in appearance with corners rounded to a minimum 1-inch radius.
- F. Patches shall be applied as specified previously for heat seaming. The parent material shall be carefully pulled and held flat in the area to be patched as to provide an acceptable surface to receive the patch. Both the geomembrane liner surface and patch material surface shall be solvent scoured and buffed to ensure a positive bond at the seam. The scouring procedure shall consist of hand buffing the contact surfaces with stainless steel scouring pads soaked in solvent to effectively penetrate and remove the oxidation layer.
- G. All patches shall be fully bonded across their entire width.

3.04 QUALITY ASSURANCE / QUALITY CONTROL

- A. The Contractor's Quality Assurance / Quality Control testing shall keep pace with the deployment and seaming operations to identify all problems at the earliest possible point in time.
- B. Equipment Calibration
 1. The seaming equipment shall be calibrated by testing trial seam samples in accordance with the Contractor's quality assurance plan; but shall not be less than at the beginning of each shift, every 4 hours, and any significant environmental changes.
 2. Seam samples shall be collected and tested in accordance with the provisions stated herein (peel strength and shear strength). The field seam calibration verification testing may be performed by on-site personnel. The Contractor shall submit the daily calibration test results to the Owner as part of the final quality assurance report.
 3. The testing equipment shall be calibrated at least once every 12 months by an independent testing agency certified to conduct such calibration and a label attesting to such calibration shall be affixed to the testing equipment.
 4. No daily field seaming shall be performed until all the calibration samples have been tested and passed.

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C. Seam Testing:

1. The Contractor shall have tests performed, at Contractor's expense, by a GRI-certified testing laboratory.
2. All testing shall be performed to ensure that all shop seams and field seams meet the requirements stated herein.
3. Peel Strength Test:
 - a. Factory and field test samples shall be tested for peel strength in accordance with the requirements of ASTM D751, Type A.
 - b. A minimum of 5 test specimens shall be tested from each test sample.
 - c. A seam shall be deemed acceptable if all the specimens from each test seam sample location satisfy all of the following requirements:
 - 1) Value equal to or greater than 21 pounds per inch seam width, and
 - 2) Failure by delamination from the fabric rather than in the plane of the seam.
4. Bonded Seam Shear Strength Test:
 - a. Specimens from factory or field seam test sample shall be 4 inches wide, with a length equal to the specified seam width plus 9 inches.
 - b. Factory and field test samples shall be tested in accordance with the requirements of ASTM D751, Procedure A, Grab Test Method.
 - c. A minimum of 5 test specimens shall be shall be tested from each test sample.
 - d. A seam shall be deemed acceptable if all the specimens from each test seam sample location have a test value equal to or greater than 90% of the parent material tensile strength.
5. Test results not meeting the above requirements shall be cause for rejection of the seam from which the test sample was taken.

D. Test Samples:

1. Samples of factory and field seams shall measure not less than 14 inches wide by 48 inches long with the seam parallel to the long side, and down the middle of the sample.
2. A minimum of 5 test specimens shall be taken from each test sample for each of the above tests.
3. All test samples shall be provided by the Contractor at the Contractor's expense.

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4. Field and factory seam samples shall be numbered, dated, and identified as to the personnel making the seam from which the sample is taken, the seaming method being used, and the temperature and weather conditions at the time of seaming. Each test sample shall be keyed to its general location on the seam from which it is taken by appropriate notes or markings on a drawing, furnished by the Contractor, for future reference.

E. Testing of Factory Seams During Fabrication

1. The Contractor shall have the Fabricator provide and destruct seam test samples of factory-fabricated shop seams taken from the fabricated geomembrane panels at the factory.
2. Factory fabricated destruct seam samples shall be tested by a GRI-accredited independent laboratory.
3. One test destruct seam sample per 5,000 linear feet of rollstock-to-rollstock shop seams, or one test sample per panel, whichever yields the greater number of samples, is required. Each destruct seam sample shall be tested for the above tests (peel strength and shear strength).
4. The certified test results from each destruct seam sample shall be submitted to the Owner for review and approval prior to installation of panels represented by that sample.
5. Patching of sampled destruct seam seams may be done in the field after installation of the affected panel, at the Contractor's option.

F. Testing of Field Seams During Field Installation:

1. The Contractor shall test destruct seam samples of field seams taken from installed fabricated panels.
2. Factory fabricated destruct seam samples shall be tested by a GRI-accredited independent laboratory.
3. One test destruct seam sample per 500 feet of panel-to-panel field seam shall be tested for the above tests (peel strength and shear strength).
4. If any test results are not satisfactory, the Owner, at their discretion, may require that additional sampling and testing be done at the Contractor's expense.

G. In addition to all sampling and testing described above, the Owner may, at their discretion, require the Contractor to provide the Owner with additional samples of any field or factory seam, for testing by the Owner, at the Owner's expense.

H. The testing laboratory and the Contractor shall certify all test results. The Contractor shall submit copies of the certifications and test results to the Owner.

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I. Polymer Extrusion Verification (PEV)

1. EIA geomembrane welds require sufficient pressure so molten polymer is extruded from the edge of weld.
2. All factory welds and field welds shall be visually inspected for the presence of polymer extrusion along the entire weld length.

J. Probe and Air-Lance Testing:

1. Prior to performing air lance testing, the Contractor shall check all factory seams, field seams, cap strips, and patches with a metal probe (such as a wire 1/16-inch maximum diameter with the point slightly rounded).
2. All factory seams, field seams, cap strips, and patches shall be air-lance tested. Air-lance tests shall be performed in the field by the Contractor in the presence of the Owner during daylight hours. Leak paths or suspect areas revealed by these inspections shall be marked and repaired.
3. The air-lance shall have a 1/8-inch diameter orifice. Pressure at the orifice shall be between 60 and 80 psi. The jet of air shall be directed perpendicular to the edge of seams and patches to effect the lifting of unbonded edges. The air-lance testing shall be done in a manner so as to allow the Contractor's Quality Assurance/Quality Control personnel sufficient time to observe and document any leaks or suspect areas. All defects found during probing shall not be repaired until the defect is tested by air-lance.
4. Field probing and air-lance tests of all factory seams shall be required, even if those seams have been previously air-lance tested in the factory.
5. Field probing and air-lance tests shall be performed on all field seams prior to installation of unreinforced cap strip, and performed again on cap strip after unreinforced cap strip installation.

K. Vacuum Testing:

1. The Contractor shall perform field vacuum tests on all field seam cap strips, all field and factory T-seam cap strips, all repairs, and all patches.
2. Vacuum test shall be performed after field probe and air lance testing has been completed and after all cap strips and patches have been applied.
3. The vacuum box apparatus shall be a rigid housing with a transparent window on top to allow observance of the seam while under test. The seal to the liner shall be a gasket-type seal capable of forming a tight seal without leaks under the required test pressure.
4. A soap solution shall be applied to the tested area prior to the placement of the vacuum box apparatus.

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5. The vacuum box equipment shall be capable of holding a vacuum pressure of not less than 4 psi without any time limitations.
6. The vacuum box shall maintain a vacuum over the seam portion being tested for a minimum of 10 seconds, during which time the seam shall be examined for the formation of bubbles, which is indicative of a leak.
7. Vacuum testing shall be performed by the Contractor in the presence of the Owner during daylight hours.

3.05 CLEANUP

- A. Cleanup within the basin shall be an ongoing responsibility of the Contractor throughout the course of the Work. Care shall be taken to insure that no dirt, scrap material, trash, tools, or other unwanted materials are trapped beneath the geomembrane liner material.

END OF SECTION

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SECTION 03250 - CONCRETE ANCHORS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes providing concrete anchors as shown on the Drawings and specified in this Section.

1.02 REFERENCES

- A. The publications and standards referenced herein form a part of this Specification.
- B. Where a date is given for reference standards, that edition shall be used. Where no date is given for reference standards, the latest edition shall be used.
- C. General
 - 1. The publications listed below form a part of this specification to the extent referenced.
 - 2. Where a date is given for reference standards, the edition of that date shall be used. Where no date is given for reference standards, the latest edition available on the date of Notice Inviting Bids shall be used.
- D. American Concrete Institute (ACI)
 - 1. ACI 318, Building Code Requirements for Structural Concrete and Commentary
 - 2. ACI 355.2, Qualification of Post-Installed Mechanical Anchors in Concrete and Commentary
- E. American Society for Testing and Materials (ASTM)
 - 1. ASTM A193, Standard Specification for Alloy-Steel and Stainless Steel Bolting for High-Temperature or High Pressure Service and Other Special Purpose Applications
 - 2. ASTM A194, Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both
 - 3. ASTM A240 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
 - 4. ASTM F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
 - 5. ASTM F594, Standard Specification for Stainless Steel Nuts

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- F. American National Standards Institute/NSF International (ANSI/NSF)
 - 1. ANSI/NSF 61, Drinking Water System Components - Health Effect
- G. International Code Council (ICC)
 - 1. Evaluation Services (ICC-ES)
 - 2. International Building Code (IBC), latest edition
 - 3. International Fire Code (IFC), latest edition

1.03 SUBMITTALS

- A. Submittals shall be made in accordance with the Specifications Section 01300, Record Drawings and Submittals, and the following special provisions provided herein.
- B. The Contractor shall submit Material Safety Data Sheets (MSDS) for each proposed product.
- C. Manufacturer's Instructions: Manufacturer's printed instructions for shipping, storing, mixing and application of the adhesive shall be submitted prior to delivery of the product.
- D. Installation Instructions: Manufacturer's printed instructions for all phases of installation including hole size, preparation, placement, and procedures. Specific instruction for safe handling and installation of all concrete anchors.
- E. Certification of special inspector(s) proposed for concrete anchors, where required by ICC Evaluation Report.

1.04 QUALITY ASSURANCE

- A. Manufacturer's Service for Adhesive Anchors:
 - 1. The concrete anchor manufacturer shall provide jobsite training of Contractor's personnel for safe and proper installation, handling, and storage of adhesive system.
 - 2. Training shall be at the Contractor's expense. The Contractor shall coordinate training with concrete anchor manufacturer, and the Owner shall be notified of training schedule and sessions.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Materials shall be delivered in sealed containers with labels legible and intact. Each container shall be clearly marked with the following information:
 - 1. Name of manufacturer
 - 2. Manufacturer's product identification

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3. Manufacturer's instructions for mixing, installation, and application
 4. Warning for handling and toxicity
 5. Manufacturer's batch numbers
- B. Materials shall be stored at temperatures between 40°F and 100°F, unless specifically stipulated otherwise by the manufacturer.
 - C. Materials shall be handled safely and in a manner that will avoid breaking container seals.
 - D. The Contractor shall heed the manufacturer's label warnings.
 - E. The Contractor shall store adhesive components as recommended by the manufacturer; and shall store and handle adhesive components in accordance with the requirements of the International Fire Code (IFC), local Fire Marshal and all health, safety, environmental, and local regulations.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Stainless steel studs, bolts, nuts, and washers shall be stamped indicating the type of stainless steel.
- B. Concrete anchors shall be Type 304 or 316 stainless steel, unless noted otherwise on the Drawings.

2.02 CONCRETE ADHESIVE ANCHORS

- A. Concrete adhesive anchors shall be Type 304 or 316 stainless steel studs, bolts, nuts, and washers.
- B. Adhesive for anchorage and doweling in hardened concrete shall be 2-component, insensitive to moisture, and be designed for installation in adverse environments.
- C. Adhesive anchors shall be pre-proportioned adhesive system or an adhesive capsule system.
- D. Stainless steel studs shall conform to ASTM A193, Grade B8MA or B8MNA Type 304 or 316 or ASTM F593, Condition CW Type 304 or 316.
- E. Stainless steel nuts shall conform to ASTM A194, Type 304 or 316 or ASTM F594, Type 304 or 316.
- F. Stainless steel washers shall conform to ASTM A240, Type A Plain, Type 304 or 316 stainless steel.

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- G. Studs, nuts, and washers shall be Type 316 stainless steel and shall be free of grease, oil, or other deleterious material.
- H. Threaded rod shall be continuously threaded, straight, and free of defects along the length. Stud end shall be stamped with stainless steel identifying mark. Stud embedded end may be blunt cut or cut to 45° chisel point.
- I. The cure temperature, pot life, and workability of adhesive shall be compatible for intended use and anticipated environmental conditions.
- J. Acceptable Products:
 - 1. Hilti, Inc. HIT HY-200 Adhesive Anchors,
 - 2. Or approved equal.

2.03 ANTI GALLING COMPOUND

- A. All threaded portions of stainless steel bolts, studs, and cap screws shall be coated with an NSF 61 certified thread lubricant anti galling compound.
- B. Acceptable Products:
 - 1. Laco, Slic-Tite;
 - 2. Hercules, Real-Tuff;
 - 3. Or approve equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Dispensing, Metering, or Mixing Adhesive Components: The Contractor shall use portable, automatic metering and mixing device or machine capable of maintaining prescribed mix ratio within deviation of 5% or less, by volume. Dispensing equipment shall be as recommended by the manufacturer and approved by the Owner.
- B. The Contractor shall install anchors in accordance with the manufacturer's printed recommendations.
- C. The Contractor shall dispense components through a specially designed static mixing nozzle that thoroughly mixes components and places mixed components at base of predrilled hole.
- D. Mixing nozzles shall have non-removable internal static mixer required to ensure proper blending of components.

SECTION 03250 - CONCRETE ANCHORS

3.02 PREPARATION OF CONCRETE SURFACES

- A. Concrete surfaces shall be prepared in accordance with the manufacturer's instructions and requirements of the applicable ICC Evaluation Report.
- B. Holes for all studs shall be accurately located and drilled by using templates and drilling jigs.
- C. Drilling Equipment:
 - 1. Drilling hammers for holes shall be electric or pneumatic rotary type with medium or light impact.
 - 2. The Contractor shall use drill bit diameter in accordance with the manufacturer's instructions and the applicable ICC Evaluation Report.
 - 3. Hollow drills shall be provided with flushing air systems.
 - 4. Where edge distances are less than 2 inches, the Contractor shall use lighter impact equipment to prevent micro cracking and concrete spalling during drilling process.
 - 5. Obstructions in Drill Path:
 - a. When existing reinforcing steel is encountered during drilling and when approved by the Owner, the Contractor shall enlarge the hole by 1/8-inch, core through the existing reinforcing steel at the larger diameter, and resume drilling at original hole diameter.
 - b. Misdrilled holes shall be filled with adhesive, as specified in this Section, so as not to entrap or create air pockets.
 - 6. Holes shall be made free of dust and loose materials by the use of moisture free and clean compressed air or other acceptable and approved means.
 - 7. Concrete anchor embedment depth and spacing shall be as shown on the Drawings.

3.03 INSTALLATION

- A. Concrete anchors shall be installed in accordance with the manufacturer's printed recommendations and the requirements of the applicable ICC Evaluation Report. Manufacturer's recommended drills and equipment shall be used. Hole diameter is critical to installation; only drills recommended by the anchor manufacturer shall be used.
- B. Anchor shall be dry and grease-free.
- C. Turn and agitate anchor immediately following placement to ensure the absence of voids and to ensure that adhesive makes contact with all surfaces.

SECTION 03250 - CONCRETE ANCHORS

- D. An anchor shall not be installed closer than 6 times its diameter to either an edge of concrete or 12 times its diameter to another anchor, unless specifically shown on the Drawings.
- E. Adhesive anchoring system shall not be used when temperature of concrete is outside the ranges recommended by the manufacturer.
- F. Specific manufacturer-safe handling practices shall be followed when handling and/or installing all concrete anchors.
- G. Concrete shall be dry at the time of adhesive anchor placement.
- H. After anchor stud installation and prior to assembly, all threaded portions of stainless steel bolts, studs, and cap screws shall be coated with a thread lubricant
- I. Concrete adhesive anchors installation torque shall be in accordance with the provisions stated on the Drawings. In no case shall the torque exceed the manufacturer's installation recommendations.

3.04 CURING

- A. Adhesive materials shall be protected from temperature extremes in accordance with the applicable ICC Evaluation Report.
- B. The temperature of the base materials shall not exceed the range permitted in the applicable ICC Evaluation Report.

3.05 FIELD QUALITY CONTROL

- A. The Contractor shall engage the services of a testing agency to provide special inspection services when required by applicable ICC Evaluation Report. Special inspection personnel shall be certified for the specific application. Special inspection personnel shall be an independent commercial testing firm approved by the Owner.
- B. The Contractor shall request Owner inspection of holes and preparation prior to installation of concrete anchors.

3.06 CLEANUP

- A. Concrete surfaces beyond the limits of the adhesive shall be protected against spillage.
- B. Adhesive applied or spilled beyond desired areas shall be immediately removed. Cleanup shall be performed with material designated by the adhesive manufacturer.

END OF SECTION

SECTION 05500 - MISCELLANEOUS METALS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This Section includes providing miscellaneous metal work as indicated in the Contract Documents and specified in this Section.

1.02 REFERENCES

- A. General

- 1. The publications listed below form a part of this specification to the extent referenced.
- 2. Where a date is given for reference standards, the edition of that date shall be used. Where no date is given for reference standards, the latest edition available on the date of Notice Inviting Bids shall be used.

- B. American Society for Testing and Materials (ASTM)

- 1. ASTM A36, Standard Specification for Carbon Structural Steel
- 2. ASTM A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
- 3. ASTM A108, Standard Specification for Steel Bars, Carbon and Alloy, Cold-Finished.
- 4. ASTM A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- 5. ASTM A143, Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement
- 6. ASTM A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- 7. ASTM A193, Standard Specification for Alloy-Steel and Stainless Steel Bolting for High-Temperature or High Pressure Service and Other Special Purpose Applications
- 8. ASTM A194, Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both
- 9. ASTM A240, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

SECTION 05500 - MISCELLANEOUS METALS

10. ASTM A276, Standard Specification for Stainless Steel Bars and Shapes
 11. ASTM A283, Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
 12. ASTM A307, Standard Specifications for Carbon Steel Bolts and Studs (60,000 psi Tensile Strength)
 13. ASTM A312, Standard Specification for Seamless Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
 14. ASTM A380, Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems
 15. ASTM A384, Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies
 16. ASTM A500, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
 17. ASTM A554, Standard Specification for Welded Stainless Steel Mechanical Tubing
 18. ASTM A563, Standard Specification for Carbon and Alloy Steel Nuts
 19. ASTM A564, Standard Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes
 20. ASTM A780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
 21. ASTM A992, Standard Specification for Structural Steel Shapes
 22. ASTM D7091, Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals
 23. ASTM F436, Standard Specification for Hardened Steel Washers
 24. ASTM F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
 25. ASTM F594, Standard Specification for Stainless Steel Nuts
 26. ASTM F844, Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use
- C. American Society of Mechanical Engineers (ASME)
1. ANSI/ASME B1.1, Unified Inch Screw Threads

SECTION 05500 - MISCELLANEOUS METALS

- D. American Welding Society (AWS)
 - 1. AWS A5.4, Specification for Stainless Steel Electrodes for Shielded Metal Arc Welding
 - 2. AWS A5.9, Specification for Bare Stainless Steel Welding Electrodes and Rods
 - 3. AWS B2.1 Standard for Welding Procedure and Performance Qualification
 - 4. AWS D1.1, Structural Welding Code, Steel
 - 5. AWS D1.6, Structural Welding Code, Stainless Steel
 - 6. AWS D10.4, Recommended Practices for Welding Austenitic Chromium-Nickel Stainless Steel Piping and Tubing
 - 7. AWS D10.12, Guide for Welding Mild Steel Pipe
- E. International Code Council – Evaluation Service (ICC-ES)
- F. American National Standards Institute/NSF International (ANSI/NSF)
 - 1. ANSI/NSF Standard 61, Drinking Water System Components – Health Effects
- G. Society for Protective Coatings (SSPC)
 - 1. SSPC SP-3, Power Tool Cleaning
 - 2. SSPC SP-5, White Metal Blast Cleaning

1.03 SUBMITTALS

- A. Submittals shall be made in accordance with Specification Section 01300, Record Drawings and Submittals, and the following special provisions provided herein.
- B. Shop Drawings
 - 1. Before beginning fabrication of structural steel, the Contractor shall submit complete shop and erection drawings showing details of methods, materials, tolerances on adjustable connections, and finishes. Shop drawings shall give complete information necessary for the fabrication and erection of the component parts of the structure including the location, type, and size of all welds and bolts. Shop drawings shall clearly distinguish between shop or field welds and bolts.

SECTION 05500 - MISCELLANEOUS METALS

C. Weld Procedure Qualifications

1. Welding Procedure Specifications (WPS) shall be submitted per AWS D1.6. Pre-qualified procedure may be submitted. The WPS forms shall be per AWS.
2. Welder, Welding Operator, and/or Tack welder Qualification Test Records shall be submitted on Form NE-4 of AWS D1.1 for approval for all welding personnel proposed for employment on the project.
3. Test shall be in accordance with AWS D1.1 and shall be made using the positions to be used in the work.
4. The Owner may require additional test plates as the Work progresses and may demand the removal from the Project of any welder whose Work is not satisfactory, regardless of the quality of the test welds.

D. Prior to the start of fabrication, the Contractor shall establish and submit an identification system for marking of material ordered to special requirements and for field identification of assemblies and assembly components.

1.04 QUALITY ASSURANCE

- A. Welder Qualifications:** Welding welder qualification requirements and welding procedures shall be in accordance with AWS D1.1.
1. In lieu of performing welding operator or tack welder qualification tests, the Contractor may employ personnel possessing a current AWS certification in accordance with ASW D1.1 for the type of welding operation to be performed.
- B. Records of steel manufacturer shall be kept, materials shall be properly identified, and shop fabrication records shall show that the proper material was incorporated into each item. Such records shall be available to the Owner upon request.**

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Erection and identification marks shall be applied to the members by painting or other suitable means, unless otherwise specified or approved by the Owner.**
- B. The Contractor shall take reasonable care in the proper handling and storage of articles or materials during erection operations to avoid accumulation of dirt and foreign matter. The Contractor shall remove from the articles or materials, dust, dirt, or other foreign matter that accumulates during construction. Coated surfaces shall be protected from abrasion or other damage during handling, storing, and erecting.**
- C. Materials taken from stock shall comply with the appropriate ASTM standards, including the applicable test reports, prepared at the mill where the material was manufactured, or at a testing laboratory approved by the Owner.**

SECTION 05500 - MISCELLANEOUS METALS

PART 2 - PRODUCTS

2.01 MATERIALS

A. Carbon Steel

1. Carbon steel bars, shapes, and plates shall be in accordance with ASTM A36, ASTM A108, ASTM A283, or ASTM A992 with a minimum yield of 36 ksi.
2. Steel tubing in rounds and shapes shall be in accordance with ASTM A500 Grade B.
3. Pipe (including handrails, pipe columns, and light standards) shall be in accordance with ASTM A53, Grade B.

B. Stainless Steel

1. Unless otherwise shown on the Drawings, materials in contact with water, intermittently or continuously, or in a wet or moist environment shall be stainless steel.
 - a. Stainless steel bars and shapes shall be in accordance with ASTM A276 Type 316 Condition A, or Type 316L Condition A where welding is required, unless otherwise specified or shown on the Drawings.
 - b. Stainless steel plate, sheet, and strip shall be in accordance with ASTM A240, Type 316 or Type 316L when welding is required, unless otherwise specified or shown on the Drawings.
 - c. Pipe shall be in accordance with ASTM A312 Type 316L.
 - d. Tubing specified by outer diameter and thickness shall be in accordance with ASTM A554 Grade MT316L.
2. Where age-hardened stainless steel is shown on the Drawings, the steel shall be in accordance with ASTM A564 Type 630, cold finished. Heat-treatment or age-hardening shall be conducted at 900 F, except bolts and shafts, which shall be age-hardened at 1150° F.

C. Fasteners

1. Threads for bolts and nuts shall be in accordance with ANSI/ASME B1.1.
 - a. Threads for bolts 1 inch and less in diameter shall be coarse-thread series and threads for bolts 1-1/8 inches and greater in diameter shall be the 8-pitch thread series.

SECTION 05500 - MISCELLANEOUS METALS

- b. The fit shall be Class 2 free fit; except that Class 3 medium fit shall be provided in holes tapped for studs.
- 2. Unless otherwise shown on the Drawings, bolts shall have heavy hexagon heads and heavy hexagon nuts.
- 3. The lengths of studs and bolts, excluding anchor bolts, shall provide a projection of not less than 1/4 inch nor more than 1/2 inch through the nut when it is drawn tight; however, in exposed locations the projection shall be not more than 1/4 inch.
- 4. Carbon Steel Fasteners, Anchor Bolts, Machine Bolts, and Threaded Rods
 - a. Anchor bolts, machine bolts, and threaded rods shall be heavy hex and in accordance with ASTM A307 Grade A, with Supplement S-1 where welding is required, unless otherwise shown.
 - b. Nuts shall be in accordance with ASTM A563 Grade A, heavy hex.
 - c. Hardened washers shall be in accordance with ASTM F436, Type 3.
- 5. Stainless Steel Fasteners
 - a. Except as otherwise specified or shown on the Drawings, stainless steel fasteners shall be used where the material will be immersed in water, intermittently or continuously, or in moist-environment installations.
 - (1) Type 316 or 316N stainless steel fasteners shall be in accordance with ASTM A193 Grade B8MA, or Grade B8MNA for bolting and stud material, and ASTM A194 Grade 8MA or Grade 8MNA for nuts.
 - (2) Fasteners for age-hardened stainless steel shall be manufactured in accordance with ASTM F593 and ASTM F594 Type 630.
 - (3) Stainless steel washers shall conform to ASTM F844 except that they shall be punched from stainless steel conforming to ASTM A240 Type 316 or machined from bar stock conforming to ASTM A276 Type 316.
 - (4) Stainless steel fasteners shall be Type 316 or 316N unless otherwise shown on the Drawings. An anti-galling compound shall be applied in the fastener threads in accordance with the manufacturer's printed instructions.

SECTION 05500 - MISCELLANEOUS METALS

6. Insulating Washers

- a. Insulating washers shall be black, nylon material.
- b. Insulating washers shall be shoulder washers or flat washers with full, depth unthreaded sleeve spacers.

D. Electrodes

1. Electrodes for welding carbon steel shall be in accordance with AWS D1.1 except that electrodes shall have a minimum yield of 70 ksi. Electrodes for shielded metal arc welding (SMAW) shall be low hydrogen.
2. Electrodes for welding stainless steel to stainless steel shall be in accordance with AWS A5.4 or AWS A5.9 Classification E316L/ER316L.

E. Anti-Galling Compound

1. The anti-galling compound to be used on threads of stainless steel fastener assemblies in potable water systems shall be an ANSI/NSF 61-certified compound.
2. Acceptable Products:
 - a. Laco, Slic-Tite
 - b. Hercules, Real-Tuff
 - c. or approved equal

2.02 FABRICATION OF MISCELLANEOUS METALWORK

- A. The Contractor shall take the necessary precautions, as described in ASTM A143 and ASTM A384, during fabrication of articles to be galvanized to properly fabricate and prepare the material to prevent embrittlement, warpage, and distortion.
 1. Steel tubing with cover plates welded at both ends or other enclosed assemblies shall have vent and drain holes drilled at locations shown on the assembly fabrication drawings approved by the Owner. The holes shall be drilled during fabrication and before galvanizing.
- B. Prior to beginning fabrication, the Contractor shall field-verify existing conditions and dimensions and shall be responsible for accuracy and layout of the work.
- C. The Contractor shall review the Drawings and the approved shop and erection drawings and shall report any discrepancies to the Owner for clarification before starting fabrication.

SECTION 05500 - MISCELLANEOUS METALS

- D. After shop fabrication, stainless steel welds shall be cleaned, pickled, and passivated in accordance with ASTM A380. Contaminated surfaces shall be cleaned in accordance with ASTM A380.
- E. All ends, edges, and corners of members shall be rounded and ground smooth. Wire brushing of stainless steel surfaces shall be performed only with stainless steel brushes. Grinding wheels and brushes used to clean stainless steel shall not have been used on carbon steel surfaces.
- F. Bolt holes shall be as indicated on Drawings or approved shop drawings where bolt hole size is not indicated on Drawings. Bolt hole locations shall be coordinated with other aspects of the Work to ensure proper fit up. Field grinding or reaming bolt holes is not permitted.

2.03 FABRICATION - WELDING PROCESS RESTRICTIONS

- A. SMAW will be permitted for manual welding.
- B. In automatic welding, both the rate of travel and the rate of deposition of metal shall be controlled automatically.
- C. Submerged arc welding (SAW) will be permitted for automatic or semi-automatic welding.
- D. Gas metal-arc welding (GMAW) will be permitted for semi-automatic welding, short circuit transfer mode is not allowed.
- E. Flux-core arc welding (FCAW) will be permitted only where specifically approved by the Owner and provided that auxiliary gas shielding process is used.

2.04 FABRICATION - WELDING OF CARBON STEEL

- A. Except for the modifications set forth in this section, the welding of miscellaneous metals or articles fabricated from carbon steel shall be in accordance with AWS D1.1.
 - 1. Electrodes for field welding shall not exceed 3/16 inch.
 - 2. Welding of pipe or tubing shall be in accordance with the recommendations of AWS D10.12.
 - 3. Runoff tabs shall be removed by hand flame-cutting or other means as close to the edge of the finished member as practical, followed by grinding to a smooth surface contiguous with the adjacent metal.

SECTION 05500 - MISCELLANEOUS METALS

2.05 FABRICATION - WELDING OF STAINLESS STEEL

- A. Welding of miscellaneous metal articles fabricated from stainless steel shall be in accordance with the following:
 - 1. Welding on austenitic stainless steel shall be performed by SMAW, GMAW, gas-tungsten arc welding (GTAW), or FCAW process using direct current.
 - 2. Weld procedures shall be qualified in accordance with AWS B2.1.
 - a. Interpass temperature shall not exceed 350° F.
 - 3. Welding of stainless pipe or tubing shall be in accordance with the recommended practices of AWS D10.4.
 - 4. Stress-relieving of austenitic stainless steel shall be performed at 750 F for 4 hours, plus an additional ½ hour for each additional inch over ½ inch weld section thickness, or a full solution anneal at 1900 F shall be performed with rapid quench.
 - 5. Stainless steel welds shall be deburred and ground smooth using grinding wheels of aluminum oxide. Carborundum or other carbon bearing wheels are not acceptable for use on stainless steel surfaces. Wire brushing of stainless steel surfaces shall be performed only with stainless steel brushes. Grinding wheels and brushes used to clean stainless steel shall not have been used on carbon steel surfaces.

2.06 SHOP FINISHES

- A. Galvanizing
 - 1. Miscellaneous metal parts shall be galvanized when shown on the Drawings.
 - 2. Galvanizing for shapes, plates, and fabricated items shall be in accordance with ASTM A123 with an average weight per square foot of 2.0 ounces and not less than 1.8 ounces per square foot.
 - 3. Bolts, anchor bolts, and other threaded fasteners required to be galvanized shall, after being properly cleaned, be coated in accordance with ASTM A153 Table 1.
 - 4. Except where otherwise specified, galvanizing shall be performed after fabrication, including cutting, punching, welding, and drilling.
 - 5. Prior to galvanizing, items shall be cleaned to meet SSPC SP-3.
 - a. Weld flux, weld spatter, minor weld defects, paint, and grease shall be removed.

SECTION 05500 - MISCELLANEOUS METALS

- b. Parts shall be alkaline cleaned and then acid pickled to remove mill scale and surface rust.
- 6. Galvanizing shall be done after all fabrication is completed.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation and anchorage details for items of miscellaneous metal shall be as shown on the Drawings. Details not shown on the Drawings shall be developed by the Contractor and indicated on the shop drawings.
- B. Contractor shall provide necessary protective measures and safety provisions to protect existing improvements and prevent fires for all field welding.
- C. Anti-galling compound shall be used each time stainless steel fasteners are assembled or reassembled.

3.02 REPAIR OF GALVANIZED SURFACES

- A. Galvanized surfaces damaged during fabrication, shipping, erection, or at any time prior to acceptance of the work shall be prepared and recoated according to one of the following methods.
 - 1. The damaged components shall be thoroughly stripped and cleaned of all coating, and new galvanizing shall be applied by the hot-dipped process in accordance with ASTM A123 or ASTM A153 as applicable.
 - 2. The method of repair of damaged areas shall be proposed by the Contractor and approved by the Owner. Damaged areas shall be repaired by one of the methods listed below as specified in ASTM A780 with the following modifications:
 - a. Repair surfaces shall be blasted clean to meet SSPC SP-5 or cleaned by mechanical means to meet SSPC SP-3 and coated immediately before any deterioration (flash-rust) occurs.
 - b. Sprayed Zinc (Metallizing): 4.0 mils minimum thickness using a wire with at least 98% zinc.
 - c. Zinc-Based Solders: 4.0 mils minimum thickness.
 - 3. Dry film thickness shall be verified using a magnetic-type gauge in accordance with ASTM D7091.
 - 4. The finished surface shall be of uniform texture, free of lumps, coarse areas, and loosely adhered areas.

SECTION 05720 – ALUMINUM COMPONENT RAILING SYSTEM

PART 1: GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Aluminum handrails and railings.
 - 2. Related custom manufactured items.
- B. This Section applies to repairs or replacement of the existing aluminum hand railings if damaged by the Contractor during construction.

1.2 PERFORMANCE REQUIREMENTS

- A. Performance requirements:
 - 1. Construct work to withstand the forces required by CBC, latest edition, and OSHA. At a minimum, Handrails and railings shall be capable of withstanding the following structural loads without exceeding allowable design working stress of materials for handrails, railings, anchors, and connections as follows:
 - a) Top rail of guards shall be capable of withstanding a concentrated load of 200 lb. applied at any point and in any direction and a uniform load of 50 lb. per linear foot applied horizontally and concurrently with a uniform load of 50 lb. per linear foot applied vertically downward.
 - b) Rails not servicing as top rails shall be capable of withstanding a concentrated load of 200 lb. applied at any point and in any direction and a uniform load of 50 lb. per linear foot applied horizontally.
 - c) Infill guards shall be capable of withstanding a horizontal concentrated load of 50 lb. applied to 1 square foot at any point in the system.
 - 2. Handrails and railings shall fully comply with Cal OSHA and OSHA standards.
 - 3. Prevent Galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.3 SUBMITTALS

- A. Shop Drawings that show fabrications and installation of handrails and railings. In addition to materials, alloys, and finishes, include plans, elevations, sections, details, and attachments to other work.
- B. Product Data: Fully describe all products proposes for use, templates, and directions for installation.
- C. Qualifications Data showing compliance with Quality Assurance Section.

SECTION 05720 – ALUMINUM COMPONENT RAILING SYSTEM

- D. Project Test Reports, indicating products comply with the requirements, based on comprehensive testing of current products.

1.4 QUALITY ASSURANCE

- A. The fabricator and installer must be a State Licensed Specialty Contractor regularly engaged in the fabrication and installation of architectural aluminum railing systems. Fabricator and installer must be approved by the component railing system manufacturer.
- B. Welding procedures, welders, and welding operators shall be qualified for the type of material and work required in accordance with the American Welding Society (AWS) Standard Qualification Procedures.
- C. Fabrication and installation shall comply with California Building Code, latest edition, and the applicable stair and guardrail design requirements of OSHA regulations.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store handrails and railings in a dry, well-ventilated, weather tight place.

PART 2: PRODUCTS

2.1 GENERAL

- A. Provide an aluminum component railing system manufactured and installed under the responsibility of a single specialist firm.
- B. Furnish a system that employs fittings that are internally welded to vertical members. Mechanical attachment of fittings to vertical members is not acceptable.

2.2 METALS

- A. Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.
- B. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than strength and durability properties of alloy and temper designated below for each aluminum form required.
 - 1. Extruded Bar and Tube: ASTM B 221 (ASTM B 221M), alloy 6063-T5/T52.
 - 2. Extruded Structural Pipe and Tube: ASTM B 429, alloy 6063-T6.
 - 3. Drawn Seamless Tube: ASTM B 210 (ASTM B 210M), alloy 6063-T832.
 - 4. Plate and Sheet: ASTM B 209 (ASTM B 209M), alloy 6061-T6.
 - 5. Die and Hand Forgings: ASTM B 247 (ASTM B 247M), alloy 6061-T6.

SECTION 05720 – ALUMINUM COMPONENT RAILING SYSTEM

- 6. Castings: ASTM B 26/B 26M, alloy A356-T6.
- C. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.
 - 1. Provide cast brackets with flange tapped for concealed anchorage to threaded hanger bolt.
 - 2. Provide formed or cast brackets with predrilled hole for exposed bolt anchorage.
 - 3. Provide formed steel brackets with predrilled hole for bolted anchorage and with snap-on cover that matches rail finish and conceals bracket base and bolt head.
 - 4. Provide brackets with interlocking pieces that conceal anchorage. Locate screws on bottom of bracket.

2.3 FASTENERS

- A. Fasteners for Anchoring Handrails and Railings to other Construction: Select fasteners of type, grade and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.
- B. Fasteners for Interconnecting Handrail and Railing Components: Use fasteners fabricated from same basic metal as fastened metal, unless otherwise indicated. Do not use metal that are corrosive or incompatible with material joined.
 - 1. Provide concealed fasteners for interconnecting railing components and for attaching them to other Work, unless exposed fasteners are unavoidable or are standard fastening method for handrail and railing indicated.
 - 2. Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.
- C. Cast-in-Place and Post installed Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by qualified independent testing agency.
 - 1. Cast-in-place anchors.
 - 2. Chemical anchors.
 - 3. Expansion anchors.

SECTION 05720 – ALUMINUM COMPONENT RAILING SYSTEM

2.4 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- B. Interior Anchoring Cement: Factory-packaged, nonshrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Use for interior applications only.

2.5 FINISHES

- A. Provide finishes to match existing railings at SLRWRF. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3: EXECUTION

3.1 FABRICATION

- A. Assemble handrails and railing in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- B. Connections: Do not use mechanical connections. Fabricate handrails and railings by welding.
- C. Brackets, Flanges, Fittings, and Anchors: Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to connect handrail and railing members to other construction.
- C. Provide inserts and other anchorage devices to connect handrails and railing to concrete or masonry. Fabricate anchorage device capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.
- D. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.

SECTION 05720 – ALUMINUM COMPONENT RAILING SYSTEM

- E. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.
- F. Close exposed ends of railing members with prefabricated end fittings.
- H. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns, unless clearance between end of railing and wall is $\frac{1}{4}$ inch (6 mm) or less.

3.2 INSTALLATION

A. General

1. Shop weld all connectors and fittings to vertical post assemblies. Field cut horizontal railing members and epoxy bond to connectors on post assemblies.
2. Install work to a straight line or flat plane to within 1/8-inch in 6 feet and to within $\frac{1}{4}$ -inch total deviation. Install curved surfaces conforming to a true arc of a circle to within 1/16-inch.
3. Equally space posts in any run and not more than 6 feet on center. Space posts in parallel rows so they are in alignment.
4. Make proper allowance for expansion and contraction of the metals and of the materials to which they are fastened.
5. Set posts 6 inches deep in sleeves cast in concrete (or in holes' core-drilled in concrete) using waterproof, nonshrinking grout. Attach wall or floor flanges to concrete with stainless steel epoxy capsule anchor bolts or to other construction with stainless steel machine bolts.
6. Round and grind smooth all exposed corners and edges.
7. Perform all welding in accordance with AWS manual "Welding Aluminum". Employ methods and techniques to achieve the full strength of the members joined and architectural appearance.

B. Guardrails and handrails:

1. Provide work of the highest quality performed by mechanics skilled in executing high quality architectural metal work.
2. Set shop fabricated guardrail sections into position and align the top rail so that it is true to specified tolerances. Field join with structural epoxy adhesive. Mix and apply adhesive in accordance with manufacturer's instructions.
3. Support guardrails with temporary braces and shoring to maintain true alignment until all final connections and grouting are completed. Build

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surface of grout up at post, ¼-inch higher than surrounding surfaces to direct water away from post.

4. Attach toe boards to posts using two self-tapping, stainless steel machine screws minimum at each connection. Use special toe board connectors at corners and special splice plates at end joints.
5. Coat surfaces of aluminum in contact with concrete, grout, plaster, or dissimilar metals with appropriate coating material.

C. Repairs

1. Repair or replace all defective work including:
 - a) unsightly welds
 - b) discontinuous welds
 - c) uneven connections, surfaces, finishes, or coatings.
 - d) Variations exceeding specified tolerances
 - e) Kinks, bends, tool marks, grinding marks
 - f) Other defects affecting the quality, strength, utility, and appearance of the work.

D. Cleaning

1. Wash thoroughly using clean water and detergent.
2. Do not use acid solutions, steel wool, or other abrasives.
3. Remove stubborn grease stains with mineral spirits.

END OF SECTION

SECTION 07120 - FLUID APPLIED MEMBRANE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This Section includes providing fluid-applied membrane over concrete, stainless steel, and geomembrane liner surfaces, as shown on the Drawings and specified in this Section.

1.02 REFERENCES

- A. The publications listed below form a part of this Specification to the extent referenced.
- B. Where a date is given for reference standards, the edition of that date shall be used. Where no date is given for reference standards, the latest edition available on the date of Notice Inviting Bids shall be used.
- C. NSF International (NSF)
 - 1. NSF Standard 61, Drinking Water System Components – Health Effects

1.03 SUBMITTALS

- A. Submittals shall be made in accordance with Specification Section 01300, Record Drawings and Submittals, and the following special provisions provided herein.
- B. Product Data: Contractor shall submit manufacturer's product data for fluid-applied membrane, primer, and bonding agent.
- C. Installation Instructions: Contractor shall submit manufacturer's printed instructions for installation of products, including preparation, application limitations, and recoating requirements.
- D. Certification: Contractor shall submit certification from fluid-applied membrane manufacturer that the fluid-applied membrane materials which will be in contact or may be in contact with potable water are NSF approved for potable water storage.
- E. Materials Safety Data Sheets: Contractor shall submit Material Safety Data Sheets (MSDS) for each product.
- F. Samples: Submit a sample of the fluid-applied membrane for approval.

1.04 QUALITY ASSURANCE

- A. The Contractor shall be trained and approved by the fluid-applied membrane manufacturer.

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- B. A pre-installation conference shall be held prior to surface preparation and application of fluid-applied membrane to assure proper installation conditions.
- C. The fluid-applied membrane material shall be designed and manufactured specifically for basins containing treated water, shall have been satisfactorily demonstrated by prior use to be suitable for such use, and shall be approved by the National Sanitation Foundation (NSF) and other regulatory agencies having jurisdiction for such use. In lieu of NSF approval, the manufacturer shall provide written certification, from a product certification organization accredited for this purpose by the American National Standards Institute (ANSI) and regularly engaged in testing such products, that the fluid-applied membrane material meets the requirements of NSF for use in treated water.
- D. Pre-Application Meeting:
 - 1. The fluid-applied membrane representative shall conduct a pre-application training meeting with Contractor 2 weeks before the start of fluid applied membrane application.
 - 2. Meeting attendees shall include all parties affecting the Work, including the Owner, Contractor, applicable subcontractors, applicator, and the fluid-applied membrane manufacturer's representative.
 - 3. The purpose of the meeting is to review environmental requirements, fluid-applied membrane materials, protection of adjacent surfaces, surface preparation, application, curing, field quality control, cleaning, and coordination with other Work.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in original unbroken packages bearing manufacturers label showing brand, weight, volume, and batch number.
- B. Store materials at site in compliance with manufacturer's printed recommendations. Do not allow materials to freeze in containers.

1.06 CONDITIONS

- A. Surfaces that are not required to be coated, but are adjacent to surfaces to be cleaned, abrasive-blasted, and coated shall be protected from these operations.
- B. The Contractor shall perform Work only when existing and forecasted weather and temperature conditions are within manufacturer's recommendations for the material and product used.

1.07 GUARANTEE AND WARRANTY

- A. Prior to the start of Work, a written material warranty from the fluid-applied membrane manufacturer shall be submitted. The fluid-applied membrane material shall be warranted in writing by the manufacturer against manufacturing

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defects or workmanship for a period of 2 years commencing at the time of acceptance of the Work by the Owner.

- B. The warranty specified herein is not the only warranty involved in the Contract. It is merely supplemental to the warranty specified elsewhere in the Specifications.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Fluid-Applied Membrane:
 - 1. Fluid-applied membrane material shall be a 2-component, high-solids, elastomeric asphalt modified urethane elastomer membrane material. Fluid-applied membrane shall be nontoxic and odorless.
 - 2. Acceptable Products:
 - a. CIM 1061, manufactured by CIM Industries, Inc.
 - b. CIM 1000 Trowel Grade, manufactured by CIM Industries, Inc.
 - c. Or equal.
- B. Primer:
 - 1. Primer material shall be a two-component, solvent free, epoxy primer.
 - 2. Acceptable Products:
 - a. CIM EMT Primer, as manufactured by CIM Industries, Inc.
 - b. Or approved equal.
 - 3. Primer shall be specifically formulated for use on porous surfaces.
- C. Bonding Agent:
 - 1. Bonding agent shall be in accordance with the fluid-applied membrane manufacturer's recommendations.
 - 2. Bonding agent shall be specifically formulated for use on non-porous surfaces.
- D. Concrete epoxy adhesive shall be:
 - 1. SikaDur 31, manufactured by Sika Corporation
 - 2. Or equal.

SECTION 07120 - FLUID APPLIED MEMBRANE

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. Surfaces to receive the fluid-applied membrane material shall be prepared in accordance with the manufacturer's printed recommendations to achieve the greatest adhesion.
- B. Bonding surfaces shall be clean, smooth, and free of any dirt, algae, debris, loose material, release agents or curing compounds.
- C. All concrete voids shall be filled with a concrete epoxy adhesive.
- D. After the concrete epoxy adhesive has cured, the surface shall be hand-sanded or abrasive-blasted to remove surface residue and to scarify the surface.
- E. The Contractor shall perform moisture tests in accordance with the manufacturer's recommendations prior to fluid-applied membrane application.
- F. Primer shall be applied to all porous contact surfaces in accordance with the fluid-applied membrane material manufacturer's printed recommendations.
- G. Bonding agent shall be applied to all non-porous contact surfaces in accordance with the fluid-applied membrane material manufacturer's printed recommendations

3.02 EXAMINATION

- A. All surfaces to receive the fluid-applied membrane will be inspected and approved by the Owner at least 1 day prior to commencing Work.

3.03 INSTALLATION

- A. Due to the numerous variables affecting concrete, the Contractor shall pre-test the fluid-applied membrane material to determine the installation procedure.
- B. Contact bonding surfaces shall be pre-treated with a primer or bonding agent in accordance with the manufacture's recommendations.
- C. Mixing shall be in strict accordance with the manufacturer's recommendations. The components shall be thoroughly mixed and in a manner to prevent air from being drawn into the mixture. The amount of each component shall be accurately measured, not estimated.
- D. Thickness and Coats:
 - 1. Unless otherwise noted on the Drawings, fluid-applied membrane shall be applied to achieve a total 60-mil minimum dry thickness applied in a minimum of 2 coats of equal thickness.

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2. The surface preparation for the second and subsequent coats shall be in accordance with the manufacturer's printed recommendations before proceeding with the second application.
- E. The Contractor shall ensure that the fluid-applied membrane is not penetrated. The fluid-applied membrane shall be kept free of dirt and debris and traffic until water or a protective cover is in place.
- F. Application of fluid-applied membrane on non-horizontal surfaces shall begin at the bottom and work towards the top.
- G. At vertical surfaces, sloping surfaces, joints, and patches, fluid-applied membrane shall be a chemically thickened material for a trowel application with minimum sag.
- H. The Contractor shall protect all studs, threads, and nuts from the application of the fluid-applied membrane. The Contractor shall submit its proposed method of protection and shall test the proposed method on the test area, designated above.
- I. The Contractor shall take precautionary measures to prevent blisters and other imperfections. Imperfections shall be repaired and re-observed at the discretion of the Owner.
- J. The Contractor shall arrange for the on-site presence of the fluid-applied membrane manufacturer's technical representative if quality control or application problems arise, or at the Owner's request.

3.04 FIELD QUALITY CONTROL

- A. The Contractor shall check Work for coverage and thickness.
- B. When thickness or integrity is in question, the fluid-applied membrane shall be tested as described below. Use both visual and tactile measurements. Areas suspected of being too thin shall be measured with the gauges to determine the exact thickness.
 1. Fluid-applied membrane shall be checked for coverage with a lightly oiled, needle nose depth gauge, taking 4 readings over a one square inch area, every 200 linear feet or fraction thereof, with a minimum of (2) readings. Record the minimum reading. Mark the test areas for repair.
 2. Test areas shall be patched over with fluid-applied membrane to a 60-mil minimum dry thickness, extending a minimum of 1 inch beyond the test perimeter.
 3. When blistering of the fluid-applied membrane occurs, blister heads shall be tested for proper fluid-applied membrane thickness.

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3.05 PROTECTION

- A. Compressed-air units used in dust-off cleaning, abrasive-blasting, and spray coating operations shall be equipped with oil/water separators to remove all oil and moisture from the air. Separators shall be placed as close as practical to the application equipment.
- B. Application equipment shall conform to the requirements and recommendations contained in the manufacturer's printed recommendations and shall be sufficient for surface preparation and coating application.
- C. Drop cloths shall be provided, as required, to protect adjacent surfaces from cleaning residue or coating spatter and droppings.

END OF SECTION