

PART IV CONTRACT AND BONDS

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**PART IV
CONTRACT AND BONDS**

SECTION 1 – CONTRACT

This Contract is entered into as of the _____ day of _____, 2018, between _____ (Contractor) and the Twain Harte Community Services District (District). For and in consideration of the payment to be made to Contractor, as hereinafter provided, Contractor shall perform all work specified below in accordance with all the provisions of the Contract, consisting of the following documents, which comprise the entire agreement between the District and Contractor, concerning the work, herein:

- Part I – Notice Inviting Bids
- Part II – Instructions to Bidders
- Part III – Bid Forms
- Part IV – Contract and Bonds
- Part V – General Conditions
- Part VI – Special Conditions
- Part VII – Technical Specifications
- Part VIII – Drawings
- Part IX – Appendix

1. **WORK TO BE PERFORMED:** Except as specified elsewhere in this Contract, Contractor shall furnish all plant, labor, materials, chemicals, tools, supplies, equipment, transportation, technical and professional services and supervision, and to perform all operations necessary and required to satisfactorily perform the work specified herein; all in accordance with the specifications contained herein.
2. **COMPENSATION:** As full consideration for satisfactory performance by Contractor of this Contract, the District will pay Contractor compensation in an amount not to exceed \$ _____ in accordance with the prices set forth in Section 2, Schedule of Bid, of Part III, Bid Forms, and with the payment provisions of this Contract.
3. **TIME OF PERFORMANCE:** Time is of the essence for this Contract. Contractor agrees to complete all work by **August 31, 2019**.
4. **AUTHORIZATION:** Both the District and Contractor do covenant that each individual executing this document by and on behalf of each part is a person duly authorized to execute contracts for that party.
5. **REPORTING REQUIREMENTS:** If Contractor is an individual or sole proprietor, Contractor must furnish its Social Security Number (SSN). If Contractor is a corporation or partnership, Contractor must furnish its Federal Employer Identification Number (FEIN). Complete the Taxpayer I.D. Number section below. If the work under this contract is subject to the payment of prevailing wages, Contractor must furnish its Department of Industrial Relations registration number.
6. **LIQUIDATED DAMAGES:** Contractor agrees to pay liquidated damages to the District at the rate of \$500 per calendar day under conditions defined in Part VI, Special Conditions, Section SC-5, Liquidated Damages.

In witness whereof, the District and Contractor have executed this Contract on the date first above written.

CONTRACTOR NAME

Street Address

City, State and Zip

Phone Number

By: _____

Name Printed: _____

Title: _____

Date: _____

DIR registration: _____

Taxpayer I.D:

SSN _____ - _____ - _____

FEIN _____ - _____ - _____

TWAIN HARTE COMMUNITY SERVICES DISTRICT:

By: _____

Title: _____

Date: _____

ATTEST:

By: _____

Title: _____

SECTION 2 – PERFORMANCE BOND

We, _____, as Principal, and _____, as Surety, are jointly and severally held and bound unto the Twain Harte Community Services District, organized and existing under the laws of the State of California, sometimes referred to as the District, in the sum of _____ Dollars (\$_____) for the payment of which we jointly and severally bind ourselves, our heirs, executors, administrators and assigns, and successors and assigns, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT, WHEREAS, on the _____ day of _____, the said _____, Principal herein, executed a certain Contract with the District, by the terms, conditions, and provisions of which Contract the said _____, Principal herein, agrees to construct Million Gallon Tanks Rehabilitation and Interior Recoating, at 23363 Mountain Drive, Twain Harte, CA, all as set forth in said Contract, which Contract as so executed is attached hereto and by reference is incorporated herein and made a part hereof as fully for all purposes as if here set forth at length.

NOW, THEREFORE, if the Principal herein shall faithfully and truly observe and comply with the terms, conditions, and provisions of said Contract in all respects, and shall well and truly and fully do and perform all matters and things undertaken to be performed under said Contract, upon the terms set forth therein, and within the time prescribed therein, and shall indemnify the District against any direct or indirect damages that shall be claimed for injuries to persons or property during the course of any work performed by or on behalf of Principal under said Contract, and until all work under said Contract is accepted and for an additional period of one (1) year after completion and acceptance of said work by the District, and shall apply all laborers, mechanics, subcontractors, materialmen, and all persons who shall supply such Contractor or subcontractor with services or supplies for carrying on such work, and shall perform said Contract according to laws, and shall complete in a satisfactory manner all repairs or replacements resulting from or caused by defective materials and/or faulty workmanship in the prosecution of the work during the one-year warranty period, then this obligation shall be void, otherwise it shall remain in full force and effect. No prepayment or delay in payment and no change, extension, addition, or alteration of any provision of said Contract agreed to between the Principal and the District, and no forbearance on the part of the District, shall operate to relieve any Surety from liability on this Bond, and consent to make such changes, extension, additions, and alterations without further notice to or consent by any Surety is hereby given.

In the event suit is brought upon this Bond by the District and judgment is entered in its favor, the Surety or Sureties shall pay all costs incurred by the District in such suit, including attorneys' fees to be fixed by the court.

Date

Company Name

Principal (Authorized Signature)

Business Address

City

State

ACKNOWLEDGEMENT OF PRINCIPAL'S SIGNATURE:

<p>A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.</p>	
<p>State of California } County of _____ } ss</p> <p>On _____ before me _____, a Notary Public, personally appeared _____ Name(s) of Signer(s)</p>	<p>CAPACITY CLAIMED BY SIGNER</p> <p><input type="checkbox"/> INDIVIDUAL(S)</p> <p><input type="checkbox"/> CORPORATE OFFICER(S) _____ Title(s)</p> <p><input type="checkbox"/> PARTNER(S)</p> <p><input type="checkbox"/> ATTORNEY-IN-FACT</p> <p><input type="checkbox"/> TRUSTEE(S)</p> <p><input type="checkbox"/> OTHER _____ Describe</p> <p><input type="checkbox"/> SUBSCRIBING WITNESS (for) _____ _____</p>
<p>who proved to me on basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument, the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.</p>	
<p>I certify under PENALTY AND PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.</p>	
<p>WITNESS my hand and official seal</p>	<p>SIGNER IS REPRESENTING:</p>
<p>_____ Signature of Notary</p>	<p>Name(s) of Person(s) or Entity(ies) _____ _____ _____</p>

Date

Company Name

Surety (Authorized Signature)

Business Address

City

State

ACKNOWLEDGEMENT OF SURETY'S SIGNATURE:

<p>A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.</p>	
<p>State of California } County of _____ } ss</p>	
<p>On _____ before me _____, a Notary Public, personally appeared _____ Name(s) of Signer(s)</p>	<p>CAPACITY CLAIMED BY SIGNER</p>
<p>who proved to me on basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument, the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.</p>	<p><input type="checkbox"/> INDIVIDUAL(S) <input type="checkbox"/> CORPORATE OFFICER(S) _____ Title(s)</p>
<p>I certify under PENALTY AND PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.</p>	<p><input type="checkbox"/> PARTNER(S) <input type="checkbox"/> ATTORNEY-IN-FACT <input type="checkbox"/> TRUSTEE(S) <input type="checkbox"/> OTHER _____ Describe</p>
<p>WITNESS my hand and official seal</p>	<p><input type="checkbox"/> SUBSCRIBING WITNESS (for) _____ _____ _____</p>
<p>_____ Signature of Notary</p>	<p>SIGNER IS REPRESENTING:</p>
	<p>Name(s) of Person(s) or Entity(ies) _____ _____ _____</p>

SECTION 3 – PAYMENT BOND

We, _____, as Principal, and _____, as Surety, are jointly and severally held and bound unto the Twain Harte Community Services District, organized and existing under the laws of the State of California, sometimes referred to as the District, in the sum of _____ Dollars (\$_____) for the payment of which we jointly and severally bind ourselves, our heirs, executors, administrators and assigns, and successors and assigns, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT, WHEREAS, on the _____ day of _____, the said _____, Principal herein, executed a certain Contract with the District, by the terms, conditions, and provisions of which Contract the said _____, Principal herein, agrees to construct Million Gallon Tanks Rehabilitation and Interior Recoating, at 23363 Mountain Drive, Twain Harte, CA, all as set forth in said Contract, which Contract as so executed is attached hereto, and by reference is incorporated herein and made a part hereof as fully for all purposes as if here set forth at length.

AND WHEREAS, said Contractor is required by the provisions of Chapter 7, Title 15, Sections 3247 through 3252, California Civil Code, to furnish a bond in connection with said Contract, as hereinafter set forth.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Contractor, its heirs, executors, administrators, successors, or assigns, or subcontractors, shall fail to pay any of the persons named in Sections 3110, 3111, and 3112 of the California Civil Code, or amounts due under the Unemployment Insurance Code with respect to work or labor performed by any such claimant, or for any amount required to be deducted, withheld, and paid over to the California Franchise Tax Board from the wages and employees of the Contractor and its subcontractors pursuant to Section 18806 of the California Revenue and Taxation Code, with respect to such Contract and warranty work and labor that the Surety or Sureties will pay for the same, in an amount not exceeding the sum specified in this Bond, and also, in case suit is brought upon the Bond, a reasonable attorney's fee, to be fixed by the court.

This Bond shall inure to the benefit of any and all of the persons named in Sections 3110, 3111, and 3112 of the California Civil Code as to give a right of action to such persons or their assigns in any suit brought upon this Bond in accordance with said Sections 3247 through 3252 of the California Civil Code.

In the event suit is brought upon this Bond and judgment is recovered, the Surety shall pay all costs incurred by the District in such suit, including reasonable attorney's fees to be fixed by the court.

No prepayment or delay in payment and no change, extension, addition, or alteration of any provision of said Contract agreed to between the Contractor and the District, and no forbearance on the part of the District, shall operate to relieve any Surety from liability of this Bond, and consent to make such changes, extensions, additions, and alterations without further notice to or consent by such Surety is hereby given.

Date _____

Company Name _____

Principal (Authorized Signature) _____

Business Address _____

City _____ State _____

ACKNOWLEDGEMENT OF PRINCIPAL'S SIGNATURE:

<p>A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.</p>	
<p>State of California } County of _____ } ss</p> <p>On _____ before me _____, a Notary Public, personally appeared _____ Name(s) of Signer(s)</p>	<p>CAPACITY CLAIMED BY SIGNER</p> <p><input type="checkbox"/> INDIVIDUAL(S)</p> <p><input type="checkbox"/> CORPORATE OFFICER(S) _____ Title(s)</p> <p><input type="checkbox"/> PARTNER(S)</p> <p><input type="checkbox"/> ATTORNEY-IN-FACT</p> <p><input type="checkbox"/> TRUSTEE(S)</p> <p><input type="checkbox"/> OTHER _____ Describe</p> <p><input type="checkbox"/> SUBSCRIBING WITNESS (for) _____ _____ _____</p>
<p>who proved to me on basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument, the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.</p> <p>I certify under PENALTY AND PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.</p> <p>WITNESS my hand and official seal</p> <p>_____ Signature of Notary</p>	<p>SIGNER IS REPRESENTING:</p> <p>Name(s) of Person(s) or Entity(ies) _____ _____ _____</p>

Date

Company Name

Surety (Authorized Signature)

Business Address

City

State

ACKNOWLEDGEMENT OF SURETY'S SIGNATURE:

<p>A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.</p>	
<p>State of California } County of _____ } ss</p> <p>On _____ before me _____, a Notary Public, personally appeared _____ Name(s) of Signer(s)</p>	<p>CAPACITY CLAIMED BY SIGNER</p> <p><input type="checkbox"/> INDIVIDUAL(S) <input type="checkbox"/> CORPORATE OFFICER(S) _____ Title(s)</p> <p><input type="checkbox"/> PARTNER(S) <input type="checkbox"/> ATTORNEY-IN-FACT <input type="checkbox"/> TRUSTEE(S) <input type="checkbox"/> OTHER _____ Describe</p> <p><input type="checkbox"/> SUBSCRIBING WITNESS (for) _____ _____</p>
<p>who proved to me on basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument, the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.</p>	
<p>I certify under PENALTY AND PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.</p>	
<p>WITNESS my hand and official seal</p>	
<p>_____ Signature of Notary</p>	<p>SIGNER IS REPRESENTING: Name(s) of Person(s) or Entity(ies) _____ _____ _____</p>

SECTION 5 – WORKERS' COMPENSATION CERTIFICATION

AS REQUIRED BY SECTIONS 1861 OF THE CALIFORNIA LABOR CODE

I am aware of the provisions of Section 3700 of the California 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 the California Labor Code, and I will comply with such provisions before commencing the performance of the work of this Contract for District Project 200-57-0001, Million Gallon Tanks Rehabilitation and Interior Recoating.

Contractor: _____

By: _____

Title: _____

Date: _____

PART V GENERAL CONDITIONS

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**PART V
GENERAL CONDITIONS**

GC-1 ENTIRE AGREEMENT

This Contract embodies the entire agreement between the District and Contractor. The parties shall not be bound by or be liable for any statement, representation, promise, inducement, or understanding of any kind or nature not set forth herein. No changes, amendments, or modifications of any of the terms or conditions of the Contract shall be valid unless reduced to writing and signed by both parties.

GC-2 INDEPENDENT CONTRACTOR

Contractor represents that it is fully experienced and properly qualified to perform the class of work provided for herein, and that it is properly licensed, equipped, organized, and financed to perform such work. Contractor shall act as an independent contractor and not as the agent of the District in performing the Contract, maintaining complete control over its employees and all of its subcontractors. Nothing contained in this Contract or any subcontract awarded by Contractor shall create any contractual relationship between any such subcontractor and the District. Contractor shall perform all work in accordance with its own methods subject to compliance with the Contract.

Contractor shall employ only competent and skilled personnel to perform the work. Contractor shall, if requested to do so by the District in writing, remove from the jobsite any personnel of Contractor. Contractor is responsible for maintaining satisfactory conduct of its employees and those of its subcontractors and maintaining labor relations in such manner as shall provide for harmony among the workers.

Contractor shall comply with and shall cooperate with the District in enforcing jobsite conditions which affect the performance of the work including but not limited to starting and quitting time, smoking regulations, check-in and check-out procedures, jobsite safety regulations, and daily clean-up.

GC-3 AUTHORIZED REPRESENTATIVES

Before starting work, Contractor shall designate a competent, authorized representative acceptable to the District to represent and act for Contractor and shall inform the District in writing of the name and address of such representative together with a clear definition of the scope of his/her authority to represent and act for Contractor and shall specify any and all limitations of such authority. Contractor shall keep District informed of any subsequent changes in the foregoing. All notices, determinations, instructions, and other communications given to the authorized representative by the District shall be binding upon Contractor.

The District's representative (sometimes referred to as "District") is the District's General Manager or the General Manager's authorized designee. All questions and requests of the Contractor as to compensation (including additional compensation), interpretation of the Contract, instructions, or extensions of time, otherwise shall be submitted in writing to the District's representative for determination. The District's representative is authorized to:

1. Determine the amount, quality, acceptability, and fitness of all work, materials, and equipment required by the Contract.
2. Make the final decision on all questions that may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work.
3. Make the final decision on all questions that may arise as to the coordination, interpretation and acceptable fulfillment of the Contract and its plans and Specifications.
4. Make the final decision on all questions as to measurement and payment and amounts owed to the Contractor.
5. Reject defective work and materials whenever such rejection may be necessary to assure execution of the Contract in accordance with the intent of the Contract.
6. Prepare and/or issue Contract Change Orders for all authorized changes or approved extra work in the Contract.
7. Monitor Project schedules and to enforce Project schedule requirements, and to take such measures as may be necessary to maintain overall Project schedules.
8. Enforce and to make effective such decisions and orders that the Contractor fails to carry out promptly.

GC-4 MEETINGS

A preconstruction meeting will be held after the award of the Contract to review the Contractor's preconstruction submittals as required by the Contract and to discuss various safety and administrative items. The Contractor shall also be prepared to discuss the construction schedule and methods of implementing the various work items.

The District may notice other meetings at which attendance by the Contractor and subcontractors may be required.

GC-5 NOTICES

Any written notice to be given to Contractor by the District, may be delivered in person to Contractor's authorized representative or mailed to the address last given in writing by Contractor.

Notices to District:

Twain Harte Community Services District
P.O. Box 649
Twain Harte, CA 95383

Administrative Representative: Tom Trott, General Manager
Contract No.: 200-57-0001
Telephone: (209) 586-3172

Technical Representative: William Bellis, P.E.
Telephone: (805) 748-6726

GC-6 DISCOVERY OF ERRORS, OMISSIONS OR DISCREPANCIES

If the Contractor discovers any errors, omissions, discrepancies, or conflicts in the Contract, it shall immediately so inform the District in writing. The District will promptly clarify such matters by issuing Addenda or Change Orders. Failure or delay to act on the part of the District shall not constitute a waiver of any right afforded the District by the Contract or constitute an implied approval. Any work affected by such discoveries that is performed by the Contractor prior to authorization by the District shall be at the Contractor's risk.

Unless otherwise noted below, conflicts or inconsistencies between parts of the Contract will be resolved by the District with a Change Order or with an Addendum, if required. Addenda and Change Orders bearing the most recent date shall prevail over Addenda or Change Orders bearing earlier dates. Any reference to Addenda-changed Specifications or drawings shall be considered to have been changed accordingly.

In resolving conflicts, errors, or discrepancies, the order of precedence shall be as follows:

1. Change Orders/Addenda (most recent in time takes precedence)
2. Contract and Bond Forms
3. Technical Specifications
4. Special Conditions
5. Project Drawings
6. General Conditions
7. Instructions to Bidders
8. Bid Forms
9. Notice to Contractors

Reference specifications shall have the same order of precedence as the document in which it is referenced. For example, a reference to the District's Standard Specifications contained in the Technical Specifications will have the same order of precedence as that Technical Specification. A reference to an Appendix contained in the Technical Specifications will have the same order of precedence as that Technical Specification. If a reference specification is mentioned in more than one part of the Contract, the part with the highest order of precedence shall govern.

With reference to the Project Drawings:

1. Figures govern over scaled dimensions.
2. Project-specific drawings govern over general and typical drawings.
3. Addenda/Change Order drawings govern over Project Drawings.
4. Project Drawings govern over standard drawings.

It shall be the Contractor's responsibility to resolve any conflicts between the requirements contained on permits from other agencies and the Contract to the satisfaction of the District. When there is a conflict between the requirement(s) as specified in the Contract and as required by other agencies, the more restrictive requirement(s) shall prevail.

By execution of the Contract, the Contractor agrees that no request for additional compensation, and/or claim under Government Code Section 900 et seq. will be made against the District for any damages in excess of the aggregate sum of \$50,000 or five percent (5%) of the

construction costs (whichever is greater) for alleged damage that it or its subcontractors may suffer due to the inadequacy of the Contractor's bid on account of any alleged errors, omissions, or other deficiencies in the Contract. This limitation shall not apply to compensation for extra work authorized by the District as provided for in this Section GC-30, Extra Work Payment, and Section GC-27, Differing Site Conditions.

GC-7 LAWS, REGULATIONS, AND PREVAILING WAGES

This Contract shall be in accordance with the laws of the state of CALIFORNIA. Parties further stipulate that this Contract was entered into in the state of CALIFORNIA and the state of CALIFORNIA is the only appropriate forum for any litigation as a result of breach hereof or any questions risen herefrom.

Contractor shall keep itself fully informed of, and shall observe and comply with, all laws, ordinances, and regulations which in any manner affect those engaged or employed on any work, or the materials and equipment used in any work, or in any way affect the performance of any work, and of all orders and decrees of agencies having any jurisdiction or authority over work performed under the Contract.

Contractor shall comply with all applicable federal, state, and local laws, ordinances, rules, and regulations; and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

If any discrepancy or inconsistency should be discovered between the Contract and any such law, ordinance, regulation, order, or decree, Contractor shall immediately report the same in writing to the District. Contractor shall be responsible for the compliance by subcontractors of all tiers with the above provisions of this Section. Contractor shall post all job site notices as required by law or regulation.

- A. Prevailing Wages: Special attention is directed to Part 7, Chapter 1, Article 2, Sections 1770 et seq. of the California Labor Code. Reference is hereby made to the provisions for minimum per diem wages contained in Part I, Notice to Contractors. . This Contract will be subject to compliance monitoring and enforcement by the California Department of Industrial Relations, pursuant to Labor Code Section 1771.4.

The Contractor and each subcontractor engaged in the work shall pay each respective employee thereof an amount not less than the general prevailing rate of per diem wages established in compliance with Section 1770 et seq. of the California Labor Code and as determined by the State of California Director of Industrial Relations to be effective and applicable for the various crafts, trades, or type of worker needed or required to execute the Contract. In accordance with Section 1770 of said Labor Code, nothing otherwise provided under Article 2 of said Labor Code shall prohibit the payment of wage rates to any worker in excess of such prevailing rates of wages as determined by the Director of the Department of Industrial Relations. However, should the Contractor or a subcontractor have a contractual relationship with workers whereby per diem rates of wages are paid in excess of such determined prevailing rates of wages, the Contractor or subcontractor shall identify and submit a certified listing of such workers and the amounts payable prior to beginning construction operations applicable thereto in accordance with this General Condition.

Failure of the Contractor or any subcontractor to certify and list workers and actual wages in excess of those effective as determined by the State of California Director of Industrial Relations shall be deemed an express statement by the Contractor or such subcontractor that actual wages shall be as determined by the Director of Industrial Relations and such will be paid all workers and be applicable to all work required and ordered under the Contract.

The possibility of labor cost increases within the periods of time established and specified for completion of the Project is one of the elements to be considered by bidding Contractors and its subcontractors. The District will not consider any increase in labor costs as a basis of a request for additional compensation for work bid as specified and shown regardless of the cause of the increase.

It is stipulated that the provisions of Article 2, Chapter 1, Part 7, Division 2 (commencing with Section 1770), of the California Labor Code, and in particular, Sections 1775 and 1776, shall be complied with. In accordance with said Section 1775, the Contractor and any subcontractor under the Contractor, shall forfeit to the District or to the Division of Labor Standards, as a penalty, up to fifty dollars (\$50) per each day or portion thereof, for each worker paid less than the prevailing rates for such work or craft in which such worker is employed for any work done under the Contract by him/her or by any subcontractor under the Contractor in violation of the provisions of the Labor Code and in particular, California Labor Code Sections 1770 to 1780, inclusive. The amount of the daily penalty shall be as determined by the Labor Commissioner in accordance with Section 1775. In addition to said penalty and pursuant to said Section 1775, the difference between the prevailing wage rates and the amount paid to each worker by the Contractor or subcontractor for each day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the Contractor or subcontractor.

If a worker employed by a subcontractor is not paid the general prevailing per diem wages by the subcontractor, the prime contractor or the project is not liable for any penalties unless the prime contractor had knowledge of that failure to pay specified prevailing rate of wages to those workers or unless the prime contractor fails to comply with the California Labor Code, Section 1775(b) (1)-(4).

Where prevailing wage determinations have been predetermined to change during the Contract (beyond expiration dates as indicated on the forms), the Contractor shall obtain such changes from the Prevailing Wage Unit, Division of Labor Statistics and Research, Department of Industrial Relations, 525 Golden Gate Avenue, San Francisco, California 94102, telephone (415) 557-0561, and deliver copy of such to the District.

If a Contractor or subcontractor intends to use a craft or classification not shown on the general prevailing wage determinations, the Contractor or subcontractor may be required to pay the wage rate of the craft or classification most closely related to it as shown in the general determinations effective at the time of bid opening.

- B. Payroll Records: The Contractor and subcontractor's attention is directed to the provisions of Section 1776 of the California Labor Code and to the requirements therein pertaining to the keeping, availability, and filing of accurate payroll records of all journeymen, apprentices, and other workers performing work under this Contract. The Contractor agrees to comply with the requirements of said section.

Prior to each monthly progress payment, the Contractor shall deliver to the District copies of certified payrolls of its and all subcontractors' forces performing work at the job site (or sites established primarily for the work) for labor compliance purposes and extra/force account considerations. Such records shall be kept current on an effective day or period basis. The certified payroll records shall be kept on forms provided by the Division of Labor Standards Enforcement, or shall contain the same information as the forms provided by the Division in addition to the above-listed information.

The Contractor shall also furnish the records specified in California Labor Code Section 1776, including but not limited to the certified payrolls, directly to the Labor Commissioner.

Each payroll record shall contain or be verified by a written declaration that is made under penalty of perjury stating:

1. The information contained in the payroll is true and correct;
2. The employer has complied with the requirements of California Labor Code Sections 1771, 1811, and 1815 for any work performed by its employees on the Project.

The Contractor shall inform the District of the location of the above payroll records, including the street address, city and county, and shall, within five (5) working days, provide a notice of change of location and address.

The Contractor or subcontractor has 10 days in which to comply subsequent to receipt of a written notice requesting certified payroll records. In the event that the Contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the District, forfeit one hundred dollars (\$100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. The Contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.

Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the District shall be marked or obliterated in accordance with California Labor Code Section 1776.

Compliance with the above provisions of this Section and California Labor Code, Section 1776, shall be the responsibility of the Contractor or subcontractor. Pursuant to Labor Code Section 1771.4, Contractor is required to post all job-site notices prescribed by law or regulation that include, but are not limited to, payment of prevailing wages.

- C. Labor Discrimination: Attention is directed to Section 1735 of the Labor Code, which reads as follows:

No discrimination shall be made in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the Government Code, and every contractor for public works violating this Section is subject to all the penalties imposed for violation of this Chapter.

- D. Apprentices: The Contractor shall comply with the provisions of Sections 1777.5 and 1777.6, of the California Labor Code in regard to employment of apprentices.
- E. Work Hours: Contractor stipulates and agrees that pursuant to the provisions of Labor Code, Sections 1810 through 1815, eight (8) hours labor shall constitute a legal day's work, and no worker shall be required or permitted to work more than eight (8) hours in any one (1) calendar day and forty (40) hours in any one (1) calendar week, except as provided for under Section 1815. Nothing in this provision shall be construed to relate to wage determination or in any way affect contractual provisions related to compensation. The contractor or subcontractor shall, as a penalty to the District, forfeit twenty-five dollars (\$25) for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which the 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 this article.

Notwithstanding the Labor Code provisions set forth above, pursuant to Labor Code, Section 1815, work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one (1) week shall be permitted provided that compensation shall be made for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay.

- F. Travel: As required by Section 1773.8 of the California Labor Code, the Contractor shall pay travel and subsistence payments to each worker needed to execute the work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with this Section.
- G. Chemical Exposure: Contractor shall comply with Sections 12101 through 12901 of Title 22, California Administrative Code. Contractor shall warn all persons at the work site of their exposure to chemicals known to the state to cause cancer or birth defects or other reproductive harm. Contractor shall be responsible for compliance by its subcontractors with this article.
- H. Air Pollution: The Contractor shall so perform its work as not to discharge into the atmosphere from any source whatsoever smoke, dust, or other air contaminants in violation of the laws, rules, and regulations of the governmental entities having jurisdiction.
- I. Asbestos: The Contractor shall comply with all state laws and regulations regarding asbestos and asbestos-related work including, but not limited to, the provisions of California Labor Code, Sections 6501.5 through 6511.
- J. Human Remains: The Contractor's attention is directed to the provisions of Health and Safety Code, Section 7050.5, relating to the discovery of human remains. Upon any such discovery, there shall be no further excavation or disturbance of the site. The Contractor shall immediately notify the District and the Tuolumne County Sheriff-Coroner's Office of any such find and shall comply with all other applicable laws and regulations.
- K. Cultural Resources: The Contractor's attention is directed to the provisions of Health and Safety Code, Section 7050.5, and Public Resources Code, Sections 5098.5, 5097.94, 5097.98, and 5097.99, and the California Environmental Quality Act (CEQA), Appendix K, relating to the excavation, removal, destruction, injury, and defacement of historic or prehistoric ruins, burial grounds, archeological or vertebrate paleontological sites, or any

other archeological, paleontological or historical feature. The Contractor shall immediately stop work in the area of the archeological discovery and notify the District and comply with all other laws and regulations upon discovery of any such remains in the construction site. Compensation to the Contractor, if any, for lost time or changes in construction to avoid the find shall be determined in accordance with changed conditions or Change Order provisions of the Contract. The Contractor shall have no property right in such sites or features.

In the event that any Indian relics or items possessing archaeological or historical value are discovered by the Contractor or any of its subcontractors or any of their representatives or employees, the Contractor shall immediately notify the District and await the District's decision before proceeding with any work. The Contractor shall have no property right in such relics and items.

L. License: Contractor shall be licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California to do the type of work contemplated in the Project and shall be skilled and regularly engaged in the general class or type of work called for under the Contract.

M. Agreement to Assign (Contractors and Subcontractors): Agreement to Assign (Contractors and Subcontractors): The Contractor's and subcontractors' attention is directed to the provisions of Government Code, Section 4551, which requires that, in entering into a public works contract or subcontract, contractors and subcontractors agree to assign to the purchasing body all rights arising from violations of antitrust regulations. In pertinent part, Government Code, Section 4551, reads as follows:

In entering into a public works contract or a 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 Professional 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 acknowledgement by the party

N. Claims and Actions Against Public Entities and Employees: The Contractor's and subcontractors' attention is directed to Government Code Section 900 et seq. dealing with claims and actions against public entities and employees. Nothing contained in the Contract, including but not limited to Section GC-28, Changes, is intended to modify or remove the requirements set forth in these Government Code sections.

1. If the Contractor files any claim with the District for compensation in excess of the Contract amount or return of liquidated damages, the claim shall be in writing and include the documents necessary to substantiate the claim. Said documents may include invoices, cost breakdowns, and other documentation explaining the details of the Contractor's calculations of the amount claimed. Such claim must be filed on or before the date of final payment. Nothing in this subsection is intended to extend the time limit or supersede notice requirements otherwise provided by the Contract relating to requests for extra compensation or extensions of time. The presentation

of any claim by the Contractor shall be accompanied by a signed personal certification as set forth below.

PERSONAL DECLARATION AND CERTIFICATION OF CLAIM

I, _____, BEING THE _____ (MUST BE AN OFFICER) OF _____ (CONTRACTOR), DECLARE UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA, AND DO PERSONALLY CERTIFY AND ATTEST THAT: I HAVE THOROUGHLY REVIEWED THE ATTACHED CLAIM AND KNOW ITS CONTENTS, AND SAID CLAIM IS MADE IN GOOD FAITH; THE SUPPORTING DATA IS TRUTHFUL AND ACCURATE; THAT THE AMOUNT REQUESTED ACCURATELY REFLECTS THE CONTRACT ADJUSTMENT FOR WHICH THE CONTRACTOR BELIEVES THE DISTRICT IS LIABLE; AND, FURTHER THAT I AM FAMILIAR WITH CALIFORNIA GOVERNMENT CODE SECTION 12650, ET SEQ. PERTAINING TO FALSE CLAIMS, AND FURTHER KNOW AND UNDERSTAND THAT SUBMISSION OR CERTIFICATION OF A FALSE CLAIM MAY LEAD TO FINES, IMPRISONMENT AND/OR OTHER SEVERE LEGAL CONSEQUENCES.

Signed: _____

Date: _____

2. For claims of less than fifty thousand dollars (\$50,000), the District will respond in writing within 45 days of its receipt of the claim, or may request, in writing, within 30 days of its receipt of the claim, submission of additional documentation supporting the claim or relating to defenses or claims the District may have against the Contractor.
 - a. If such additional documentation is requested by the District, it shall be provided by the Contractor within 20 days of its receipt of the request from the District or as otherwise mutually agreed upon by the District and the Contractor.
 - b. Following the Contractor's submission of all requested additional documentation, the District will respond to the claim within 15 days or within the period of time taken by the Contractor in producing the additional documentation, whichever is longer.
3. For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the District will respond in writing within 60 days of its receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, submission of additional documentation supporting the claim or relating to defenses or claims the District may have against the Contractor.
 - a. If such additional documentation is requested by the District, it shall be provided by the Contractor within 30 days of its receipt of the request or as otherwise mutually agreed upon by the District and the Contractor.
 - b. Following the Contractor's submission of all requested additional documentation, the District will respond to the claim within 30 days, or within

the period of time taken by the Contractor in producing the additional documentation, whichever is longer.

4. If the Contractor disputes the District's written response, or if the District fails to respond within the time prescribed, the Contractor may so notify the District, in writing, either within fifteen (15) days of receipt of the District's response or within fifteen (15) days of the District'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 receiving such a demand, the District shall schedule a meet and confer conference within thirty (30) days.
5. If, following the meet and confer conference, the claim or any portion remains in dispute, the Contractor may file a claim pursuant to 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 Contractor submits its written claim pursuant to paragraph 2 above until the time said claim is denied pursuant to the procedures set forth herein, including any period of time utilized by the meet and confer conference.

GC-8 PERMITS, LICENSES, EASEMENTS AND TAXES

- A. Permits and Licenses: Contractor shall, unless otherwise provided elsewhere in the Contract, at its expense, obtain all permits and licenses and pay all charges and fees necessary for the performance of the Contract, and shall give all public notices necessary for the lawful performance of the Contract.

Attention is directed to the Project Documents and to any permits that may have been acquired by or imposed upon the District that contain requirements related to performance of the work, including but not limited to encroachment permits and storm water pollution prevention. All work within public properties and rights of way shall be accomplished in conformance with any specific conditions, instructions, and/or requirements contained in permits issued by the agencies having jurisdiction over such property and rights of way.

Where permits and/or licenses require subsequent contingent permits, inspections, or other actions, the Contractor shall comply with these requirements at no additional cost to the District, except that the inspection fees charged by regulatory and/or permitting agencies shall be paid for by the District. However, if the inspection fee is due to noncompliance of the permit requirements, such inspection fee shall be paid for by the Contractor.

- B. Easements: The District may provide easements for work under the Contract. District-provided easements are shown in the Project Documents. All work within private and public properties shall be accomplished in conformance with any specific conditions, instructions, and/or requirements of the respective easements.

The District may provide additional easements for use of public or private property for working space, haul roads, and for storage of materials and equipment. District-provided easements are shown in the Project Documents. The Contractor may use such property so provided for working space, haul roads, and for storage of materials and equipment. Should the Contractor find it necessary or advantageous to use any land, over and above

that land that is provided, for any purpose whatever, the Contractor shall, at its expense, obtain a written agreement with the property owner and obtain approval from the District for the use of such land. A copy of any such agreement shall be submitted to the District prior to implementation.

Nothing in the Contract shall be construed as allowing the Contractor to make any arrangements with any person to permit occupancy or use of any land, structure, or building for any Contract purpose whatsoever, either with or without compensation, in conflict with any agreement between the District and any owner, former owner, or tenant of such land, structure, or building.

- C. Taxes: Contractor shall pay all taxes, levies, duties, and assessments of every nature due in connection with any work under the Contract, shall make any and all payroll deductions required by law, and shall indemnify and hold harmless the District from any liability on account of any and all such taxes, levies, duties, assessments, and deductions.

GC-9 PUBLICATIONS

No publications or advertisements concerning the subject matter of the Contract shall at any time be made by or on behalf of Contractor, its subcontractors, or suppliers, unless prior written authorization is obtained from the District.

No advertising signs shall be erected at the site of the work.

GC-10 WAIVER

Neither the inspection by the District, nor any order, measurement, approval, determination, decision, or certificate by the District, nor any order by the District for the payment of money, nor any payment for or use, occupancy, possession, or acceptance of the whole or any part of the work by the District, nor any extension of time, nor any other act or omission of the District shall constitute, or be deemed to be acceptance of any defective or improper work, materials, or equipment nor operate as a waiver of any requirement or provision of the Contract, nor of any remedy, power, or right of or herein reserved to the District nor of any right to damages for breach of Contract. Any and all rights and/or remedies provided for in the Contract are intended and shall be construed to be cumulative; and, in addition to each and every other right and remedy provided for herein or by law, the District shall be entitled, as a right, to a writ or injunction against any breach or threatened breach of the Contract by Contractor, by its subcontractors, or by any other person or persons.

None of the provisions of the Contract shall be considered waived by the District unless such waiver is expressly given in writing by the District. No such waiver shall be a waiver of any past or future default, breach, or modification of any of the terms, provisions, conditions, or covenants of the Contract unless expressly set forth in such waiver.

GC-11 INDEMNITY

Contractor shall indemnify, defend, and hold harmless the District and its officers, agents, servants, employees and any other District representatives, and each of them, from and against any and all suits, actions, legal or administrative proceedings, claims, demands, consequential damages, liabilities, interest, attorneys' fees, costs and expenses of whatsoever kind or nature whether arising before or after final acceptance of the work hereunder and in any manner

directly or indirectly caused, occasioned, or contributed to or claimed to be caused, occasioned, or contributed to in whole or in part by reason of any act, omission, fault, or negligence whether active or passive of Contractor, or of anyone acting under its direction, control, or on its behalf including subcontractors in connection with or incident to the performance of this Contract without limiting the generality of the foregoing, the same shall include injury to or death of any person or persons and damage to any property, regardless of where located, including without limitation the property of the District, Contractor's employees, and all other persons. Contractor's aforesaid indemnity and hold harmless agreement shall not be applicable to any liability caused by the active negligence or willful misconduct of the District or its officers, agents or employees.

Contractor shall include in each agreement with each of its subcontractors at all tiers, a provision requiring that the subcontractor indemnify the District as stated in this Section.

GC-12 PATENT INDEMNITY

The Contractor shall pay all licenses, copyrights, fees, and royalties and assume all costs incident to the use and performance of the work, or the incorporation in the work, of any invention, design, process, product, or device that is the subject of patent rights or copyrights held by others. The Contractor shall indemnify, defend, and save harmless the District, its officers, directors, employees, representatives, and agents, and each of them from and against all claims, losses, costs, damages, consequential damages, and expenses, including attorneys' fees, incurred by the District, its officers, directors, employees, representatives, and agents as a result of or in connection with any claims or actions based upon infringement or alleged infringement of any patent and/or copyright and arising out of the use of the materials, equipment, and/or products furnished under the Contract by the Contractor, or out of the processes or actions employed by, or on behalf of, the Contractor in connection with the performance of the Contract. The Contractor shall, at its expense, promptly defend against any such claim or action, whether or not well founded in fact or in law, provided that the District shall have notified the Contractor upon becoming aware of such claims or actions, and provided further that the Contractor's aforementioned obligations shall not apply to equipment, materials, and/or products furnished or specified by the District. The Contractor shall have the right, in order to avoid such claims or actions, to substitute at its expense noninfringing equipment, materials, and/or products, or to modify at its expense such infringing equipment, materials, and/or products so they become noninfringing, provided that such substituted and modified equipment, materials, and/or products shall meet all the requirements and be subject to all the provisions of the Contract.

GC-13 SUBCONTRACTS AND SUBCONTRACTORS

No subcontract shall be entered into and Contractor shall not substitute any person as subcontractor in place of a subcontractor so listed in the Contract provided that the District, at its discretion, may consent to a subcontractor substitution if (1) the subcontractor listed fails or refuses to execute a written contract, or (2) the substitution is otherwise necessary to the efficient construction of the work. In either case, Contractor shall obtain the District's prior written consent. No subcontracts at any tier shall relieve Contractor of any of its liabilities or obligations under the Contract, and Contractor agrees that it is fully responsible to the District for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by them in the performance of the Contract. Contractor shall assure that each subcontractor at all tiers fully complies with the provisions of any applicable Worker's Compensation Act or similar law having application to subcontractor's employees. Failure of

Contractor or any of its subcontractors to comply with this provision will be considered as grounds for termination of the Contract at Contractor's expense in accordance with Section GC-15 Termination of Right to Proceed.

Nothing contained in the Contract shall create any contractual relationship between any subcontractor and the District.

The Contractor shall, at all times, be responsible for the safety of its subcontractors' employees at any tier and for its subcontractors' plants and equipment at any tier; and the method of prosecuting the work and shall ensure the compliance, by all subcontractors' employees at any tier, with all local, state, and federal safety regulations and the District Safety Requirements as may be applicable to the performance of the work.

The Contractor shall, at all times, be responsible for the adequacy, efficiency, and sufficiency of its subcontractor at any tier or persons employed by the subcontractors. All workers shall have sufficient knowledge, skill, and experience to properly perform the work assigned to them.

When a portion of the work that has been subcontracted by the Contractor is not being prosecuted in a manner satisfactory to the District, the Contractor shall cause such subcontractor forces to be removed immediately upon the request of the District, and such subcontractor forces shall not again be employed on the work.

Any assignment of the performance of this Contract without prior written consent of the District shall be voidable. Consent will not be given to any proposed assignment which would relieve the original Contractor or its Surety of their responsibilities under the Contract. Contractor may assign monies due or to become due it under the Contract, to the extent permitted by law, and such assignment will be recognized by the District, if written notice thereof is given to the District at least ten (10) working days before a payment is due, but any assignment of monies shall be subject to all proper set-offs in favor of the District and to all deductions or retentions provided for in the Contract and particularly all money withheld, whether assigned or not, shall be subject to being used by the District for the completion of the work in the event that Contractor should be in default therein or for the payment of claims or liens.

GC-14 ASSIGNMENTS

No assignment of any performance of work under this Contract shall be made by the Contractor, its heirs, executors, administrators, or successors without prior written consent of the District. Consent for any proposed assignment will not be considered that would, by any instrument, relieve the original Contractor or its Surety of the responsibilities under the Contract.

The Contractor may assign monies due or to become due under the Contract, to the extent permitted by law, and such assignment will be recognized by the District, if written notice thereof is given to the District at least ten (10) days before a payment is due. Any assignment of monies shall, however, be subject to all proper set-offs in favor of the District and to all deductions provided for in the Contract. All monies withheld, whether assigned or not, shall be subject to being used by the District for the completion of the work in the event that the Contractor should be in default therein or for the payment of claims or liens against the work from any source.

GC-15 TERMINATION OF RIGHT TO PROCEED

If Contractor should refuse or fail, except in cases for which extension of time is provided, to supply enough properly skilled workers, proper equipment and proper appliances or proper materials, or if it should fail to make prompt payments to subcontractors or for material or labor, or disregard laws, ordinances, or the instructions of the District, or otherwise be guilty of a substantial violation of any provision of this Contract, then the District may without prejudice to any other right or remedy, serve written notice upon Contractor and Surety, if any, of the District's intention to terminate the performance of Contractor, such notices to contain the reasons for such termination, and unless within seven (7) calendar days after the serving of such notice upon Contractor and Surety, if any, such cause shall cease and satisfactory arrangement for correction shall be made, the performance of Contractor shall cease and terminate. In the event of any such termination, or should Contractor be adjudged as bankrupt, or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, the District shall serve notice thereof upon Contractor and Surety, if any, and the Surety shall have the right to perform the Contract; provided, however, that if the Surety does not commence performance thereof within seven (7) calendar days from the date of service of notice of termination upon the Surety, the District may take possession of the premises and of all materials, tools, equipment, and appliances thereon and finish the work by whatever method the District may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price shall exceed the expense of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to Contractor. If such expense shall exceed such unpaid balance, Contractor and Surety, if any, shall pay the difference to the District. The expense incurred by the District as herein provided, and the damage incurred through Contractor's default, shall be certified by the District. Service of any notices hereunder shall be deemed complete upon the deposit in the United States mail, postage prepaid, addressed to the address of Contractor and Surety, if any, as shown on records on file with the District.

Said termination shall be without prejudice to any other remedies available to the District.

Upon receipt of any such written notice of termination of right to proceed, Contractor shall, at its expense, for that work affected by any such termination:

- A. Assist the District in making an inventory of all materials and equipment in storage at the site, enroute to the site, and on order from suppliers.
- B. Assign to the District subcontracts, supply contracts, and equipment rental agreements all as designated by the District.
- C. Remove from the site all construction materials, equipment, and plant listed in said inventory other than such construction materials, equipment, and plant which are designated in writing by the District to be used by the District in completing such work.

GC-16 OPTIONAL TERMINATION

Including, but not limited to, provisions for termination in the event of national emergency under Section 4410 et. seq. of the Government Code of the State of California, the District may, at its option, cancel and terminate the Contract in whole or in part at any time by written notice thereof to Contractor, whether or not Contractor is in default.

Upon any such cancellation and termination, Contractor shall waive any claims for damages, including loss of anticipated profits, on account thereof, but as the sole right and remedy of Contractor and the District, the District shall pay Contractor in accordance with subparagraph B., below, provided, however, that the provisions of the Contract, which by their very nature survive final acceptance under the Contract, shall remain in full force and effect after such cancellation and termination to the extent provided in such provisions.

- A. Upon receipt of any such notice, Contractor shall, unless the notice requires otherwise:
 - 1. Immediately discontinue work on the date and to the extent specified in the notice.
 - 2. Place no further orders or subcontracts for materials, services, or facilities, other than as may be necessary or required for completion of such portion of work under the Contract that is not terminated.
 - 3. Promptly make every reasonable effort to obtain cancellation upon terms satisfactory to the District of all orders and subcontracts to the extent they relate to the performance of work terminated.
 - 4. Assist the District as specifically requested, in writing, in the maintenance, protection, and disposition of property acquired by the District under the Contract.

- B. Upon any such termination, the District will pay to Contractor an amount determined in accordance with the following (without duplication of any item):
 - 1. All amounts due and not previously paid to Contractor for work completed in accordance with the Contract prior to such notice, and for work thereafter completed as specified in such notice.
 - 2. The cost of settling and paying claims arising out of the termination of work under subcontracts or orders as provided in subparagraph A.3., above.
 - 3. The reasonable costs incurred pursuant to subparagraph A.4., above.
 - 4. Any other reasonable costs incidental to such termination of work.
 - 5. The foregoing amounts shall include a reasonable sum, under all of the circumstances, as profit for any work performed by Contractor.

GC-17 SUSPENSION OF WORK

The District may, at any time and in its sole discretion, for the District's convenience, by notice in writing to the Contractor, suspend the performance of all or any portion of the work being or to be performed under the Contract. Work that is suspended shall not be resumed until the District issues a written notice to resume suspended work. Upon issuing the notice to suspend work, the District will designate the amount and type of plant, labor, and equipment to be committed to the Project. During the period of suspension, the Contractor shall use its best efforts to utilize its plant, labor, and equipment in such a manner as to minimize the costs associated with suspension.

- A. Upon receipt of any notice to suspend work, the Contractor shall, unless the notice requires otherwise:
 - 1. Immediately discontinue work on the date and to the extent specified in the notice; and

2. Place no further orders or subcontracts for material, services, or facilities with respect to suspended work other than as required in the notice; and
 3. Promptly make every reasonable effort to obtain suspension of all orders, subcontracts, and rental agreements to the extent they relate to performance of work suspended upon terms satisfactory to the District; and
 4. Unless otherwise specifically stated in the notice, the Contractor shall continue to protect and maintain the Project, including those portions of work that have been suspended.
- B. As full compensation, the Contractor will be reimbursed for the following costs, reasonably incurred, without duplication of any item, to the extent that such costs directly result from such suspension of work:
1. A standby charge to be paid to the Contractor during the period of suspension of work, which standby charge shall be sufficient to compensate the Contractor for keeping, to the extent required in the notice, its organization and equipment committed to the Project in a standby status.
 2. All reasonable costs associated with mobilization and demobilization of the Contractor's plant, forces, and equipment.
 3. An equitable amount to reimburse the Contractor for the cost of maintaining and protecting that portion of the Project upon which work has been suspended.
 4. If the costs associated with subsequently performing work is increased or decreased as a result of any such suspension of work, an equitable adjustment reflecting either an increase or decrease in such cost will be established by Change Order in accordance with Section GC-28, Changes.

Upon receipt of notice to resume suspended work, the Contractor shall immediately resume the suspended work to the extent required in the notice. The Contractor shall also submit a revised construction schedule for the District's review and approval.

In cases where other governmental agencies or authorities suspend the performance of the work, and such suspension is not due to the failure of the Contractor to comply with the requirements of the Contract, the suspension will be considered a suspension for convenience by the District and the provisions of this Section shall apply.

Notwithstanding the provisions for convenience stated above, the District may partially or entirely suspend the work for an indefinite period of time for the failure of the Contractor to comply with the Contract. Under such suspension, the Contract completion date will not be extended and the Contractor shall not be entitled to recover resulting costs or damages including, but not limited to, acceleration costs.

GC-18 CONTRACTOR-FURNISHED DRAWINGS AND DATA

Contractor shall promptly submit within the time specified at its own expense all submittals, shop drawings and details required by the plans and specifications. The District's favorable review shall be obtained before any such items are manufactured or used in the work. The favorable review of drawings by the District shall apply in general design only and shall in no way relieve Contractor from responsibility for errors or omissions contained therein. Favorable

review by the District shall not relieve Contractor of its obligation to meet safety requirements and all other requirements of laws.

Submittals and coordination are the responsibility of Contractor; this responsibility shall not be delegated in whole or in part to subcontractors or suppliers. Any designation of work "by other," shown on submittals, shall mean that the work will be the responsibility of Contractor rather than the subcontractor or supplier who has prepared the shop drawings.

Submittals shall be prepared in such form that data can be identified with the applicable specification paragraph. The data shall demonstrate clearly compliance with the project drawings and specifications and shall relate to the specific equipment to be furnished. Where manufacturer's standard drawings are employed, they shall be marked clearly to show what portions of the data are applicable to this project.

Review of shop drawing submittals by the District has as its primary objective the completion for the District of a project in full conformance with the project drawings and specifications, unmarred by field corrections, and within the time provided. In addition to this primary objective shop drawing review as a secondary objective will assist Contractor in its procurement of equipment that will meet all requirements of the project drawings and specifications, will fit the structures detailed on the drawings, will be complete with respect to piping, electrical, and control connections, will have the proper functional characteristics, and will become an integral part of a complete operating facility. Acceptance of shop drawings and submittals does not constitute a change order to the Contract requirements.

Within ten (10) business days after receipt by the District of three (3) hard copies and one (1) PDF copy each of Contractor's submissions and all appurtenant data required for their review, the appropriate number of copies will be returned to Contractor with one of the following notations:

1. Resubmittal not required; correction, if any noted.
2. Correct and resubmit; corrections noted.

Returned copies of drawings marked with notation "1" authorize Contractor to proceed with the operations covered by such returned copies, provided that such operations shall be subject to the comments, if any, shown on such returned copies

Returned copies of drawings marked with notation "2" shall be corrected, as necessary and required, and shall be submitted in the same manner as before.

Submittals which do not have all the information required to be submitted, including deviations, are not acceptable and will be returned without review.

When submittals are favorably reviewed, the District will retain two (2) copies and will return all other copies to Contractor. When submittals are not favorably reviewed, the District will retain only one (1) copy and will return all others to Contractor.

It is considered reasonable that Contractor shall make a complete and acceptable submission to the District at least by the second submission of data. The District reserves the right to deduct monies from payments due Contractor to cover additional costs of the District's review beyond the second submission.

Favorable review by the District will not constitute acceptance by the District of any responsibility for the accuracy, coordination, and completeness of the shop drawings or the items of equipment represented on the drawings. Accuracy, coordination, and completeness of shop drawings shall be the sole responsibility of Contractor, including responsibility to backcheck comments, corrections, and modifications from the District's review before fabrication.

Supplemental, specific requirements for shop drawings and details are contained in the applicable technical sections of these specifications.

Copies of schedules and shop drawings submitted to the District for review shall be such as to provide two (2) for the District's files, and such additional copies as Contractor may desire for its own office files and/or for distribution by it to subcontractors or vendors. Exceptions will be noted in specific sections of this Contract.

All submittals and supporting data, catalogs, and schedules, shall be submitted as the instruments of Contractor, who shall be responsible for their accuracy and completeness. These submittals may be prepared by Contractor, subcontractors, or suppliers, but Contractor shall ascertain that submittals meet all of the requirements of the Contract while conforming to structural, space, and access conditions at the point of installation. Contractor shall check all submittals before submitting them to the District.

The District shall check and review schedules, drawings, etc., submitted by Contractor only for general design conformance with the concept of the project and compliance with the information given in the Contract.

Shop drawings shall not be used to order products' fabrication or delivery for construction or installation unless submitted to and favorably reviewed by the District.

Acceptance by the District of any drawings, method of work, or any information regarding materials and equipment Contractor proposes to furnish shall not relieve Contractor of its responsibility for any errors therein and shall not be regarded as an assumption of risks or liability by the District, or its representatives, or any officer or employee thereof, and Contractor shall have no claim under the Contract on account of the failure or partial failure or inefficiency or insufficiency of any plan or method of work or material and equipment so accepted. Such acceptance shall be considered to mean merely that the District has no objection to Contractor using, upon its own full responsibility, the plan or method of work proposed, or furnishing the materials and equipment proposed.

GC-19 SUBSTITUTIONS AND EQUAL ALTERNATIVES

The work, unless otherwise permitted or approved by the District, shall be completed with the incorporated use of trade-named materials and equipment where such are specified. Substitutions and equal alternatives will be permitted as provided in this Section; however, neither the request for substitution nor the offer of alternatives shall in any way by their submittal obligate the District to assent to any request or offer. Failure of Contractor to submit proposed substitutions for review in accordance with this Section will be considered as evidence that the work shall be accomplished with trade-named materials and equipment as identified in the Technical Specifications and shall be cause for rejection by the District of any other proposed substitutions.

Except when the specifications prohibit the substitution of a similar or equivalent material or article, Contractor may make written request to the District for approval of the use of alternative equipment or materials. Such request shall contain complete data intended to show that such alternative item is of a quality equal to or better than that specified and has the required characteristics for the intended use. Upon request, Contractor shall furnish to the District such additional information relating to such alternative items as the District may require.

Contractor shall submit written requests for substitutions to the District, within thirty-five (35) days of Contract award and prior to placing any purchase orders, but at least thirty (30) days before it requires approval of any such alternative item.

The burden of proof as to the quality and suitability of alternatives shall be upon Contractor, and it shall furnish all necessary information requested and required by the District. The District will be the sole judge as to the quality and suitability of alternative articles or materials, and its decision shall be final.

GC-20 QUALITY OF EQUIPMENT, MATERIALS, PRODUCTS, AND/OR WORKMANSHIP

The Contractor shall furnish all equipment, materials, and/or products required to complete the work, except equipment, materials, and/or products that are designated to be furnished by the District. Materials that are identified as District-furnished materials on the Project Drawings or in Part VI, Special Conditions, Section SC-15, District-Furnished Materials or Equipment, will be available to the Contractor free of charge, upon request, at the locations designated.

Only equipment, materials, and/or products meeting the requirements of the Contract shall be incorporated in the work. The equipment, materials, and/or products furnished and used shall be new and shall be manufactured, handled, and installed in a workmanlike manner to ensure a completed Project in accordance with the Contract. Manufacturers' warranties, guarantees, instruction sheets, and parts lists that are furnished with certain equipment, materials, and/or products incorporated in the work shall be delivered to the District before the Contract will be accepted.

If no detailed specifications are set forth, the Contractor shall furnish equipment, materials, and/or products in conformance with the latest standards, specifications, manuals or codes of an acceptable technical society, organization or association, or to the laws or regulations of any applicable governmental authority, whether such reference be specific or by implication, in effect at the time of opening of bids.

GC-21 INSPECTIONS AND SAMPLES

Unless otherwise provided in the Contract, all equipment, materials, and work shall be subject to inspection and testing by the District. The District shall have the right to reject equipment, materials, and work not in accordance with the Contract. Rejected work shall be satisfactorily corrected; rejected equipment shall be satisfactorily repaired or replaced with satisfactory equipment; and rejected material shall be satisfactorily replaced with satisfactory material, all in accordance with the Contract. The Contractor shall promptly segregate and remove rejected materials and equipment from the premises. All such correcting, repairing, replacing, and removing shall be by and at the expense of the Contractor.

The District will perform inspections in such manner as not to delay the work unreasonably, and the Contractor shall perform its work in such manner as not to delay inspection unreasonably.

The Contractor shall give the District reasonable advance notice of operations requiring special inspections or tests, and it may request inspection of a portion of any work at any time by reasonable advance notice to the District. The Contractor shall, at its expense, furnish promptly all facilities, labor, and materials necessary and required for such inspection and tests.

Contractor shall provide work area access at all reasonable times to the District and its officers, agents, employees, and any other duly authorized representatives and employees, and all duly authorized representatives of governmental agencies having jurisdiction over work areas or any part thereof for the purpose of determining compliance with Contract requirements. The Contractor shall also arrange for the District, and its officers, agents, employees, and any other duly authorized representatives and employees, to have access at all reasonable times to all places where equipment or materials are being manufactured, produced, or fabricated for use under the Contract.

The Contractor shall furnish the District all reasonable facilities for the District's safety and convenience in inspecting work, at all times and at all places where inspection may take place. If the District finds that conditions are unsafe for inspection at a particular location, he may, upon notice to the Contractor, refuse to inspect in that location until such conditions are corrected. The Contractor shall bear any additional costs resulting from such action, including any costs incurred to permit subsequent inspection of any portion of work covered or completed at the location before correction of the conditions, whether or not such portion of work is found to meet Contract requirements.

The Contractor shall bear any additional inspection costs resulting from its failure to have a portion of work ready for inspection at the time requested by it for inspection, or from reinspection of any previously rejected portion of work where the defects requiring such rejection were due to the Contractor's fault or negligence. Such costs may be deducted, in whole or in part, from any monies due or that may become due to the Contractor under the Contract.

Inspection of materials and finished articles to be incorporated into any work may be made by the District at the place of production, manufacture, or shipment. When such inspection is to be performed, no such materials or finished articles shall be shipped from such place of inspection or incorporated in any work prior to inspection or without the written approval of the District. Equipment, materials, and work not in conformity with the Contract shall be corrected or replaced with satisfactory equipment and materials by and at the expense of the Contractor so as to conform to the Contract as determined by the District.

No acceptance of equipment, materials, or work shall be construed to result from such inspections by the District. Any inspections or tests or waivers thereof shall not relieve the Contractor of its responsibility for meeting the requirements of the Contract.

Where so required in the Contract, or whenever requested by the District, the Contractor shall, at its expense, promptly furnish to the District sample specimens of materials to be incorporated into any work. Samples shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the work. Samples of material from natural sources shall be taken in the presence of the District; otherwise, the sample will not be considered for testing. Samples shall be tagged or labeled securely and fully identified as to manufacturer, type, size or capacity, lot, and date, all as applicable and by reference to the applicable section and paragraph of the Contract. Materials for which samples are required shall not be used in any work until approved in writing by the District. Materials

incorporated in any work shall conform to such samples as the District, in his discretion, determines meet the requirements of the Contract. Samples will be returned to the Contractor only at the discretion of the District.

GC-22 PROJECT DOCUMENTS AND RECORD DRAWINGS

The Contractor shall keep on the work site a copy of the Project Documents and shall at all times give the District access thereto. Any drawings included in the detailed Specifications shall be regarded as part thereto and of the Contract. Anything mentioned in these Specifications and not shown on the Project Drawings, or shown on the Project Drawings and not mentioned in these Specifications, shall be of like effect as though shown or mentioned in both. The District will furnish from time to time such detail drawings, plans, profiles, and information as he may consider necessary for the Contractor's guidance. It shall be the duty of the Contractor to see that the provisions of the Contract are complied with in detail irrespective of the inspection given the work during its progress by the District. Any failure on the part of the Contractor to observe the requirements contained in the Contract will be sufficient cause for the rejection of the work at any time before its acceptance.

The Contractor shall maintain, at the job site, one record set of Project Drawings in good order and clearly marked to show any deviations that have been made from the Project Drawings, including concealed construction and utility features that are revealed during the course of construction. Marked prints shall be updated at least once each week and shall be available to the District for review as to currency prior to developing partial payment estimates. Upon completion of the work, the marked set of prints shall be delivered to the District.

In the case of those drawings that depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the Record Drawings shall be updated by indicating those portions that are superseded by Change Order drawings or final shop drawings and by including appropriate reference information describing the Change Orders by number and the shop drawings by manufacturer, drawing, and revision numbers.

Requests for partial payments will not be approved if the updated set of drawings is not in good order or is not kept current. Request for final payment will not be approved until the complete and correct Record Drawings are delivered to the District.

GC-23 SAFETY REQUIREMENTS

In accordance with generally accepted construction practices and state law, Contractor shall be solely and completely responsible direction and control of the work and for conditions on the jobsite, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours.

Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. Contractor shall provide protection for all persons including, but not limited to, its employees and employees of other contractors or subcontractors; and employees, agents, and representatives of the District and regulatory agencies that may be on or about the work. Contractor shall also take such measures as may be necessary or required to assure that the safety and health of the employees and of the public may be safeguarded.

Contractor shall provide and maintain all necessary safety equipment such as fences, barriers, signs, lights, walkways, guards, and fire prevention and fire-fighting equipment and shall take such other action as is required to fulfill its obligations under this Section. It is the intent of the District to provide a safe working environment under normal conditions.

All work and materials shall be in strict accordance with all applicable state, city, county, and federal rules, regulations, and codes, and attention is drawn to the requirements of OSHA. Contractor shall be solely responsible for compliance with all city, county, and state explosive transport, storage, and blasting requirements and for any damages caused by its operations.

Contractor shall promptly and fully comply with and carry out safety, sanitary, and medical requirements as prescribed by federal, state, or local laws or regulations and industry standards. Contractor shall keep adequate first aid facilities and supplies available and instruction in first aid shall be given.

The services of the District in conducting review and inspection of Contractor's performance is not intended to include review of the adequacy of Contractor's work methods, equipment, bracing or scaffolding, or safety measures, in, on, or near the construction site. However, The District reserves the right to stop work if the District believes that there is an imminent danger to persons or property. Even though the District reserves such rights, the exercise of such rights is at the District's sole discretion, and such reservations will not be construed as an obligation of the District to monitor or enforce the Contractor's safety program. The District's exercise of these rights shall not provide a basis for delay damages, extra compensation, and/or additional compensation to complete the work.

All costs in connection with meeting the requirements of this Section shall be borne by Contractor.

GC-24 CLEANING UP

Contractor shall, at all times, keep the premises occupied by it and access to such premises in a neat, clean, and safe condition. During the progress of work, the Contractor shall, at a minimum:

1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of material.
2. Provide adequate storage of all items awaiting removal from the job site, observing all requirements for fire protection and protection of the environment.
3. Remove any accumulation of scrap, debris, waste material, and other items not required for construction of this work.
4. Dispose of existing materials and equipment to be demolished and removed and all trash, such as broken concrete, wood blocking, shipping containers, etc., resulting from the contract work off the premises occupied by the Contractor, including District property, at the Contractor's expense. District-leased dumpsters and other disposal containers on District's property, unless specifically provided by the Contractor, shall not be used by the Contractor.
5. Maintain all work areas within Contract work limits free from dust, as determined by the District. Industry-accepted methods of dust control, suitable for the area involved, will be permitted. No separate payment will be made to Contractor for dust control.

Upon completion of any portion of any work, Contractor shall promptly remove all of its equipment, temporary structures, and surplus construction and other materials not to be used at or near the same location during later stages of work. Upon completion of any work and before final payment is made, Contractor shall, at its expense, satisfactorily dispose of all plant, buildings, rubbish, unused materials, concrete forms, and other equipment and materials belonging to it or used in the performance of work; and Contractor shall leave the premises in a neat, clean, and safe condition.

The Contractor shall, as a minimum, conduct daily inspections to verify that requirements of this Section are being met. If the Contractor fails to comply with any of the foregoing, the District will transmit written notification of noncompliance. If, within five (5) days of the written notification, the Contractor fails to comply, cleanup may be undertaken by the District at the expense of the Contractor.

GC-25 CONTAMINATED SOILS/MATERIALS

Contaminated soils and materials shall include, but not be limited to, pollutants and/or materials defined as hazardous substances or hazardous wastes under the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), the Hazardous Substances Control Act (Health and Safety Code Section 25300 and following), the Hazardous Waste Control Act (Health and Safety Code Section 25100 and following), or as defined as pollutants or contaminants under any other applicable state and federal laws and regulations. Said materials shall include, but not be limited to, friable asbestos, PCBs, petroleum products and its byproducts, and waste oil, among other substances.

Contractor shall notify the District by person or by telephone within two hours of discovery as to any contaminated soil or materials on or beneath the job site, including in buildings and related structures that could be impacted by the construction Project so discovered by the Contractor, its personnel, agents, representatives, consultants, or any other persons working under the direction and control of the Contractor. In addition, written notice shall be delivered to the District by the Contractor within 24 hours of discovery. Contractor shall require that like provisions be inserted in all contracts with its subcontractors and tiers of subcontractors. This shall not relieve the Contractor from the obligation and responsibility to ensure that the provisions of this General Condition are complied with.

The Contractor and its subcontractors shall immediately cease any and all work at the location of the discovery of the contaminated soils or materials until further notice from the District.

However, if the Contractor is specifically directed to conduct appropriate cleanup operations with respect to the contaminants discovered, the Contractor shall proceed with these operations. In addition, the Contractor shall notify the District of the discovery of said contaminants in the manner set forth above. Further, if the contaminants substantially vary from the description in the Contract as to type of material, quality of materials, level of concentration or toxicity, location, as to the materials' affect on groundwater, or vary in any other substantial manner from the description as set forth in the Contract, the Contractor shall immediately cease operations and notify the District in the manner set forth above.

All work done by the Contractor with respect to cleanup, removal, and remedial actions concerning the contaminated soils or materials shall be done according to law. All required notices shall be given by the Contractor to the County Environmental Health Hazard Materials

Section and other appropriate governmental agencies, including the State Department of Toxic Substances Control and Regional Water Quality Control Board, among others. The Contractor or any subcontractor doing such work on behalf of the Contractor shall have the appropriate certification, licenses, and permits prior to commencing any such cleanup, removal, and/or remedial work. The District shall not be responsible for the negligence of or violation of any laws, rules, regulations, or ordinances by the Contractor or any of the Contractor's subcontractors, agents, consultants, employees, or representatives in doing such cleanup, removal, and remedial work.

If any of the cleanup, removal, containment, and remediation work substantially impacts upon the community, including, but not limited to, traffic, odor, and health issues, the District reserves the right to direct that the manner of operations by the Contractor be revised accordingly to reduce or eliminate the adverse effects.

GC-26 EXISTING UTILITIES AND INTERFERENCES

The locations of known existing utilities and pipelines are shown on the Project Drawings in their approximate locations. Some of the locations include multiple conduits. The Contractor shall exercise care in avoiding damage to those facilities that are to remain in service subsequent to the construction of the particular new facility involved, and it will be held responsible for their repair if damaged. The Contractor shall also exercise care in maintaining those pipes and facilities required for continuing operation of the existing facilities until such time as they can be abandoned. There is no guarantee that all utilities or obstructions are shown or that the locations indicated are accurate.

The Contractor shall be responsible for discovery of all existing underground installations in advance of excavating or trenching by contacting all local utilities 48 hours in advance and by prospecting. Contractor shall notify Underground Service Alert 48 hours prior to any excavation work.

The Contractor shall uncover and completely expose all piping where crossings, interferences, or connections are shown on the Project Drawings, prior to trenching or excavating for any pipe or structures, to determine actual elevations. New pipelines shall be laid to such grade as to clear all existing facilities that are to remain in service for any period subsequent to the construction of the run of pipe involved. If the Contractor does not expose all required utilities, it shall not be entitled to additional compensation for work necessary to avoid interferences or for repair to damaged utilities. Excavations around underground electrical ducts and conduits shall be performed using extreme caution to prevent injury to workers or damage to the electrical ducts or conduits.

Notwithstanding any other provision of this Contract between the District and the Contractor:

- A. In accordance with the provisions of Section 4215 of the California Government Code, in any contract to which the District is a party, the District shall assume the responsibility between the parties to the contract for the timely removal, relocation, or protection of existing main or trunk line utility facilities located on the site of any construction project and that are a subject of the Contract if such utilities are not identified by the District in the Project Drawings and Specifications; provided, however, that nothing herein shall be deemed to require the District to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities, such as buildings,

meter and junction boxes on or adjacent to the site of construction. The District will compensate the Contractor for the costs of locating and repairing damage and removing or relocating such utility facilities that are not indicated in the Project Drawings and Specifications, provided that the Contractor exercises due reasonable care.

- B. The owner of the utility shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price.
- C. The Contractor shall not be assessed liquidated damages for delay in completion of the Project when such delay was caused by the failure of the District to show existing utilities or other existing facilities, excluding service laterals.

If interferences between existing utilities and proposed work occur at locations other than those shown on the Project Drawings, the Contractor shall notify the District, and a method for correcting said interference will be supplied by the District. Payment for correction of interferences not shown on the Project Drawings will be in accordance with the provisions of Section GC-27, Differing Site Conditions.

GC-27 DIFFERING SITE CONDITIONS

The Contractor shall promptly, and before the following conditions are disturbed, notify the District in writing of any:

1. 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 provisions of existing law.
2. Subsurface or latent physical conditions at the site differing materially from those indicated in the Project Documents and/or geotechnical report.
3. Unknown physical conditions at the site of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

Actions by the Contractor to disturb or cover the above conditions before the District is notified or has had the opportunity to investigate the conditions shall be deemed a waiver by the Contractor of any and all rights that the Contractor may have for additional compensation for increases in the Contractor's cost of, or the time required for, performance of any part of the work.

The District will promptly investigate the conditions; and if the District finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work, the District will issue a Change Order in accordance with the provisions of Section GC-28, Changes.

In the event that a dispute arises between the District and Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and

all rights provided either by Contract or by law that pertain to the resolution of disputes and protests between the contracting parties.

GC-28 CHANGES

District may, at any time, by written change order make changes in the work, or extend the time to complete the work, as deemed necessary by District. The Contractor shall perform the work when so ordered. Any such change or request will be authorized in writing by the District, provided that in the event of an emergency, which the District determines endangers life or property, any work required by reason of such an emergency shall be performed in accordance with oral orders from the District, which will be confirmed in writing as soon as practicable. Any such authorization, whether written or oral, may be accompanied by drawings and data as are necessary to show the extent of such change or extra work.

If the District does not issue a written change order and the Contractor believes he is entitled to compensation or time in excess of the Contract amount arising out of the conduct of the work, Contractor may submit a written request for change to the District. Such requests for change will not be considered by the District unless the Contractor complies with the notification requirements of this paragraph. Contractor shall notify the District immediately upon learning of a condition, occurrence or circumstance that potentially will give rise to a request for change. If the initial notification is oral, Contractor shall confirm the notification in writing within five (5) days of the oral notification. The Contractor shall not proceed with the work involving the potential request for additional compensation without notifying the District of the subject conditions, occurrence, or circumstance unless an emergency exists or unless it is impossible to notify the District without creating an unreasonable delay in the work.

When changes in the work are required by the District or requested by Contractor, Contractor shall promptly estimate their effect on the cost or time of performance of this Contract and so notify the District. If requested by the District, Contractor shall supply any information to support Contractor's estimate of cost and/or time. No change shall be implemented by Contractor unless it is approved by the District in writing, and, unless otherwise agreed to in writing, the provisions of this Contract shall apply to all changes in the work.

If the District determines that any change materially affects the cost or time of performance of this Contract as a whole, Contractor and the District will mutually agree, in writing, to an equitable adjustment as specified in Section GC-29, Delays and Time Extensions and/or Section GC-30, Extra Work Payment. In the event of disagreement, the District will fix such adjustment that, in its opinion, be reasonable and proper, regard being had to all material and relevant factors including Contractor's direct costs and overhead. The Contractor may protest terms of such a change order in accordance with Section GC-31, Protest Procedure.

Contract change orders which affect the cost or term of performance shall be processed through the District's designated administrative representative, as shown in Section GC-5, Notices.

The District reserves the right to engage another contractor to perform the work if such engagement is in the District's best interest.

GC-29 DELAYS AND TIME EXTENSIONS

The time limits stated in the Contract are of the essence to the Contract. By executing the Contract, the Contractor confirms that the time limits set forth in the Contract, including interim

or milestone dates, are reasonable periods for the performance of the work. The Contractor shall not be entitled to extensions of time limits at any time in the progress of the work unless the delay is occasioned by an act or neglect of the District or unless the delay in the completion of the work arises from unforeseeable causes beyond the control and without fault or negligence of both the Contractor and subcontractors or suppliers. Such unforeseeable causes may include: acts of God; acts of a public enemy; acts of a governmental entity not occasioned by the Contractor's, subcontractor's, or supplier's conduct; acts of another contractor in performance of a contract with the District; fires; floods; epidemics; quarantine restrictions; freight embargoes; unusually severe weather; or other delays of subcontractors or suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and such subcontractors or suppliers.

If the Contractor seeks an extension of time for the completion of any phase of the work, the Contractor shall submit a written request to the District for an extension of time for the portion of the work so delayed within five (5) days of the onset of such delay, and such request shall fully state the reasons for such delay. When such a request is received, the District will ascertain the reasons for and the extent of such delay. If the District determines that the facts justify an extension of time, the Contract will be modified accordingly, through a written change order. If the District determines that the facts do not justify an extension of time, such request will be denied. The District's finding of fact of either determination will be given to the Contractor, and such findings shall be final unless the Contractor files a protest under Section GC-31, Protest Procedure. No extension will be granted for any portion of any delay unless the required written request is made by the Contractor as specified herein and the District finds justification for the request.

In any event, the Contractor expressly waived any right to delay damages from the District where a reasonable extension is granted, except when the District is responsible for the delay of the Contractor's performance of the work and which delay is unreasonable under the circumstances involved and not within the contemplation of the parties.

No time extensions will be granted nor extended overhead paid until a delay occurs which:

1. Impacts the Project's critical path,
2. Consumes all available float, slack time, or schedule contingency within the construction schedule (the time between the Contractor's scheduled early completion date and the Contract completion date), and
3. Extends work beyond the Contract completion date.

Float, slack time, or schedule contingency within the construction schedule is not for the exclusive use or benefit of the District or the Contractor but is a resource available to both parties as needed.

Except as limited by Section 7102 of the Public Contract Code, should the Contractor sustain any loss, damage, or delay through any act or omission of any other contractor or entities, the Contractor expressly waives any rights and any claims against the District, other than for an extension of time.

GC-30 EXTRA WORK PAYMENT

If the District determines that any change in the work materially affects the cost of this Contract

as a whole, there shall be an equitable adjustment in the payment price. The price adjustment shall be determined by one of the following methods in the order of preference listed:

- A. Unit Price Change: Based on the unit prices contained in Section 2, Schedule of Bid, Part III, Bid Forms.

If there is a variation in the estimated Bid quantity listed in Section 2, Schedule of Bid, Part III, Bid Forms by more than one hundred fifty percent (150%) or less than fifty percent (50%) of the Bid quantity, either the District or the Contractor may notify the other party of their desire to renegotiate the Contract unit price with respect to those quantities outside of the permitted range of fifty percent (50%) below to one hundred fifty percent (150%) above the Bid quantity.

- B. Agreed Price Change: Mutually agreed-upon lump sum or unit price adjustment.

- C. Cost Plus Change: Contractor's actual cost of labor (wages and benefits), materials (actual purchase price, sales tax, freight and delivery) and equipment/tools (at actual or fair/prevaling rental rates) directly engaged in the performance of the extra work plus a fifteen percent (15%) mark-up for overhead and profit. A five percent (5%) mark-up will be added to the cost of extra work performed by subcontractors.

For cost plus changes, Contractor shall provide to District an itemized breakdown of the quantities and prices used in the extra work, and it shall make available all source documents for itself and any subcontractors, including but not limited to payroll records, invoices, purchase orders, contracts and lease agreements. Contractor shall keep accurate records that clearly delineate the extra work from other Contract work.

The total payment made as provided above shall be deemed to be the actual cost of such work, including overhead costs, and shall constitute full compensation therefore.

When extra work is performed by subcontractor forces, Contractor shall reach agreement with such other forces as to the distribution of the payment made by the District for such work. No additional payment will be made by the District by reason of the performance of the work by a subcontractor.

GC-31 PROTEST PROCEDURE

If the Contractor objects to any direction, instruction, determination or decision provided by the District, the Contractor may submit a written protest. All such written protests must be submitted within ten (10) days after such direction, instruction, determination or decision is delivered to the Contractor in writing. If the direction, instruction, determination or decision is oral, Contractor must request that the District provide said oral direction, instruction, determination or decision within five (5) days of receiving the oral direction, instruction, determination or decision. The Contractor shall proceed without delay to perform work as directed, instructed, determined, or decided by the District and shall comply promptly with such directions, instructions, determinations, or decisions.

Written protests shall clearly state in detail the Contractor's objections, the reasons therefor, and the nature and amount of additional compensation or extension of time, if any, to which the Contractor contends it will be entitled thereby. It shall also include, if possible, Contract specification references, quantities, costs and any related detailed records.

The District will issue a decision upon each protest. If the District determines that the facts support the protest, the Contract will be modified accordingly, in writing. If the District determines that the facts do not support the protest, such request will be denied. The District's finding of fact of either determination will be given to the Contractor and such findings shall be final and conclusive.

If the Contractor disagrees with any terms or conditions set forth in an approved contract change order which it has not executed, and does not submit a written protest within the time specified above, payment will be made as set forth in the approved contract change order, and such payment shall constitute full compensation for all work included therein or required thereby.

The Contractor shall be deemed to have waived all grounds for protest of direction, instruction, determination, or decision and all claims for additional compensation, extensions of time, or damages occasioned thereby for which protest could have been made under this Section, and shall further be deemed to have accepted such direction, instruction, determination, or decision as being fair, reasonable, and determinative of the Contractor's obligations and rights under the Contract.

GC-32 RECORDS AND ACCOUNTS

The Contractor shall, at its expense, keep and maintain such records and accounts and shall require its subcontractors and suppliers to keep records and accounts in connection with the performance of the Contract. The Contractor shall maintain, in a businesslike manner, records, accounts, and other evidence directly pertinent to the performance of work under this Contract in accordance with Generally Accepted Accounting Principles and practices consistently applied and applicable under California and federal law. The Contractor shall also maintain the financial information and data used by the Contractor in the preparation or support of cost submissions required for this Contract or any Change Order. The District, or its authorized representatives, shall have access, at all times during normal business hours, to such records, accounts, and other evidence for the purpose of inspection, audit, and copying. The Contractor shall provide proper business facilities for such access, inspection, and copying at no cost to the District.

The Contractor shall furnish to the District, upon request, an accurate written allocation of the total amount of the price paid for performance of work under the Contract to the various elements of the work, as may be required by the District for accounting purposes and for public record. If the District determines that any price (including profit) negotiated in connection with this Contract, Change Order, or any cost reimbursable under this Contract, was increased by any significant sum because the Contractor, subcontractor, or supplier furnished incomplete or inaccurate cost or pricing data or data not current, then such price or cost or profit shall be reduced accordingly and the Contract shall be modified in writing to reflect such reduction. Failure to agree on a reduction under this Section shall be subject to Section GC-31, Protest Procedure.

Such records and accounts shall remain accessible to the District for a period of not less than three (3) years beyond the date of formal acceptance as provided under Section GC-35, Acceptance of the Contract and Final Payment. The Contractor shall agree to include this Section in all its contracts, subcontracts, and purchase orders with suppliers in excess of \$10,000.

GC-33 PROGRESS PAYMENTS

- A. Monthly Progress Payments: Monthly progress payments will be made as the work proceeds. Such payments will be made according to estimates of the amount and value of work satisfactorily performed by the Contractor up to the time of each estimate.

Progress payment estimates shall be made by the Contractor and submitted to the District for review and concurrence. Once the District has agreed to the items of cost, the Contractor shall prepare a progress payment request and submit the request for payment. The burden of requesting payment is on the Contractor. The District has no obligation to pay for a separate item of cost unless that item of cost is included in a progress payment request by the Contractor.

Contractor's progress payment requests shall be made in writing on or about the twenty-fifth (25th) day of each calendar month, and payment will be made within twenty-one (21) days after the District verifies that the request has been properly filed and submitted. Progress estimates will not be required to be made by strict measurement, but may be by measurement or by estimation or partly by one method and partly by another.

Pursuant to Section 20104.50 of the Public Contract Code, the District will pay interest on progress payments held over thirty (30) days from the date of submission, as long as the request for payment by the Contractor is deemed properly filed and submitted. A request for payment by the Contractor will not be deemed properly filed or submitted until such time as the Record Drawings are reviewed and found to be current. The date of submission is the date the District's representative signs the progress payment request form in the space provided for the District. This signature will verify that the request has been properly filed and submitted.

- B. Detailed Cost Breakdown: Prior to preparation of the first progress payment request by the Contractor, the Contractor shall submit to the District a detailed cost breakdown of the work under each bid item awarded. If the initial detailed cost breakdown is not accepted by the District, additional cost breakdowns shall be submitted by the Contractor until the District determines that the cost breakdown is acceptable. Upon acceptance by the District, the breakdown will then become the basis for partial payment determination. Bond and insurance costs shall not be considered a separate item of cost for this purpose but shall be included in mobilization/demobilization.
- C. Retainage: In making progress payments, the District shall retain five percent (5%) of the cumulative estimated amount until final acceptance of all work under the Contract as set forth under Section GC-35, Acceptance of Contract and Final Payment. The Contractor shall be allowed to substitute securities for any monies withheld to ensure performance under this Contract, or the Contractor may request that the District have such funds, which the District would otherwise withhold from progress payments to ensure performance, deposited in an escrow account pursuant to Section 22300 of the California Public Contract Code. The Contractor may exercise the option of substituting securities or depositing funds in an escrow account by executing the Escrow Agreement for Security Deposits in Lieu of Retention in the form supplied by the District upon request.

- D. Withholding Payment: Any payments otherwise payable under the Contract may be withheld, in whole or in part, by the District, if in the discretion of the District, it is necessary to protect the District from loss due to the following:
1. Defective work that is not remedied; or
 2. Third-party claims filed or reasonable evidence indicating probable filing of such claims; or
 3. Contractor's failure to make payments to subcontractors for labor, equipment, materials, or products to which a subcontractor is entitled; or
 4. Evidence that the work cannot be completed for the unpaid balance of the Contract sum; or
 5. Contractor's failure to submit an acceptable construction schedule or failure to update the schedule; or
 6. Any and all damage to the District, or another contractor, resulting from the Contractor's action or inaction; or
 7. Contractor's failure or inability to maintain insurance coverage and bonds as required by the Project Documents throughout the course of the job; or
 8. Contractor's repeated failure to carry out the work in accordance with the Project Documents; or
 9. Contractor's failure to provide copies of certified payrolls, as specified in this Section GC-7, Laws, Regulations and Prevailing Wages; or
 10. Contractor's failure to comply with the laws or regulations of any federal, state, or local government; or
 11. Untimely repair of any damage resulting from the Contractor's operations or untimely restoration of property, affected by the construction, to a preconstruction condition.

In addition, the District may deduct from any progress payment due the Contractor any amount the District may be currently, or in the future, authorized to retain pursuant to federal, state, or local laws or regulations, any amount due the District from the Contractor, and any other amount that the District is otherwise authorized to retain as specified in Part VI, Special Conditions.

The District will withhold an amount from any progress payment due the Contractor, which will not exceed twice the value of any necessary repairs, corrections, or replacements, to assure that the Contractor completes all repairs, corrections, or replacements for which the Contractor is responsible. The Contractor shall receive payments of said retained amount after the repairs, corrections, or replacements are completed.

Any amount withheld for the reasons stated above shall be based on estimates made by the District and shall be in addition to any amount previously withheld. The Contractor may avoid withholding of amounts from a progress payment by eliminating the cause of the withholding to the satisfaction of the District.

If the Contractor fails to meet the obligations set forth above, upon written notice by the District, the District may discharge such obligations and deduct all costs in connection with the District's discharge of Contractor's obligations from any payments that may become due to the Contractor. If the amount withheld from payment(s) is insufficient to meet such costs, or if any claim or charge against the Contractor shall be discharged by the District after the final Contract payment is made, Contractor and its Sureties shall promptly pay the District all costs incurred thereby, regardless of when such claim arose or whether such claim constitutes a lien upon the Project or the real property upon which the Project is situated.

In the event that District finds Contractor in default, such that the District calls upon the Contractor's surety to perform the remainder of the project, including but not limited to entering into a takeover agreement with Contractor's surety, Contractor shall execute all documents as necessary to transfer or assign the Escrow Agreement called for herein. Contractor shall notify the District of such assignment and transfer such that District shall be fully informed.

- E. Ownership and Waiver: All equipment, materials, products, and work covered by progress payments will, upon payment, become the property of the District. However, this provision shall neither be construed as constituting acceptance of any work or as relieving the Contractor from the sole responsibility for all equipment, materials, products, and work upon which payments have been made, including the restoration of any damaged work until final acceptance thereof, unless specifically provided for elsewhere. The payment for any equipment, material, products, and work covered by a progress payment does not constitute a waiver of the District's right to require fulfillment of all of the terms of the Contract.

The Contractor's acceptance of any payment made under the terms of this Contract shall operate as, and shall be, a release to the District and a waiver of all claims by the Contractor against the District that may arise from the completed work for which payment has been made, except those claims previously submitted to the District in writing pursuant to Government Code Section 901 et seq., which are disputed at the time of the payment.

- F. Subcontractor Payments: The District informs Contractor, and Contractor by execution of the Contract takes cognizance of the following: Contractor must pay progress payments to subcontractors no later than seven (7) days after receipt from the District. If Contractor fails to make progress payments to subcontractors within seven (7) days, then Contractor is subject to penalties of 2% per month, disciplinary action, and attorneys' fees of subcontractors.
- G. Payment for Equipment, Materials, and Products: Generally, the Contractor will not be compensated for equipment, materials, and/or products delivered to the site until after they are incorporated in the work. However, if the District determines that the progress of the work will benefit by the delivery to the site of certain equipment, materials, and/or products in advance of their actual requirement, and if such equipment, materials, and/or products are delivered, a portion of the cost of the equipment, materials, and/or products may be included in progress payments.

GC-34 LIENS AND STOP NOTICE

If at any time any notices of lien are filed for labor performed or materials or equipment manufactured, furnished, or delivered to or for the work, the Contractor shall, at its own cost and expense, promptly discharge, remove, or otherwise dispose of the same; and until such discharge, removal, or disposition, the District shall have the right to retain from any monies payable to the Contractor an amount that, in the District's sole judgment, the District deems necessary to satisfy such liens and pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce the same, or incurred in connection therewith or by reason thereof.

If, at any time prior to the expiration of the period for service of a Stop Notice, there is served upon the District a Stop Notice as provided in Sections 3179 through 3210 of the Civil Code of the State of California, the District shall, until the discharge thereof, withhold from the monies under its control so much of said monies due or to become due the Contractor under this Contract as shall be sufficient to answer the claim stated in such Stop Notice and to provide for the reasonable cost of any litigation thereunder, provided that, if the District shall, in the District's discretion, permit the Contractor to file with the District the bond referred to in Section 3196 of the Civil Code of the State of California, said monies shall not thereafter be withheld on account of such Stop Notice. The monies that the District withholds shall be a minimum of one hundred twenty-five percent (125%) of the face value of the Stop Notice.

GC-35 ACCEPTANCE OF CONTRACT AND FINAL PAYMENT

- A. Final Acceptance: Whenever the Contractor deems that its obligations under the Contract have been fulfilled, the Contractor shall, in writing, so notify the District. This notification shall include a request for the District to make a final inspection. Upon receipt of such notice, the District will, in company with the Contractor, inspect the work that has been performed. If the District determines that the request is appropriate, the District will make a final inspection.

If any deficiencies are discovered by the District during the final inspection of the work, a "punch list" stating the deficiencies will be prepared and transmitted to the Contractor for correction. Upon correction of the deficiencies, the Contractor shall notify the District. The District will reinspect the corrected work. If the District determines that all work is completed except for minor punch-list items, and that all other requirements of the Contract have been met, the District will recommend acceptance of the Contract work to the District's General Manager.

Immediately upon acceptance by the General Manager and without further acknowledgement by the parties, the Contractor is relieved of the duty of maintaining and protecting the Contract work as a whole except as required by the warranty, guaranty, insurance, indemnity, and all other conditions of the Contract that are intended to continue after acceptance of the Contract. Guaranty and warranty periods required by the Contract and the statutory period for the filing of liens and Stop Notices shall commence on the date of acceptance by the General Manager.

Additionally, upon the General Manager's acceptance of the Contract work, the District will cause a Notice of Completion of all work under the Contract to be filed in the office of the District and the office of the County Recorder of Contra Costa County, in accordance with Section 4005 of the Government Code of the State of California. Upon expiration of

the statutory period for filing of liens and Stop Notices and provided no liens or Stop Notices have been filed, the District will authorize release or release the retention, less all such amounts the District may be authorized or required to reserve or retain.

- B. Release of Claims and Subcontractor Payments: The Contractor shall provide a release of all claims arising out of work related to undisputed Contract amounts. Final payment shall be subject to the Contractor's execution of a release in favor of the District, its directors, officers, representatives, agents, and employees, as to all claims arising out of the Contract work and District liability to the Contractor, or any third party, for anything done in relation to or furnished for any work related to undisputed Contract amounts. Such release shall include claims for any act or omission of the District, its directors, officers, representatives, agents, and employees, respectively, or of any person relating to or affecting any work related to such final payment. All prior progress payments, being estimates, will be subject to adjustment in the final payment.

Claims by the Contractor for additional compensation or damages remaining in dispute, as set forth in the final payment release, shall be excluded from the terms of the release. The District may withhold from the final payment up to one hundred fifty percent (150%) of the estimated value of claims by the District, or third parties against the Contractor, including but not limited to, claims regarding amounts previously paid to the Contractor by the District.

The release signed by the Contractor as part of the final payment shall be in substantially the following form:

Final Payment and Release

District Project Name _____
District Project Number _____

The acceptance by Contractor of the final Contract payment in the sum of \$ _____ covering undisputed Contract amounts shall operate as, and shall be a release to the Central Contra Costa Sanitary District (District), the District's directors, officers, representatives, agents, and employees, respectively, from all claims of and liability to the Contractor (except as set forth below), including claims of the Contractor as the successor in interest by assignment or otherwise, to claims of laborers, mechanics, subcontractors, consultants, and materialmen, and including claims by laborers, mechanics, subcontractors, consultants, and materialmen as successors in interest by assignment or otherwise, arising out of the work performed under the Contract which are related to said undisputed Contract amounts. This Release shall be effective as to all claims of the Contractor arising out of or in connection with the performance of the work under this Contract with respect to said undisputed Contract amounts, including tort claims, which are known to the Contractor or reasonably should have been known to the Contractor at the date of the signing of this Release. The acceptance by Contractor of the final Contract payment described above shall operate as a waiver of all claims described herein and of any entitlement to additional payment arising out of the Contract, except as to those claims by the Contractor and their respective estimated dollar amounts listed herein below. It is understood that the amounts set forth below are good faith estimates and may be subject to some reasonable modification. It is intended that this Release be construed in accordance with the limitations set forth in California Public Contract Code, Section §7100.

DESCRIPTION OF
DISPUTED CLAIM

ESTIMATED AMOUNT OF
DISPUTED CLAIM

\$ _____

Signed: _____

By: _____
(typed or printed)

Title: _____

Company Name: _____

Date: _____

The District, at its discretion, may elect to issue final payments directly to certain of the subcontractors, or to issue joint check payments, payable to the Contractor and subcontractor involved. Contractor agrees to verify the correctness of any final payments to be made to subcontractors by the District and acknowledge the same in writing to the District within five (5) days of written request from the District. If the Contractor disputes the correctness of any final payment to be made to a subcontractor, the Contractor shall so notify the District in writing of the matters in dispute and the amounts thereof. The notice shall be in writing delivered to the District within five (5) days of the above-written request from the District. Said payments shall be made in accordance with estimates made by the Contractor and/or subcontractor and approved by the District of the amount and value of work satisfactorily performed by the subcontractor. Amounts so paid to the subcontractor shall be deducted from any amounts due to the Contractor under the terms of the Contract and any Change or Extra Work Orders. However, to the extent that the Contractor disputes any portion or all of the estimated payment due a subcontractor, an amount not to exceed one hundred fifty percent (150%) of the disputed amount will be withheld from the payment to the subcontractor. If the entire amount due to the subcontractor is disputed by the Contractor, then up to one hundred fifty percent (150%) of this entire amount may be deducted from payments to the Contractor until the dispute is resolved.

If, as stated above, the District elects to issue final payments to a subcontractor or subcontractors or to issue joint check payments, the District may request, as part of its payment to the subcontractor or subcontractors involved, that said subcontractor or subcontractors sign a Conditional Waiver and Release Upon Final Payment to the subcontractor, which shall be in substantially the following form:

Conditional Waiver and Release Upon Final Payment to Subcontractor

Upon receipt by the undersigned of a check from Central Contra Costa Sanitary District (District) in the sum of \$ _____ payable to _____

and when the check has been properly endorsed and has been paid by the bank upon which it is drawn, this document shall become effective to release any mechanic's lien, Stop Notice, or bond right the undersigned has on the Contract. This release covers the final payment of the undersigned for all labor, services, equipment, or material furnished on the job, except for disputed claims for additional work described in the attached sheet, if any, in the amount of \$_____.

Before any recipient of this document relies on it, said party should verify evidence of payment to the undersigned.

Date: _____
By: _____
Title: _____

_____ Company Name

GC-36 SURVIVAL

Notwithstanding the District's acceptance of the work and payment, Contractor shall remain obligated under all clauses of this Contract, which expressly or by their nature extend beyond and survive such acceptance and payment or termination.

GC-37 WARRANTY

Contractor warrants that the work performed pursuant to the Contract shall be of the quality specified or of the highest quality if no quality is specified, and shall conform to the specifications, drawings, samples, and other descriptions set forth in the Contract. Contractor warrants all equipment and materials furnished by it and all work performed by it under the Contract against defective design (unless furnished by the District), materials, and workmanship for a period of one (1) year from and after final acceptance regardless of whether the same were furnished or performed by Contractor or by any of its subcontractors or suppliers of any tier. Performance and Payment Bonds, if any, shall remain in full force and effect during such warranty periods.

If, after installation and acceptance, the operation or use of the material or equipment furnished under this Contract proves to be unsatisfactory to the District, the District shall have the right to operate and use such materials and equipment until it can, without damage to the District, be taken out of service for correction or replacement by Contractor at its expense. The warranty period for the materials or equipment which are replaced shall be one (1) year from and after the replacement materials or equipment are satisfactorily installed.

Upon receipt of written notice from the District of any breach of warranty during the applicable warranty period, the affected item shall be redesigned, repaired, or replaced by Contractor and it shall perform such tests as the District may require to verify that such redesign, repairs, and replacement comply with the requirements of the Contract. As to the redesigned, repaired, or replaced work, Contractor warrants such redesigned, repaired, or replaced work against defective design, materials, and workmanship for a period of one (1) year from and after the date of acceptance of such work. The District reserves the right to require that Contractor perform such repair or replacement work.

The District also reserves the right to make such repairs or replacements, if, within seven (7) calendar days after mailing of a notice in writing to Contractor and Surety, if any, Contractor shall neglect to make or undertake with due diligence the aforesaid repairs or replacements and that Surety, if any, within seven (7) calendar days after mailing of a notice in writing of such negligence of Contractor shall neglect to make or undertake with due diligence the aforesaid repairs or replacements itself, provided, however, that in the case of an emergency where in the opinion of the District delay would cause hazard to health or serious loss or damage, repair may be made without notice being sent to Contractor or Surety, and Contractor shall pay the cost thereof.

All costs, including manpower and materials incidental to such redesign, repair, replacement, and testing, including the removal, replacement, and reinstallation of equipment necessary to gain access and all other costs incurred as the result of a breach of warranty shall be borne by Contractor whether performed by the District or Contractor.

Nothing in this section shall be construed to limit, relieve or release Contractor's, subcontractor's, and equipment supplier's liability to the District for damages sustained as the result of latent defects in the equipment furnished caused by the negligence of the supplier's agents, employees or subcontractors.

The Performance Bond shall extend for a period of one (1) year after acceptance of the Contract by the District and shall cover the Contractor's obligations resulting from the warranty requirements herein specified.

GC-38 COST-REDUCTION INCENTIVE

The Contractor may submit to the District, in writing, proposals for modifying the Project Drawings, Technical Specifications, or other requirements of the Contract for the sole purpose of reducing the total cost of construction. The cost-reduction proposal shall not impair in any manner the essential functions or characteristics of the Project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards.

Cost-reduction proposals shall contain the following information:

1. A description of both the existing Contract requirements for performing the work and the proposed changes.
2. An itemization of the Contract requirements that must be changed if the proposal is adopted.
3. A detailed estimate of the cost of performing the work under the existing Contract and under the proposed change. The estimates of cost shall be priced in the same manner as if the work were to be paid for as an extra work payment, as provided in Section GC-30, Extra Work Payment.
4. A statement of the time within which the District must make a decision thereon.
5. The Contract items of work affected by the proposed changes, including any quantity variation attributable thereto.

The provisions of this Section shall not be construed to require the District to consider any cost-reduction proposal that may be submitted hereunder. The District will not be liable to the Contractor for failure to accept or act upon any cost-reduction proposal submitted pursuant to this Section nor for any delays to the work attributable to any such proposal. If a cost-reduction proposal is similar to a change in the Project Drawings or Technical Specifications under consideration by the District for the Project at the time said proposal is submitted, or if such a proposal is based upon or similar to standard specifications, standard special provisions, or standard plans adopted by the District after the advertisement for the Contract, the District will not accept such proposal, and the District reserves the right to make such changes without compensation to the Contractor under the provisions of this Section.

The Contractor shall continue to perform the work in accordance with the requirements of the Contract until an executed Change Order incorporating the cost-reduction proposal has been issued. If an executed Change Order has not been issued by the date upon which the Contractor's cost-reduction proposal specifies that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, such cost-reduction proposal shall be deemed rejected.

The District shall be the sole judge of the acceptability of a cost-reduction proposal and of the estimated net savings in construction costs from the adoption of all or any part of such proposal. In determining the estimated net savings, the right is reserved to disregard the Contract bid prices if, in the judgment of the District, such prices do not represent a fair measure of the value of work to be performed or to be deleted.

If the Contractor's cost-reduction proposal is accepted in whole or in part, such acceptance will be a Contract Change Order, which shall specifically state that it is executed pursuant to Section GC-28, Changes. Such Change Order shall incorporate the changes in the Project Drawings and Technical Specifications that are necessary to be put into effect and shall include any conditions upon which the District's approval thereof is based if the approval of the District is conditional. The Change Order shall also set forth the estimated net savings in construction costs attributable to the cost-reduction proposal effectuated by the Change Order and shall further provide that fifty percent (50%) of said estimated net savings amount be included as compensation for the Contractor. The Contractor's cost of preparing the cost-reduction proposal shall be excluded from consideration in determining the estimated net savings in construction costs.

The District reserves the right, where it deems such action appropriate, to require the Contractor to share in the District's costs of investigating a cost-reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall indicate its acceptance thereof in writing, and such acceptance shall constitute full authority for the District to deduct amounts payable to the District from any monies due or that may become due to the Contractor under the Change Order. The Change Order incorporating the cost-reduction proposal and the Contractor's fifty percent (50%) share of the net savings will also include any deductions for the Contractor's share of the District's cost of investigating the proposals per the agreement between the District and the Contractor.

Acceptance of the cost-reduction proposal and performance of the work thereunder shall not extend the time of completion of the Contract, unless specifically provided for in the Contract Change Order authorizing the use of the cost-reduction proposal.

The amount specified to be paid to the Contractor in the Change Order that effectuates a cost-reduction proposal shall constitute full compensation to the Contractor for the cost-reduction proposal and the performance of the work thereof pursuant to the said Change Order.

PART VI SPECIAL CONDITIONS

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**PART VI
SPECIAL CONDITIONS**

SC-1 INSURANCE

A. Contractor shall, at its expense, procure and maintain insurance provided by insurance companies with an A.M. Best's Insurance Rating of "A:VII" or better on all of its operations under this Contract for the duration of the Project and the warranty period, except for the liability insurance for the Products-Completed Operations Hazard as specified in Subsection A.2, as follows:

1. Workers' Compensation and Employer's Liability Insurance: Workers' Compensation Insurance shall be provided as required by any applicable law or regulation. Employer's Liability Insurance shall be provided in amounts not less than \$1,000,000 per accident, \$1,000,000 per each employee for disease, and \$1,000,000 policy limit.

The insurer shall waive all rights of subrogation against the District, its officers, directors, and employees.

2. General Liability Insurance: Contractor shall carry general liability insurance covering all operations by or on behalf of Contractor for the following limits of liability:
 - a. Minimum combined single limit of liability of \$2,000,000 or the limits required by law, whichever is greater for each occurrence for bodily injury and property damage;
 - b. Minimum limit of liability of \$2,000,000 each person for personal and advertising injury liability;
 - c. Minimum limit of liability of \$2,000,000 each occurrence for products/completed operations liability;
 - d. General aggregate limit of not less than \$2,000,000, which shall be provided on a per project basis.

Contractor's General Liability Insurance shall be written on an "occurrence" form and provide coverage at least as broad as the most recent version of Insurance Services Office Commercial General Liability form CG 0001.

Coverage shall include, or be endorsed to include:

- a. Coverage for personal injury liability assumed under contract;
- b. Liability arising out of the use and operation of any District-furnished equipment by the Contractor, its personnel and others;
- c. XCU coverage for claims arising from explosion, collapse and underground damage;
- d. Accidental spillage, cleanup and other related costs;

- e. Contractual liability coverage for all oral and written contracts including indemnity provisions contained herein;
- f. Cross Liability and Severability of Inter

The District, its officers, directors, and employees shall be named as additional insureds on the Contractor's policies by a provision or endorsement providing coverage at least as broad as Insurance Services Office's Additional Insured - Owners, Lessees, or Contractors (Form B) endorsement Number CG 2010 11/85.

The required additional insured coverage for the District shall be primary and specify that any other insurance or self-insurance maintained by the District shall not be called upon to contribute with Contractor's insurance.

Contractor shall maintain liability insurance for the "Products-Completed Operations Hazard" for three (3) years following completion of Contractor's work under this Contract and acceptance by the District. Contractor shall provide updated Certificates of Insurance to the District during these subsequent three (3) years as evidence of continued coverage.

- 3. Automobile Liability Insurance: The Contractor shall carry Automobile Liability Insurance at least as broad as the most recent version of Insurance Services Office Business Automobile Liability (form Number CA 0001) on all owned, non-owned, and hired autos, with a single limit for bodily injury and property damage of \$2,000,000 per occurrence. The coverage shall remain in force during the warranty period. The policy shall also include liability arising out of the use and operation of District-furnished vehicles by the Contractor, its personnel, and others.

B. The following provisions shall also apply:

- 1. Each required insurance policy shall be endorsed to state that coverage shall not be canceled or reduced without thirty (30) days' prior written notice to the DISTRICT. Ten (10) days' notice shall be provided for cancellation for nonpayment of premiums.
- 2. Deductibles shall not exceed \$5,000 per occurrence with a deductible aggregate of \$5,000. The Contractor shall be solely responsible for payment of deductibles.
- 3. CONTRACTOR shall furnish the DISTRICT with original, signed certificates and original, signed amendatory endorsements. All such certificates and endorsements shall be received and reviewed by the DISTRICT before any work begins under this agreement. The certificates and amendatory endorsements shall be signed by an individual who is authorized to sign on behalf of the insurer covering the CONTRACTOR.
- 4. The DISTRICT reserves the right to require complete, certified copies of all required insurance policies at any time.
- 5. CONTRACTOR shall include all SUBCONTRACTORS as insureds under its policies or shall cause each SUBCONTRACTOR employed by CONTRACTOR to purchase

and maintain insurance of the types and limits specified in this section. Upon the DISTRICT's request, CONTRACTOR shall furnish copies of certificates and endorsements evidencing coverage for each SUBCONTRACTOR.

6. All insurance correspondence, notices, certificates, and endorsements shall each separately reference "All DISTRICT Operations" or "All DISTRICT Projects."
7. In the event CONTRACTOR fails to comply with this Section, the DISTRICT may take such action as the DISTRICT deems necessary to protect the DISTRICT's interest. Such action may include but is not limited to termination of the Contract, withholding of payments, or other actions as the DISTRICT deems appropriate.

SC-2 BEGINNING AND PROSECUTION OF THE WORK

Contractor shall be authorized to begin work upon receipt of the Notice to Proceed, and shall begin work within ten (10) calendar days from said receipt. Submittal preparation shall count as commencing work. Contractor shall diligently prosecute the work to completion with the time of performance provided below:

<u>MILESTONE</u>	<u>COMPLETION DATE</u>
Substantial Completion	August 31, 2019

Contractor shall notify the District in writing of its intent to begin work at the site at least 10 (ten) working days before work is actually begun. Contractor shall also promptly notify the District of any Contractor-initiated suspensions and resumptions of work during the contract period, allowing as much advance warning as possible. The notice to resume work shall be given to the District not less than one working day in advance of resuming work.

Contractor shall prosecute the work with sufficient forces, construction plant, and equipment and shall work such hours, including extra shifts and overtime operations as may be necessary to ensure the completion of the work in accordance with the construction schedule and specified time of performance.

If at any time during the progress of work, the Contractor's actual progress, as determined by the District, is inadequate to meet the requirements of the Contract, the District may notify the Contractor of such imminent or actual noncompliance with the Contract. The Contractor shall thereupon take such steps as may be necessary to improve its progress including, but not limited to, an increase in the labor force, the number of shifts, and/or overtime operations, days of work and/or the amount of construction equipment, all without additional cost to the District. Neither such notice by the District nor the District's failure to issue such notice shall relieve the Contractor from its obligations to achieve the quality of work and rate or progress required by the Contract.

Failure of the Contractor to comply with the instructions of the District under these provisions may be grounds for determination by the District that the Contractor is not prosecuting work with such diligence as will assure completion within the times specified. Upon such determination, the District may terminate the Contractor's right to proceed with the performance of the Contract, or any separable part thereof, in accordance with Part V, General Conditions, Section GC-15, Termination of Right to Proceed, herein. Said termination shall be without prejudice to any other remedies available to the District.

SC-3 HOURS OF WORK

- A. Hours of Work: Hours of work shall be from 7:00 a.m. to 6:00 p.m., Monday through Friday, excluding holidays.
- B. Weekend Work: No work shall be done on weekends unless specifically authorized by the District.
- C. Night Work: Night work shall not be allowed except under special circumstances. The Contractor may be permitted to work at night with approval of the District, in order to maintain the required progress or protect the work from the elements. The Contractor may also be required to prosecute the work at night if, at any time, the District shall deem it necessary for the progress of the work or if emergencies arise. The Contractor shall promptly comply with any such requirements made in writing by the District. When required by the District, the Contractor will be compensated in accordance with Part V, General Conditions, Section GC-30, Extra Work Payment. However, if the Contractor is required to work at night or on weekends to meet the time limits contained in the construction schedule and is not pursuing the work diligently, no additional compensation will be allowed.

Should any of the work be performed at night or where daylight is obscured or too dark, the Contractor shall, at its expense, provide artificial light sufficient to permit work to be carried on efficiently, satisfactorily, and safely, and to permit thorough inspection. The access to the place of work shall also be clearly illuminated. All wiring for electric light and power shall be installed and maintained in accordance with all applicable standards, securely fastened in place at all points, and shall be kept as far as possible from other electrical wires, telephone wires, signal wires, and wires used for firing blasts. For night work, if any be performed, the Contractor shall employ a crew organized and prepared for regular and continuous night work.

SC-4 BASIS OF PAYMENT

Contractor's attention is directed to Paragraph 3.04, Bid Items, of Section 01205, Measurement and Payment, of Part VII, Technical Specifications, for basis for payment and other payment information.

SC-5 LIQUIDATED DAMAGES

The time limits stated in the Contract are of the essence. It is agreed by the parties to the Contract that in case all the work called for under the Contract is not substantially completed before or upon the expiration of the time limits set forth in the Contract, damage will be sustained by the District, and that it is and will be impracticable to determine the actual damage which the District will sustain in the event of and by reason of such delay.

It is therefore agreed that Contractor shall pay to the District the following amount per day for each calendar day in excess of each milestone completion date required by the Contract, and the date the District deems the milestone work to be completed by the Contractor:

<u>MILESTONE</u>	<u>LIQUIDATED DAMAGE</u>
Substantial Completion	\$500/day

It is further agreed that the amounts stipulated are reasonable estimates of the damages that would be sustained by the District and Contractor agrees to pay such liquidated damages as herein provided as liquidated damages and not as penalty. In case the liquidated damages are not paid, Contractor agrees that the District may deduct the amount thereof from any money due to or that may become due Contractor by progress payments or otherwise under the Contract, or if said amount is not sufficient, recover the total amount from Contractor or its surety.

The assessment of liquidated damages under this provision shall not preclude recovery by the District of other damages subject to reasonable quantification, including consequential damages. Consequential and other damages not provided for by this liquidated damages provision may include, but are not limited to, first- and third-party claims for personal injuries and/or property damages, inverse condemnation, environmental claims, or regulatory fees or fines imposed in whole or in part due to Contractor's acts or failures to act.

SC-6 SUBSTANTIAL COMPLETION AND PROJECT MILESTONES

When construction is sufficiently complete in accordance with the Contract so that the District can occupy or utilize all portions and all systems of the work for all of the uses for which said work was intended, and when Contractor has furnished the "as-built" drawings, operations and maintenance manuals, test and compliance certificates, equipment and system warranties, and all other documents required by the Contract, the work will be considered substantially complete.

This project will not be deemed substantially complete until all interior and exterior welding and structural work is complete, all interior coating work is complete and both tanks are fully operational, filled and in use.

When the Contractor considers that the work is substantially complete, the Contractor shall request an inspection for substantial completion. When the District determines, on the basis of the inspection, that all portions and all systems of the work are substantially complete, the District will prepare a Certificate of Substantial Completion that will establish the date of substantial completion of the work; shall state the responsibilities of the District and the Contractor for security, maintenance, operation, and insurance; and shall list the items remaining to be completed or corrected. Failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract.

The District will have the right to restrict Contractor's use of the occupied portions of the work after the date of substantial completion, but the District will allow the Contractor reasonable access to complete or correct items required by the Contract.

The issuance of the Certificate of Substantial Completion for the work shall not relieve the Contractor of its obligation to promptly remedy any omissions and latent or unnoticed defects in the work covered by the Certificate of Substantial Completion.

A Certificate of Substantial Completion will not constitute acceptance of the work. A Certificate of Substantial Completion will fix the date for lowering the amount of liquidated damages to the value specified in the Contract for the period after substantial completion and before completion.

SC-7 SHUTDOWNS AND CONNECTIONS

The Contractor shall, at all times, conduct its operation so as to interfere as little as possible with existing District facilities and/or processes.

Only one tank may be taken offline at a time. One tank must remain fully operational at all times to maintain public safety and water supply. The Contractor shall allow for ten (10) days for the District to drain a tank after receiving notice from the Contractor.

Where required, the Contractor shall connect to existing facilities and/or processes as necessary to complete the Project. The Contractor shall give five (5) working days' advance notice and receive prior written approval from the District for all connections to existing facilities and/or processes, whether such connections are "live" or "inactive."

All work on connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest possible time when the demands on the facilities best permit such interference. In some cases, it may be necessary to work outside of normal working hours to meet these requirements. Before starting work that will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and located at the job site. No connections shall be made without the District's prior approval.

SC-8 USE OF COMPLETED PORTIONS OF WORK

Whenever, as determined by the District, any portion of work performed by Contractor is in a condition suitable for use, the District may take possession of or use such portion.

Such use by the District will in no case be construed as constituting final acceptance and shall neither relieve Contractor of any of its responsibilities under the Contract, nor act as a waiver by the District of any of the conditions thereof, provided that Contractor shall not be liable for the cost of repairs, rework, or renewals which may be required due to ordinary wear and tear resulting from such use. However, if such use increases the cost or delays the completion of remaining portions of work, Contractor shall be entitled to an equitable adjustment.

If, as a result of Contractor's failure to comply with the provisions of the Contract, such use proves to be unsatisfactory to the District, the District will have the right to continue such use until such portion of work can, without injury to the District, be taken out of service for correction of defects, errors, omissions, or replacement of unsatisfactory materials or equipment, as necessary for such work to comply with the Contract, provided that the period of such operation or use pending completion of appropriate remedial action shall not exceed four months unless otherwise mutually agreed upon in writing between the parties. The completion of corrections or replacements shall occur before acceptance of the Contract, unless otherwise mutually agreed upon in writing between the parties.

SC-9 SPECIAL SAFETY PRECAUTIONS

Contractor is hereby informed that work on this Project could be hazardous. Contractor shall carefully instruct all personnel working in potentially hazardous work areas as to potential dangers and shall provide such necessary safety equipment and instructions as are necessary to prevent injury to personnel and damage to property.

CONTRACTOR IS ADVISED THAT THE NATURE OF THE WORK SPECIFIED HEREIN MAY BE POTENTIALLY HAZARDOUS BECAUSE OF POTENTIAL CONFINED SPACES, CONDITIONS REQUIRING FALL PROTECTION, AND LEAD COATINGS.

SC-10 CONTRACTOR FACILITIES

Contractor shall, at all times, maintain all portions of the jobsite in a neat, clean, and sanitary condition at all times. The Contractor shall, as a minimum, conduct daily inspections to verify that requirements of this Section are being met.

The job site is located adjacent to a residential neighborhood. Contractor shall take reasonable precautions so as to not disturb the nearby residents.

Contractor's attention is directed to Section 1.08, Temporary Facilities, of Part VII, Technical Specifications, regarding temporary facilities at the job site.

SC-11 SECURITY

The work site is an operational water treatment facility that will continue to be operational throughout the Contractor's work. Existing fences enclose all portions of the Project site for the protection and security of existing facilities. While it may be necessary for the Contractor to remove some of the fences to complete the work, the Contractor's operations shall not reduce the present protection and security. If the present fences are removed, an equivalent temporary continuous perimeter protection shall be provided, and new fence shall be installed in the locations shown, prior to completion of the work.

If needed for safety and security, Contractor, at its cost, shall construct temporary fencing to prevent unauthorized access to the work area. No existing fence or other existing enclosure about existing facilities shall be assumed by the Contractor to provide appropriate security for equipment, plant, or materials intended to be employed or incorporated in the work.

SC-12 STORAGE OF MATERIALS AND EQUIPMENT

The Contractor shall, at its expense, store and maintain all materials and equipment as specified in the Contract or, where not specified, in such a manner as to assure the preservation of their quality and fitness, including warehousing if required by the District, and so as to facilitate job-site safety and convenient inspection by the District. The Contractor shall not dispose, remove, or otherwise encumber any of the materials or equipment so stored except as authorized in writing by the District.

The Contractor shall be responsible for, and shall bear any and all risk of loss of, or damage to, any work and all materials and equipment until final acceptance under the Contract, unless such loss or damage results from the active negligence of the District or any act of God as defined herein.

SC-13 SALVAGE AND DISPOSAL OF MATERIALS

- A. Salvage: Existing items to be salvaged shall remain the property of the District. Items to be reinstalled in the work shall be refurbished as required before reinstallation. Items to be salvaged shall be carefully removed and handled in such a manner as to avoid damage and shall be delivered to storage at a location designated by the District.

- B. Disposal: Existing materials and equipment to be demolished, removed, and disposed as noted on the drawings and all trash such as broken concrete, wood blocking, shipping containers, etc., resulting from the Contract work shall be disposed off District property at Contractor's expense. District-leased dumpsters and other disposal containers on the District's property shall not be used by Contractor.

SC-14 NOT USED

SC-15 NOT USED

SC-16 ACCESS AND COOPERATION

The Contractor's attention is drawn to the fact that during the course of the work of this Contract, existing facilities will be used and maintained by District's personnel. The Contractor shall coordinate its work in such a way as to interfere as little as possible with the routine work of existing facility operation consistent with the necessity for making the connections as specified and as shown on the Project Drawings. The intent of this item is also that the Contractor's work force shall be excluded from access to and use of existing facilities except in direct pursuit of the work of this Contract, unless approved by the District. The Contractor shall provide safe access at all times to all existing facilities for operating personnel and equipment.

Since the project site is a secure, operational facility, Contractor shall work with the District to coordinate daily, secure access into the site.

SC-17 PROTECTION AND RESTORATION OF PROPERTY

Project work will occur on District property at an operational water treatment facility. Contractor shall take all measures necessary to protect all existing facilities, including but not limited to operational tanks, pipelines, valves, pump station and security facilities. Damage to any property or facilities resulting from Contract work shall be repaired by the Contractor, at its sole cost. In as much as it is reasonably possible, Contractor, at its sole cost, shall restore the area affected by Project work to its condition prior to construction.

The Contractor shall exercise extreme caution in working in the area adjacent to existing facilities. It is essential to public health and safety that all the existing facilities be maintained in service at all times.

The Contractor shall so conduct its operations as not to close or obstruct any portion of any railroad, highway, road, or other property until permits therefor have been obtained from the governmental or other authorities having jurisdiction thereof. If any of the above are required to be kept open and are damaged or rendered unsafe by the Contractor's operations, the Contractor shall, at its expense, make such repairs and provide such temporary guards, bridges, lights, and other signals as necessary or required for public safety and as will be acceptable to the governmental or other authorities having jurisdiction thereof. Fences that interfere with any work may, upon prior written approval of the District, be removed by the Contractor but must then be restored to their original condition prior to final acceptance. Such removing and restoring shall be by and at the expense of the Contractor.

Care shall be exercised by the Contractor to prevent damage to adjacent walks, streets, culverts, and gutters; where equipment will pass over these obstructions, suitable planking shall

be placed.

The Contractor shall preserve and protect all cultivated and planted areas, and vegetation such as trees, plants, shrubs, and grass on or adjacent to the premises, which, as determined by the District, do not reasonably interfere with the performance of work. The Contractor will be held responsible for damage to any such areas and vegetation and for unauthorized cutting of trees and vegetation, including without limitation, damage arising from the performance of its work through operation of equipment or stockpiling of materials. All costs in connection with any repairs or restoration necessary or required by reason of any such damage or unauthorized cutting shall be borne by the Contractor.

SC-18 STORM WATER POLLUTION PREVENTION

Contractor shall implement any best management practices necessary to ensure no contamination of the adjacent creek.

In addition to the above, Contractor shall take the following measures:

A. General

1. **Prevention:** The Contractor shall prevent the pollution of storm drain systems and creeks on or near the construction Project site(s) resulting from the construction. The Contractor shall keep pollutants out of storm drains by reducing the possibility of accidental discharge of materials and wastes, by reducing erosion and sedimentation, and by any action as required. The Contractor shall train all employees and subcontractors on the storm water pollution prevention requirements contained in these Specifications and ensure that all employees and subcontractors are aware of the consequences as described in paragraph A.3. below. The Contractor shall include appropriate subcontract provisions to ensure that these requirements are met by all subcontractors.
2. **Notification:** If the Contractor causes or permits the spillage or overflow of any oil, or petroleum product, hazardous substance, contaminant, waste or wastewater, including overflows or releases of untreated or treated (partially or fully) wastewater, and backups into buildings and on private property, the Contractor shall notify the District as soon as possible to the extent notification can be provided without substantially impeding cleanup or other emergency measures. In no event shall such notification be later than one (1) hour after knowledge of the occurrence.
3. **Cleanup:** Immediately upon gaining knowledge of such spillage, overflow, or discharge, the Contractor shall eliminate the cause of the spillage, overflow, or discharge and take action to minimize any damages. The Contractor shall also immediately implement a cleanup program. The cleanup, including sampling and testing required by regulatory agencies to determine the nature and level of contamination, shall be performed and completed to the satisfaction of the various regulatory agencies involved and the District, at the expense of the Contractor. If the Contractor's response is not satisfactory to the District, the District may, at its own discretion, mobilize to eliminate the cause of the overflow and implement a cleanup program, including any necessary sampling and

testing. District costs of cleanup efforts shall be at the Contractor's expense and collected at the discretion of the District. Any fines, penalties, and/or subsequent actions imposed upon the District and/or the Contractor by regulatory agencies related to the spillage, overflow, or discharge and any subsequent monitoring, testing, and reporting, as required by regulatory agencies, shall also be at the expense of the Contractor. The Contractor shall keep a stockpile of spill cleanup materials, such as rags or absorbents, readily accessible on site. The quantity of cleanup materials shall be appropriate in consideration of the risk of an occurrence of a spill, overflow, or discharge.

B. Management of Nonhazardous Material and/or Waste

1. **Designated Area:** The Contractor shall propose designated areas of the Project site, for approval by the District, suitable for material delivery, storage, and waste collection that to the maximum extent practicable are near construction entrances and away from catch basins, gutters, drainage courses, and creeks.
2. **Backfill or Excavated Material:** The Contractor shall not allow backfill or excavated material to enter the storm drains or creeks. When rain is forecast within 24 hours or during wet weather, the Contractor may be required to cover such material with a tarpaulin and to surround the material with sand bags.
3. **Disposal:** At the end of each working day, the Contractor shall collect all scrap, debris, and waste material, and dispose of such materials properly. The materials may be stored in the Contractor's yard in stockpiles or placed in dumpsters. The Contractor shall inspect dumpsters for leaks and replace or repair dumpsters that leak. The Contractor shall not discharge water from cleaning dumpsters on site. The Contractor shall arrange for regular waste collection before dumpsters overflow.

C. Management of Hazardous Material and/or Waste

1. **Storage:** The Contractor shall label and store all hazardous materials, such as pesticides, paints, thinners, solvents, and fuels, and all hazardous wastes, such as waste oil and antifreeze, in accordance with all applicable state and federal regulations. The Contractor shall store all hazardous materials and all hazardous wastes in accordance with secondary containment regulations. All such materials and wastes shall be covered, as needed, to avoid rainwater becoming polluted with hazardous constituents, which could result in potential management of collected rainwater as hazardous waste. The Contractor shall keep an accurate, up-to-date inventory, including Material Safety Data Sheets (MSDS), of hazardous materials and hazardous wastes stored on site.
2. **Usage:** When rain is forecast within 24 hours or during wet weather, the Contractor shall refrain from applying chemicals in outside areas. The Contractor shall follow material manufacturer's instruction regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals. The Contractor shall post warning signs in areas treated with chemicals.

3. Disposal: The Contractor shall arrange for regular hazardous waste collection to comply with time limits on storage of hazardous wastes. The Contractor shall dispose of hazardous waste in accordance with Part V, General Conditions, Section GC-25, Contaminated Soil/Materials. The Contractor shall not wash any spilled material into streets, gutters, storm drains, or creeks and shall not bury spilled hazardous materials. The Contractor shall report any hazardous material spills to the District in accordance with paragraph A.2 above.

D. Vehicle/Equipment Cleaning, Maintenance, and Fueling

1. General: The Contractor shall inspect vehicles and equipment arriving on site for leaking fluids and shall promptly repair leaking vehicles and equipment. Drip pans shall be used to catch leaks until repairs are made.
2. Cleaning: The Contractor shall perform vehicle or equipment cleaning with water only in a designated, bermed area that will not allow rinse water to run off site into streets, gutters, storm drains, or creeks. Soaps, solvents, degreasers, steam-cleaning equipment, or equivalent methods shall not be allowed.
3. Maintenance and Fueling: The Contractor shall perform maintenance and fueling of vehicles or equipment in areas that will not allow run-on of storm water or runoff of spills to storm drains and that provide for confined cleanup. Examples are working in bermed areas or utilizing drip pans. The Contractor shall not contaminate the soils or groundwater with such maintenance and fueling activities.

The Contractor shall use secondary containment, such as a drip pan, to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured, and shall clean up leaks and spills of vehicle or equipment fluids immediately and dispose of the waste and cleanup materials as hazardous waste, as described in paragraph C.3 above.

G. Concrete, Grout, and Mortar Waste Management

1. Concrete Truck/Equipment Washout: The Contractor shall not wash out concrete trucks or equipment into streets, gutters, storm drains, or creeks. The Contractor shall perform washout of concrete trucks or equipment off site or in a designated area on site where the water will flow onto dirt or into a temporary pit in a dirt area. The Contractor shall let the water percolate into the soil and dispose of the hardened concrete in a trash container. If a suitable dirt area is not available, the Contractor shall collect the wash water and remove it off site.
2. Exposed Aggregate Concrete Wash Water: The Contractor shall avoid creating runoff by draining water from washing of exposed aggregate concrete to a dirt area. If a suitable dirt area is not available, the Contractor shall filter the wash water through straw bales or equivalent material before discharging to a storm drain. The Contractor shall collect sweepings from exposed aggregate concrete for disposal.

PART VII TECHNICAL SPECIFICATIONS

INDEX

Section	Title
01100	Scope and Control of the Work
01205	Measurement and Payment
09905	Protective Coatings
13010	Upgrades of Existing Tanks
13020	Replace Roof Structure for Welded Steel Water Storage Tanks
16600	Impressed-Current Cathodic Protection System

Technical Specifications for:

TWAIN HARTE COMMUNITY SERVICES DISTRICT
22912 Vantage Pointe Dr.
Twain Harte, CA
(209) 586-3172

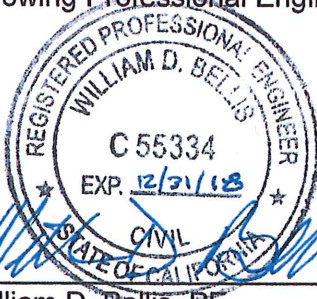
Prepared by:

ADVANTAGE TECHNICAL SERVICES, INC.
6661 Fern Canyon Road
San Luis Obispo, CA 93401
805-595-2282

April 2018

CERTIFICATION

In accordance with the provisions of Section 6735 of the Business and Professions Code of the State of California, these specifications have been prepared by or under the direction of the following Professional Engineers licensed in the State of California:



William D. Bellis, PE
55334, Exp. 12/31/2018

Approved by:



Tom Trott, PE
71446, Exp. 12/31/2019

Section 01100

SCOPE AND CONTROL OF THE WORK

PART 1 - GENERAL

1.01 SCOPE

The project generally includes upgrading appurtenances, replacing roof structure and recoating the interiors of two 1 million gallon welded water tanks and other items specified herein and as shown on the Contract Documents. The following sections further define the scope of the Work as detailed within these specifications (planning and the actual order of work is the responsibility of the Contractor) :

- A. The Contractor will provide any required sampling and testing of existing interior coatings known to contain lead and other heavy metals and lead based exterior coatings that are known to lead and other heavy metals. Employee protections for disturbance of coatings containing lead and other heavy metals shall be included in all project planning and execution.
- B. The Contractor will complete engineering and planning and will provide submittals pursuant to these specifications.
- C. The Contractor will fabricate and shop coat roof structures and appurtenances as specified.
- D. The District will provide access. The District provided work area is limited to the fenced unpaved tank site.
- E. The District will provide any applicable building permits.
- F. The Contractor will notify the District at least two weeks in advance of the start of demolition to allow the draw-down and use of the water in the existing tank.
- G. The District will draw-down the water in the first existing tank and remove from service. The District will notify the Contractor when the tank has been removed from service and rehabilitation may be started. Some water and sediment will remain in the tank.
- H. The Contractor will mobilize to the site and will complete the specified work items including but not limited to demolition, repairs, upgrades, preparation and coating on the 1st tank.
- I. The Contractor will coordinate with the Owner for use of a 30' x 40' space that is available for storage between phases and otherwise demobilize all equipment construction materials, stabilize the site and return control of the site to the District (after completion of the 1st tank).
- J. The interior coatings of the tank will be allowed to cure as recommended by the coating manufacturer.
- K. The Contractor will provide disinfection of interior surfaces as specified.

- L. The District will fill the newly painted tank (1st tank) and provide VOC and bacteriological testing and put the newly painted tank into service as appropriate.
- M. After the first recoated tank is returned to service, the District will coordinate with the Contractor, draw-down the water in the second existing tank and remove from service. The District will notify the Contractor when the tank has been removed from service and rehabilitation may be started. Some water and sediment will remain in the tank.
- N. The Contractor will mobilize to the site and will complete the specified work items including but not limited to demolition, repairs, upgrades, preparation and coating of the second tank.
- O. The interior coatings of the tank will be allowed to cure as recommended by the coating manufacturer.
- P. The Contractor will provide disinfection of interior surfaces as specified.
- Q. The District will fill the newly painted tank and provide VOC and bacteriological testing and put the newly painted tank into service as appropriate.
- R. The Contractor will sample, test, provide transport and recycle spent abrasive
- S. The Contractor will sample, test, provide transport and dispose of any coatings not included with the spent abrasive.
- T. The Contractor will demobilize all construction equipment, construction materials, stabilize the site and return control of the site to the District.
- U. The Contractor will provide a one year warranty on the Work pursuant to these specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01205, Measurement and Payment
- B. Section 09800, Protective Coatings
- C. Section 13020, Replace Water Tank Roof Structure
- D. Section 16700, Sacrificial Anode Cathodic Protection System

1.03 SUBMITTALS

- A. Submittals shall be provided in accordance with these Special Provisions. Submittals shall be provided electronically in "PDF" format as well as three "hard" copies. One "hard" copy will be returned to the Contractor. One copy will be retained for client files and one will be for use at the job site.

The Contractor shall provide submittals before the pre-job conference. No work shall be done on items needing submittal approval until the material or plan is approved by the Owner.

Submittals shall be submitted to:

Twain Harte Community Services District

ttrott@twainhartecsd.com

Attn: Tom Trott, P.E.

General Manager

Twain Harte Community Services District

P.O. Box 649

Twain Harte, CA 95383

- B. The Contractor shall provide a Project Safety Plan prepared under the direction of and **certified by a Certified Safety Professional (CSP)** as determined by the Board of Certified Safety Professionals. The intent of the plan is to develop and document measures, appropriate to the Contractor's means and methods, which assure regulatory compliance. The plan shall be submitted before the pre-construction conference. A copy of the Project Safety Plan shall be on site during the course of the project. Payment for providing and implementing the Safety Plan shall be considered as included in the various contract prices paid and no additional compensation will be allowed.

1.04 HEALTH, SAFETY AND ENVIRONMENTAL CONTROLS

- A. The project goals are to complete the work with no injuries, spills or other environmental incidents. The Contractor shall be responsible for conducting the work in a manner that protects project personnel, the public and the environment. The Contractor shall provide qualified persons and implement appropriate programs to control all aspects of the work including worker and public health, safety and environmental protection.
- B. The Contractor shall conduct regular safety meetings with continuous review potential hazards associated with the project. Steps shall be taken to mitigate hazards and maintain a safe workplace. Known project safety and environmental hazards include the following:
1. Falls
 2. Confined spaces
 3. Eye injury including arc burn
 4. Venomous snakes including rattle snakes
 5. Poisonous spiders including black widow and brown recluse
 6. Wild fire associated with grinding, welding and other equipment or ignition sources
 7. Fire or explosion associated with flammable fuels or solvents
 8. Vehicle accidents
 9. Spills from leaking equipment or storage containers
 10. Introduction of non-native species

11. Work on and around existing lead based paints
12. Work around paints including volatile organic compounds

1.05 NOISE

Noise generated from equipment operating overnight including generators, pumps and dehumidification shall not exceed 75 dB at all property lines.

1.06 OSHA COMPLIANCE.

- A. Contractor shall comply with all applicable regulations including state and federal OSHA and these Special Provisions.
- B. Contractor is responsible for complying with Cal/OSHA regulations for lead in construction in accordance with California Code of Regulations, California Title 8, Section 1532.1.
- C. The costs for complying with all OSHA requirements shall be considered as included in the various contract prices paid and no additional compensation will be allowed. Contractors are encouraged to take lead samples in advance by arrangement with the owner.

1.07 LEAD

- A. The facilities included in this project were constructed prior to 1978. Cal/OSHA requires compliance with 1532.1 if the paint contains lead at any level. The exterior coatings are known to be lead based coatings that also contain other heavy metals. Interior coatings are known to contain heavy metals.
- B. The Owner assumes no responsibility for sampling or test results. All work involving the removal of lead containing coatings and the disposal of such removed material shall be in strict accordance with all applicable Local, State and Federal regulations and guidelines including notification, removal and containment techniques, proper transportation and disposal, and worker protection and monitoring.
- C. The Contractor is responsible to test the composite waste from the project to determine proper disposal. A copy of all test results shall be furnished to the Owner.
- D. For waste requiring the preparation of a hazardous waste manifest and waste shipment record, the Contractor shall prepare an accurate hazardous waste manifest and waste shipment record for signing by the Engineer. Neither the Contractor nor his employees shall sign the waste manifests or waste shipment records as the generator's representative. The Contractor shall provide the Owner with a certified weight ticket for each shipment of hazardous waste. If any waste is shipped to a disposal facility outside of California, the transporter and disposal facility shall complete and sign and distribute California's Hazardous Waste Manifest in the same manner as required by California law for the disposal facilities inside California.
- E. The Contractor will be responsible for any cleanup of areas where materials containing lead, heavy metals or other hazardous and non-hazardous materials have been released during the job. The Contractor shall assume all costs for such cleaning.

1.08 TEMPORARY FACILITIES.

- A. Power. The Contractor shall provide, at no additional cost to the Owner, all construction power used at the project sites.
- B. Sanitary Facilities. The Contractor shall make arrangements and provide for adequate portable toilet facilities at the site of work. The Contractor shall maintain the sanitary facilities in acceptable condition from the beginning of work until completion and shall remove the facilities and disinfect the premises.
- C. Water. The District will provide construction water used at the project site.

1.09 CONSTRUCTION DETAILS.

- A. The tanks are located in Twain Harte, CA. The facilities serve a predominantly residential community.
- B. Working hours shall be adjusted to maximize work hours during coating operations.
- C. Tank Draining. Prior to the start of construction, Owner staff shall empty the Tank. The tank will be out of service and drained but some water will remain. The Contractor shall remove the remaining water as needed to facilitate the start of work.

1.010 ISOLATION OF EQUIPMENT

- A. The piping and equipment adjacent to the tank will be in service during the work. The Contractor shall work with plant operations personnel to assure safe working conditions and prevent damage to property and equipment.
- B. The Owner shall be responsible for lockout/tag out of all power on equipment. The Contractor shall confirm lockout/tag out before proceeding with work.

**PART 2 - PRODUCTS
NOT APPLICABLE**

PART 3 - EXECUTION

3.01 HOUSEKEEPING AND CLEANUP

- A. At the end of each work day, dust and abrasive shall be removed from the surfaces and surrounding areas. Spent abrasive shall be stored in temporary storage containers on site pursuant to Best Management Practices and Best Pollution Prevention Practices listed under federal and state guidelines.
- B. The site shall be maintained free of unnecessary accumulations of tools, equipment, surplus materials, and debris. Equipment maintenance and spill prevention procedures shall be adequate to prevent spills and leaks.
- C. Upon completion of the work, the Contractor shall remove all excess materials, equipment, containers, and waste from the job site. Coating spots or stains shall be removed from adjacent surfaces and surfaces repaired if needed. As work proceeds, promptly remove all

coating that is spilled, splashed, or splattered. Collect empty containers, rags, waste material, and debris and store or remove from the site as appropriate.

3.02 ACCESS, CONTAINMENT AND PROTECTION

- A. The Contractor shall provide scaffolding or other access and fall protection anchors to allow safe access for Contractor personnel, inspection personnel and others as appropriate
- B. The tank is situated near open lands and creeks and all surface drains and swales lead directly onto the adjacent land, or to creeks and the ocean. Contractor shall protect all work sites and all drainage inlets from pollutants and illegal discharges.
- C. The work will be conducted in and around operational equipment and adjacent to residences. The Contractor shall provide containment or mitigation of air-born dust, overspray and other contaminants to protect the existing equipment, facilities and neighboring properties from dust, overspray pursuant to regulatory requirements.

END OF SECTION

Section 01205

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

This Section describes the methods of measurement and payment for the specific bid items associated with Work on two-million gallon water tanks known as MG#1 and MG#2. All other provisions of the Contract Documents which relate to measurement and payment are applicable, except that where conflicts occur between this section and other provisions of the technical specifications or reference specifications, this measurement and payment section shall prevail.

PART 2 - PRODUCTS NOT APPLICABLE

PART 3 - EXECUTION

3.01 METHOD OF PAYMENT

- A.** Payment will be made on the basis of the unit prices or lump sums bid for the various items as called for on the Bid Sheet(s) and included in the Contract as awarded. The quantities given in the Proposal and Contract forms are approximate only and are given as a basis for the comparison of bids, and the Owner does not expressly or by implication agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of or any class or portion of the Work or to omit portions of the Work as may be deemed necessary or advisable by the Engineer.

3.02 MEASUREMENT OF QUANTITIES

- A.** Materials paid for by the ton shall be weighed on public scales or other scales for which the State Bureau of Weights and Measures has issued a certificate of inspection which is available to the Engineer.
- B.** Full compensation for all expenses involved in conforming to the above requirements for weighing materials shall be included in the prices for the materials being weighed, and no additional allowance will be made therefore.
- C.** The quantity of materials paid for by the lineal foot, square foot or square yard shall be determined by horizontal measurement.

3.03 SCOPE OF PAYMENT

- A.** The Contractor shall accept the compensation as herein provided as full payment for furnishing all materials, labor, tools, and equipment necessary to complete the Work, and for performing all work contemplated and embraced under the Contract; also, for loss or damage arising from the nature of the Work, or from the action of the elements, except as

heretofore provided, or from any unforeseen difficulties which may be encountered during the prosecution of the Work, until the final acceptance by the District, and for all risks of every description connected with the prosecution of the Work; also, for all expenses incurred in consequence of the suspension or discontinuance of the Work as herein specified; and for completing the Work according to the Plans and Specifications. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or materials.

3.04 BID ITEMS

A. Mobilization and Construction Coordination, MG #1

1. Description

This work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. The Contractor shall develop a construction plan for the Work with means and methods that allow completion of the work pursuant to these specifications using the District's limited space of the fenced tank site for the Work or shall, independently from the District, acquire any temporary easements from landowners that are necessary for stockpile of materials, or facilitation of completion of the Work. The construction plan shall include all work for both tanks.
- b. Portable restroom(s) shall be on site prior to, or at the time of, the start of mobilization and shall remain on site during all on-site Work.
- c. Mobilization – Contractor shall move in and set up all equipment, provision for power, materials, etc. as necessary to complete all aspects of this project. This item also includes the cost of all bonds, insurance, and Permits for the Project.
- d. Easements – The Contractor may determine the location, type, extent and value to the Contractor of any temporary easement(s), which may facilitate completion of the Work, which is beyond the District's access easement and fenced tank site shown in the Plans and Specifications.
- e. Construction Schedule – The Contractor is responsible for preparing, amending, implementing, and complying with a construction schedule for all Work on this project. The initial schedule shall be submitted to the Engineer at the time of the award of the contract. The schedule shall be amended, and submitted to the Engineer, as necessary if progress varies significantly from the schedule and at a minimum, every month.
- f. Construction Water – The District will provide access to construction water.
- g. Submittals – The Contractor shall provide the submittals and associated planning and engineering including, field verification, structural calculations, shop

drawings, materials data sheets, MSDS, certificates of compliance and other submittals required by the Work and these specifications.

- h. Utility Coordination – The Contractor is responsible for all coordination effort with regards to utilities on the project including temporary service interruptions, tie-ins, etc. and scheduling the inspection of all Contractor Work. The Contractor shall be responsible for any financial claims associated with missed inspections, repeat inspections, or any costs associated with re-working portions of the project due to failed inspections or lack of inspections based on the Contractors failure to schedule and follow through with same.
- i. Project Controls- A Health and Safety Plan for worker protection, including working with lead based paints, developed under the direction and signed by a Certified Safety Professional shall be submitted and kept on site for the duration of the project. The plan shall be for all Work on this project. The plan shall address known hazards including excavation safety, confined space permit controls, lead, fall protection and fire prevention.
- j. An Environmental Health Protection plan (including storm water pollution prevention) for all Work on this project shall be developed under the direction of and signed by a licensed P.E. shall be submitted and kept on the site for the duration of the project.

2. Measurement

Measurement of Work associated with Bid Item **No. 1** will be based upon completion of such work as a lump sum.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No.1**, which price shall constitute full compensation for all such work. Payment for “Mobilization and Construction Coordination” will be made in the form of a single, lump-sum, non-pro-ratable payment, no part of which will be approved for payment under the Contract until all mobilization items listed herein have been completed as specified. The scope of the work included under this bid item shall include the obtaining of all bonds, insurance, permits, submittals, and moving tank construction equipment (including crane, power generation and welders) onto the site.

All submittals shall conform to the requirements of the General Conditions and Specifications and be approved by the Engineer.

No payment for any of the listed “Mobilization and Construction Coordination” work items will be made until all of the listed items have been completed to the satisfaction of the Engineer.

The aforementioned amount will be retained by the Owner as the agreed, estimated value of completing all of the mobilization items listed. Any such retention of money for failure to complete all such mobilization items as a lump-sum item shall be in addition to the retention of any payments due to the Contractor.

B. Replace Roof Structure, MG #1

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Field verification of tank dimensions
- b. Engineering of temporary supports, roof structure, tank connections and foundation, shop drawings, submittals and documentation of contract compliance.
- c. Shop fabrication
- d. Shop coating
- e. Removal and on-site storage of lead based paints
- f. Remove and recycle or dispose of existing cathodic protection system.
- g. Temporarily support the roof, shell and other portions of the tank and appurtenances as required.
- h. Demolition, removal and recycling of existing roof structure and other demolished materials
- i. Erection
- j. Quality control
- k. Testing of welds
- l. Complying with all applicable federal, state, and local regulations

2. Measurement

Measurement of Work associated with Bid Item **No. 2** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No.2**, which price shall made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

C. New Caged Exterior Ladder, Door, Guardrail and Fall Protection System, MG#1

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Field verification of related existing tank and appurtenance dimensions.
- b. Engineering of ladder, fall protection system, guardrail and associated appurtenances, shop drawings, submittals and documentation of contract compliance
- c. Removal and on-site storage of lead based paints
- d. Demolition, removal and recycling of existing ladder, guardrail and all other materials removed as a portion of this work
- e. Fabrication and installation of a new exterior ladder with cage, mid-platform with guardrail, and ladder climber's safety device
- f. Fabrication and installation of a new ladder security door
- g. Fabrication and installation of a new roof guardrail
- h. Fabrication and installation of (2 sets) roof fall protection anchors and cables
- i. Finishing welds and other surfaces in preparation for coating
- j. Preparation and coating of new (upgrade) appurtenances.
- k. Repair of existing coatings at appurtenance attachment locations
- l. Quality control
- m. Complying with all applicable federal, state, and local regulations

2. Measurement

Measurement of Work associated with Bid Item **No. 3** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No.3**, which price shall made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

D. Interior Coating, MG#1

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Preparation of interior surfaces of the existing tank and appurtenances for coatings
- b. Store (on site) spent abrasive which will contain lead and other heavy metals from existing coatings
- c. Application of coatings on interior surfaces and appurtenances
- d. Preparation and application of coatings on interior surfaces of the underground and aboveground piping (first six inches from tank)
- e. Preliminary wash of all interior surfaces, piping and components prior to disinfection
- f. Disinfection of tank interior surfaces
- g. Disinfection of piping and any other surfaces, affected by the work, that are within the potable water storage and distribution system.
- h. Protecting and repairing coatings damaged during disinfection and other work
- i. Quality control

2. Measurement

Measurement of Work associated with Bid Item **No. 4** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No. 4**, which price shall made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

E. Mobilization and Construction Coordination, MG #2

1. Description

This work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Portable restroom(s) shall be on site prior to, or at the time of, the start of mobilization and shall remain on site during all on-site Work.
- b. Mobilization – Contractor shall move in and set up all equipment, provision for power, materials, etc. as necessary to complete all aspects of this project. This item also includes the cost of all bonds, insurance, and Permits for the Project.
- c. Easements – The Contractor may determine the location, type, extent and value to the Contractor of any temporary easement(s), which may facilitate completion of the Work, which is beyond the District’s access easement and fenced tank site shown in the Plans and Specifications.
- d. Construction Water – The District will provide access to construction water.
- e. Submittals – The Contractor shall provide the submittals and associated planning and engineering including, field verification, structural calculations, shop drawings, materials data sheets, MSDS, certificates of compliance and other submittals required by the Work and these specifications.
- f. Utility Coordination – The Contractor is responsible for all coordination effort with regards to utilities on the project including temporary service interruptions, tie-ins, etc. and scheduling the inspection of all Contractor Work. The Contractor shall be responsible for any financial claims associated with missed inspections, repeat inspections, or any costs associated with re-working portions of the project due to failed inspections or lack of inspections based on the Contractors failure to schedule and follow through with same.

2. Measurement

Measurement of Work associated with Bid Item **No. 5** will be based upon completion of such work as a lump sum.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No. 5**, which price shall constitute full compensation for all such work. Payment for “Mobilization and Construction Coordination” will be made in the form of a single, lump-sum, non-pro-ratable payment, no part of which will be approved for payment under the Contract until all mobilization items listed herein have been completed as specified. The scope of the work included under this bid item shall include the obtaining of all bonds, insurance, permits, submittals, and moving tank construction equipment (including crane, power generation and welders) onto the site.

All submittals shall conform to the requirements of the General Conditions and Specifications and be approved by the Engineer.

No payment for any of the listed “Mobilization and Construction Coordination” work items will be made until all of the listed items have been completed to the satisfaction of the Engineer.

The aforementioned amount will be retained by the Owner as the agreed, estimated value of completing all of the mobilization items listed. Any such retention of money

for failure to complete all such mobilization items as a lump-sum item shall be in addition to the retention of any payments due to the Contractor.

F. Replace Roof Structure, MG #2

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Field verification of tank dimensions
- b. Engineering of temporary supports, roof structure, tank connections and foundation, shop drawings, submittals and documentation of contract compliance.
- c. Shop fabrication
- d. Shop coating
- e. Removal and on-site storage of lead based paints
- f. Remove and dispose of existing cathodic protection system
- g. Temporarily support the roof, shell and other portions of the tank and appurtenances as required.
- h. Demolition, removal and recycling of existing roof structure and all other materials removed as a portion of this work
- i. Erection
- j. Quality control
- k. Testing of welds
- l. Complying with all applicable federal, state, and local regulations

2. Measurement

Measurement of Work associated with Bid Item **No. 6** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No. 6**, which price shall be made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work

involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

G. New Guardrail, Roof Hatch and Fall Protection System, MG#2

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Field verification of related existing tank and appurtenance dimensions.
- b. Engineering of guardrail, roof hatch, roof fall protection system and associated appurtenances, shop drawings, submittals and documentation of contract compliance
- c. Removal and on-site storage of lead based paints
- d. Demolition, removal and recycling of existing guardrail, roof hatch and all other materials removed as a portion of this work
- e. Welded installation of a 1/4" thick cover plate at the exterior ladder opening where the existing roof hatch was removed
- f. Fabrication and installation of a new roof hatch at a new location (away from the exterior ladder opening)
- g. Fabrication and installation of new roof guardrail
- h. Fabrication and installation of (2 sets) fall protection anchors and cables
- i. Finishing welds and other surfaces in preparation for coating
- j. Preparation and coating of new appurtenances.
- k. Repair of existing coatings at appurtenance attachment locations and roof hatch cover plate
- l. Quality control
- m. Complying with all applicable federal, state, and local regulations

2. Measurement

Measurement of Work associated with Bid Item **No. 7** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No. 7**, which price shall be made on a percent complete basis based on the lump

sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

H. Interior Coatings, MG #2

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Preparation of interior surfaces of the existing tank and appurtenances for coatings
- b. Store (on site) spent abrasive which will contain lead and other heavy metals from existing coatings
- c. Application of coatings on interior surfaces and appurtenances
- d. Preparation and application of coatings on interior surfaces of the underground and aboveground piping (first six inches from tank)
- e. Preliminary wash of all interior surfaces, piping and components prior to disinfection
- f. Disinfection of tank interior surfaces
- g. Disinfection of piping and any other surfaces, affected by the work that are within the potable water storage and distribution system.
- h. Protecting and repairing coatings damaged during disinfection and other work
- i. Quality control

2. Measurement

Measurement of Work associated with Bid Item **No. 8** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No. 8**, which price shall be made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

I. Welded Patches

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Provide submittals including welding procedures
- b. Fabricate patch plates
- c. Remove lead based paint & seal weld patch plates on tank to seal miscellaneous holes as directed by the Owner or Owner's Representative.
- d. Repair of new and existing coatings at tank attachment locations

2. Measurement

Measurement for Bid Item **No. 9** Work will be based upon completion of these items on a unit cost basis for each complete excavation as identified on the plans and in the contract documents. The measurement shall be made by the contractor and verified by the Owner's Representative.

3. Payment

Payment for Bid Item **No. 9** shall be made on a unit cost basis. The unit cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing the Work associated with this Bid Item in place, operational, and in conformance with the plans & specifications.

J. Demobilization

1. Description

This work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Public Safety – The Contractor shall concern himself with public safety at all times during the life of this contract. Work area shall be clearly identified. Public access through the project shall be by means of well established and delineated corridors. Materials shall be stockpiled in such a manner as to assure no hazard to the public, District Facilities, District Operations or the environment. Tools and equipment shall be likewise kept locked and out of reach. Work area shall be kept free of garbage and other waste.
- b. Dust Control – The Contractor shall comply with all County and other regulatory requirements for dust control. Contractor shall provide adequate personnel and equipment as necessary to abate all dust, which results from either his operation or created by a portion of the Work of this project. Dust control measures shall be in effect during the entire length of this contract including weekends and holidays.

Contractor shall designate a contact person responsible for responding to any calls regarding dust issues and implementing dust control measures.

- c. Demobilization – Contractor shall move off all equipment, materials, etc. as necessary to complete all aspects of this project.
- d. Handle, sample, test, transport and recycle spent abrasive which will contain lead and other heavy metals from existing coatings
- e. Lead based coatings, removed as a portion of the Work, shall remain the property of the Owner. The Contractor shall handle, sample, test, provide licensed transportation and dispose of any lead based (or heavy metal containing) coatings, removed as a portion of this work and not specified for recycling as a part of the spent abrasive.
- f. Construction Clean-Up – The Contractor is responsible for leaving the project areas in suitable condition for operation. It is imperative that all contractor Work, stockpile, storage, and equipment areas be completely clean and free of foreign material, materials removed or replaced as part of this work, gravel, aggregate base, broken asphalt, pipe, hardware, packing material, welding debris, and concrete when the Work is complete. All said material shall be picked up and removed from the site and not scattered. All removals from the site shall be done so in a legal manner. Contractor is responsible for all costs associated with loading, hauling, and dumping including any required permits, fees, etc
- g. Daily housekeeping and site control.
- h. Maintenance of storm water pollution prevention plan controls.
- i. The Contractor shall provide slope stabilization and other measures required to prevent sedimentation or other contamination of water draining from the site as a result of construction activities and this project.
- j. Miscellaneous – All items which are shown on the plans or identified in the specification or implied thereby, or incidental to any of the described items, even though not specifically called out in a particular item shall be included as part of this bid item.

2. Measurement

Measurement for Bid Item No. 10 “Demobilization” will be based upon completion of such work as a lump sum. The measurement shall be made by the contractor and verified by the Owner’s representative.

3. Payment

Payment for Bid Item No. 10 “Demobilization” shall be made in a lump sum amount for this item. **No payment shall be made until full completion of the Work within the bid item.** The lump sum cost shall constitute full compensation for furnishing all planning, acquisition, labor, materials, tools, and equipment associated with performing all Work involved in demobilizing, stabilizing and returning the site in a fully operable condition.

K. New Climbers Safety Device, MG #2 (Additive Bid Item)

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or specifications or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Field verification of dimensions and existing device/rail type (on the existing fixed ladder above the existing platform)
- b. Submittals for the new climber's safety device to match type of existing
- c. Removal and recycling of the existing safety device rail
- d. Installation of new climber's safety device rail
- e. Delivery of climbing device, appurtenances and instructions to Owner

2. Measurement

Measurement for Bid Item No. 11 Work will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for Bid Item No. 11 shall be made only when all portions of the work are complete. The lump sum cost shall constitute full compensation for furnishing all planning, acquisition, labor, materials, tools, and equipment associated with performing all Work involved in providing the system in place, operational, and in conformance with the plans & specifications.

L. New Low Section of Caged Exterior Ladder, Door and Climber's Safety Device, MG#2 (Additive Bid Item)

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Field verification of dimensions of existing upper portion of ladder, existing mid-platform and climber's safety device rail type
- b. Engineering of new low section of caged ladder, ladder security door, climber's safety device (lower ladder section) and associated appurtenances to mate to existing mid-platform, shop drawings, submittals and documentation of contract compliance
- c. Removal and on-site storage of lead based paints

- d. Fabrication and installation of a new low section of exterior ladder with cage
- e. Fabrication and installation of a new ladder security door
- f. Finishing welds and other surfaces in preparation for coating
- g. Preparation and coating of new ladder, cage, door and associated items.
- h. Repair of new and existing coatings at tank attachment locations
- i. Installation of new climber's safety device rail
- j. Delivery of climbing device appurtenances and instructions to Owner
- k. Quality control
- l. Complying with all applicable federal, state, and local regulations

2. Measurement

Measurement of Work associated with Bid Item **No. 12** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No.12**, which price shall made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

M. New Cathodic Protection System, MG #1 (Additive Bid Item)

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specification. The Work includes but is not limited to the following:

- a. System design as appropriate to the Contractor designed structure and pursuant to these specifications.
- b. Component installation, connection and preliminary set up and testing.
- c. System activation and adjustment after the warranty period.

2. Measurement

Measurement for Bid Item "Cathodic Protection System" Work will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for Bid Item "Cathodic Protection System" shall be made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all planning, acquisition, labor, materials, tools, and equipment associated with performing all Work involved in providing the cathodic protection system in place, operational, and in conformance with the plans & specifications.

N. New Cathodic Protection System, MG #2 (Additive Bid Item)

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specification. The Work includes but is not limited to the following:

- a. System design as appropriate to the Contractor designed structure and pursuant to these specifications.
- b. Component installation, connection and preliminary set up and testing.
- c. System activation and adjustment after the warranty period.

2. Measurement

Measurement for Bid Item "Cathodic Protection System" Work will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for Bid Item "Cathodic Protection System" shall be made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all planning, acquisition, labor, materials, tools, and equipment associated with performing all Work involved in providing the cathodic protection system in place, operational, and in conformance with the plans & specifications.

O. New Level Gage, MG#1 (Additive Bid Item)

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Field verification of dimensions
- b. Engineering of level gage and associated appurtenances, shop drawings, submittals and documentation of contract compliance
- c. Removal and on-site storage of lead based paints

- d. Demolition, removal and recycling of existing level gage and all other materials removed as a portion of this work
- e. Fabrication and installation of a new level gage
- f. Finishing welds and other surfaces in preparation for coating
- g. Preparation and coating of new level gage components
- h. Repair of new and existing coatings at tank attachment locations
- i. Quality control
- j. Complying with all applicable federal, state, and local regulations

2. Measurement

Measurement of Work associated with Bid Item **No. 15** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No.15**, which price shall made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

P. Coat Exterior Roofs, Both Tanks (Additive Bid Item)

1. Description

This Work includes the furnishing of all tools, equipment, labor and materials required to accomplish all of the following Work within the limits designated on the plans or as directed by the Engineer in accordance with the plans and specifications. The Work includes but is not limited to the following:

- a. Preparation and coating of exterior surfaces of the existing tank roof of both tanks and portions of upper shell damaged by rafter clip removal and re-installation welding on the interior
- b. Quality control

2. Measurement

Measurement of Work associated with Bid Item **No. 16** will be based upon completion of this work as a lump sum. The measurement shall be made by the contractor and verified by the Owner's representative.

3. Payment

Payment for this bid item will be made at the lump sum named in the Bid Schedule under Bid Item **No. 16**, which price shall be made on a percent complete basis based on the lump sum amount for this item. The lump sum cost shall constitute full compensation for furnishing all labor, materials, tools, and equipment associated with performing all Work involved in providing Work under this bid item in place, operational, and in conformance with the plans & specifications.

END OF SECTION

Section 09905

PROTECTIVE COATINGS

PART 1 - GENERAL

1.01 SCOPE SUMMARY

- A. The work described in this section covers protective coatings for the project including the interior surfaces of two existing water tanks, accessible portions of piping, appurtenances and exterior surfaces of new upgrade appurtenances and areas damaged by welding or other actions associated with this project. The project goals are to achieve coating systems that provide long term service, good aesthetics and low maintenance cost using best safety and environmental practices.
- B. The contractor shall supply all coatings, solvents, abrasives, air compressors, hoses, paint guns, materials storage and any other tools, equipment and consumables necessary for the proper preparation and application of the coatings. .
- C. The Contractor shall be familiar with the service conditions of the tanks and shall submit preparation and coating applications as appropriate. The Contractor shall consult the Engineer prior to any coating activity where the coating of certain components or surfaces is in question.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01100, Scope and Control of the Work
- B. Section 13010, Upgrades of Existing Tanks
- C. Section 13020, Replace Roof Structure for Welded Steel Water Storage Tank

1.03 REFERENCES

- A. Without limiting the general aspects or other requirements of this specification, work and equipment shall conform to applicable requirements of County, State and Federal codes, laws and ordinances governing the work, American Water Works Association, SSPC: The Society of Protective Coatings, and the manufacturer's printed instructions.
- B. When conflict exists between any of the referenced codes, laws, ordinances, specifications and standards contained herein, the most conservative relative to the project goal of system longevity shall govern.
- C. The latest edition of the following standards and regulations form a part of this specification. Materials, preparation, application, repair methods, and all other aspects of the work and inspections shall conform to following codes and standards:
 - 1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
 - a. ASTM D1186, Standard Test Method for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base

- b. ASTM D3359, Standard Test Method for Measuring Adhesion by Tape Test
 - c. ASTM D4138, Standard Practices for Measurement of Dry Film Thickness of Protective Coating Systems by Destructive, Cross-Sectioning Means
 - d. ASTM D4285, Standard Test Method for Indicating Oil or Water in Compressed Air
 - e. ASTM D4414, Standard Practice for Measurement of Wet Film Thickness by Notch Gages
 - f. ASTM D4417, Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel
 - g. ASTM D5402, Standard Test Methods for Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs
2. AMERICAN WATER WORKS ASSOCIATION (AWWA)
- a. AWWA D102-14, AWWA Standard for Coating Steel Water-Storage Tanks
 - b. AWWA M42, AWWA Manual of Water Supply Practices, Steel Water Storage Tanks
 - c. AWWA C652-02, AWWA Disinfection of Water-Storage Facilities
3. SOCIETY OF PROTECTIVE COATINGS (SSPC)
- a. SSPC-PA 1, Shop, Field, and Maintenance Painting of Steel
 - b. SSPC-PA 2, Measurement of Dry Coating Thickness with Magnetic Gages
 - c. SSPC-VIS 1, Visual Standard for Abrasive Blast Cleaned Steel
 - d. SSPC-VIS 3, Visual Standard for Hand and Power Tool Cleaned Steel
 - e. SSPC Publication No. 91-12, Coating and Lining Inspection Manual
 - f. SSPC Visual Comparison Manual
 - g. SSPC-SP 1, Solvent Cleaning
 - h. SSPC-SP 3, Power Tool Cleaning
 - i. SSPC-SP 7, Brush-off Blast Cleaning
 - j. SSPC-SP 10, Near-White Metal Blast Cleaning
 - k. SSPC-SP 11, Power Tool Cleaning to Bare Metal
 - l. SSPC-SP 12, Surface Preparation and Cleaning of Metals
4. NACE INTERNATIONAL (NACE)

- a. NACE SP0188-2006, Standard Recommended Practice for Discontinuity (Holiday) Testing of Protective Coatings
 - b. NACE RP 0178-89, Standard Recommended Practice for Fabrication Details, Surface Finish Requirements, and Proper Design Considerations for Tanks and Vessels to be Lined for Immersion Service.
- D. NATIONAL SANITATION FOUNDATION (NSF)
- 1. NSF 61, Drinking Water System Components - Health Effects
- E. EQUIPMENT AND COATING MANUFACTURER'S PUBLISHED INSTRUCTIONS

1.04 SUBMITTALS

- A. Submittals shall be provided in accordance with these special provisions. **The Contractor shall provide submittals before the pre-job conference.** No work shall be done on items needing submittal approval until the material or plan is approved by the Owner.
- B. Required Submittals. Submittals shall be furnished by the contractor as called for in the various sections of these Special Provisions and for following items as a minimum:
- 1. Coatings/Color (each coat)
 - 2. Solvents/Thinners
 - 3. Abrasives
 - 4. Magnetic Dry Film Thickness Gage
 - 5. Coating Conditions Verification Equipment (Temperatures/Humidity)
 - 6. Daily Report Form
 - 7. Caulking (See Coating Systems)
- C. Product Submittals. Approval of materials and products by the Owner does not waive the Contractor's responsibility to provide a material which will meet the project goals.
- D. Coating Submittals. The submittals for coating products shall, at a minimum, contain the following information:
- 1. Material Name / Manufacturer
 - 2. Standards of which the product complies
 - 3. Conditions for which the product was developed or can be used
 - 4. Application guidelines including manufacturer approved field repair method of shop applied primers
 - 5. Testing information / data on product
 - 6. Any material guarantees

7. Expected life
8. Surface Preparation for coatings including any special requirements for this project
9. Recommended uses
10. Safety precautions - and MSDS sheets
11. Name and phone number of the area sales representative for the product
12. Any other information the contractor feels would be helpful in the Owner's review

1.05 OSHA COMPLIANCE.

- A. Contractor shall comply with all applicable regulations including state and federal OSHA and these Special Provisions.
- B. Contractor is responsible for complying with Cal/OSHA regulations for lead in construction in accordance with California Code of Regulations, California Title 8, Section 1532.1. Lead. Some levels of lead are undoubtedly present and Cal/OSHA requires compliance with 1532.1 if the paint contains lead at any level.
- C. The costs for complying with all OSHA requirements shall be considered as included in the various contract prices paid and no additional compensation will be allowed. Contractors are welcome to take lead samples in advance by arrangement with the owner.

PART 2 - PRODUCTS

2.01 ABRASIVES

- A. Abrasive used in blast cleaning operations shall be recyclable fused copper slag. Abrasives shall meet all requirements of the California Air Resources Board for content and emissions.
- B. Abrasives shall be certified for unconfined dry blasting pursuant to the California Administrative Code, Section 92520 of Subchapter 6, title 17, and shall appear on the current listing of approved abrasives.

2.02 COATING MATERIALS.

- A. Coating materials shall conform to the following requirements:
 1. Only high-grade products of manufacturers having an established good reputation in the manufacture of quality protective coatings shall be used. All coatings on the interior surfaces of the tank or other areas that can contain potable water shall conform to NSF-61.
 2. Coating materials shall be brought to the job site in the original sealed containers. Materials found to be damaged or out of date shall be removed from the site. Materials shall be stored in an enclosed structure out of the weather protecting them from excessive heat or cold.

3. The Contractor may submit paint materials of manufacturer's other than those specified herein in accordance with these Special Provisions. The Contractor shall provide satisfactory documentation from the firm manufacturing the proposed material that the material meets the specified requirements and is equivalent to or better than the listed materials in the following properties:
 - a. Quality
 - b. Durability
 - c. Resistance to abrasion and physical damage
 - d. Life expectancy
 - e. Ability to recoat in future
 - f. Solids content by volume
 - g. Dry film thickness per coat
 - h. Compatibility with other coatings
 - i. Suitability for the intended service
 - j. Resistance to chemical attack
 - k. Temperature limitations in service and during application
 - l. Type and quality of recommended undercoats and topcoats
 - m. Ease of application
 - n. Ease of repairing damaged areas
 - o. Stability of color

PART 3 - EXECUTION

3.01 HOUSEKEEPING AND CLEANUP

- A. At the end of each work day, dust, paint chips and abrasive shall be removed from the surfaces and surrounding areas. Spent abrasive shall be stored in temporary storage containers on site pursuant to Best Management Practices and Best Pollution Prevention Practices listed under federal and state guidelines.
- B. As work proceeds, promptly remove all coating that is spilled, splashed, or splattered. Collect empty containers, rags, waste material, and debris and store or remove from the site as appropriate.
- C. The site shall be maintained free of unnecessary accumulations of tools, equipment, surplus materials, and debris. Equipment maintenance and spill prevention procedures shall be adequate to prevent spills and leaks.

- D. Upon completion of the work, the Contractor shall remove all excess materials, equipment, containers, and waste from the job site. Coating spots or stains shall be removed from adjacent surfaces and surfaces repaired if needed.

3.02 PROTECTION OF PROPERTY

- A. Blast residue and overspray shall be contained within the tank during preparation and coating of the interior. Dust, particle, and overspray collection, ventilation and filtration shall be adequate to prevent exiting and drifting beyond 35' from the tank.
- B. The Contractor shall be attentive to wind conditions to prevent the drifting of abrasive blast residue and overspray and shall make every effort to prevent the damage of public and private property. Weather conditions shall dictate the application of coatings and, if necessary, adjustments in the contract working days will be made in accordance with the provisions of the Standard Specifications. If overspray or other damage occurs, the contractor shall incur all expenses for the clean-up or repair of the damages public and/or private property.
- C. The Contractor shall protect the following surfaces from abrasive blasting, entry of sand, grit, dust and paint or other damage by wrapping, masking or other methods:
 - 1. PVC piping including high inlet on tank interior
 - 2. Sheet metal siding
 - 3. Any pump/motors
 - 4. Threaded portions of valve and gate stems
 - 5. Machined surfaces for sliding contact, bearings, sprockets or gears
 - 6. Surfaces to be assembled against gaskets
 - 7. Mechanical drives
 - 8. Stainless steel or aluminum surfaces not specifically designated for coating or painting
 - 9. Coated or plated items (including galvanized) not scheduled for painting or coating
 - 10. Drains & relief valves
 - 11. Concrete surfaces
 - 12. All other surfaces not specifically designated for coating or painting.
- D. The Contractor shall contact operations personnel for verification of adequate protection of critical items such as mechanical items.
- E. If required to prevent damage, protective coverings or drop cloths shall be used to protect floors, fixtures and equipment. The Contractor shall mask, cover and shield all gauges, instruments, stainless steel, aluminum, galvanized steel, glass, plastic, equipment and all other surfaces not intended for coating as specified. Surfaces, from which inadvertently

applied materials cannot be removed satisfactorily, shall be recoated or repainted to produce a finish satisfactory to the Owner.

- F. Coating application to exterior surfaces shall be completed using roller and brush methods. Spray application is not allowed. The Contractor shall prevent coating material to spatter, spray or otherwise transfer beyond 35' from the tank.

3.03 SURFACE PREPARATION

- A. The Contractor shall complete low-pressure water cleaning of exterior surfaces prior to other applicable surface preparations. Surfaces shall be cleaned in accordance with SSPC-SP12 LP WC. All oil, grease, salts, rust, loose materials or other contaminants that will adversely impact adhesion or cause coating failure shall be removed.
- B. Surface preparation shall be provided as detailed for the specific aspects of the work. Surface preparation shall conform to this specification and the applicable material manufacturer's recommendations. The contractor shall provide all necessary testing and **recycle the abrasive** through an approved recycling program. The Contractor shall provide documentation of receipt of the material by the recycler.
- C. All welding shall be completed prior to surface preparation and coating. Do not apply any part of a coating system before the Owner's Quality Assurance has reviewed the surface preparation. Coating applied without inspection shall be removed by abrasive blasting and reapplied in accordance with this specification.

3.04 APPLICATION.

- A. Coating application on exterior surfaces shall be completed using roller and brush methods.
- B. Thinning shall be permitted as recommended by the manufacturer for the conditions of application and allowed by applicable regulations. Each application of coating or paint shall be applied evenly, free of sags and runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping on glass or hardware. Coating and paint shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.
- C. When two or more coats of coating or paint are specified, each coat shall be adequately contrasting in color to act as an indicator of coverage.
- D. All material shall be applied in accordance with the manufacturer's recommendations and these specifications. Maximum permissible level of soluble salts or chemicals shall be as recommended by the coating manufacturer and verification shall be the responsibility of the contractor.
- E. At least one brush stripe coat shall be applied to edges, corners, and irregular interior surfaces such as welds and fasteners. Minimum recoat times shall be observed between the stripe coat and the next coat. The stripe coat may be applied after the prime coat if appropriate.
- F. Where the number of coats or dry film thickness is specified, they shall be considered a minimum. The Contractor shall apply additional coats as necessary to achieve the specified dry film thickness.

- G. Coating procedures and recoat cycles are critical. It is imperative that the manufacturer's recommendations be strictly followed. Any deviation from printed literature must be approved in writing by the manufacturer's technical department and the owner prior to starting alternate procedures.

3.05 CONTRACTOR QUALITY CONTROL.

- A. The Contractor is responsible for quality control. The Contractor shall provide adequate equipment to monitor project quality. The Contractor shall document conditions, progress, project personnel and equipment on site, in a daily report. Environmental readings shall be recorded at the beginning and end of each painting sessions. Signed daily reports shall be provided to the Owner Representative on a weekly basis.
- B. No coating or paint shall be applied to wet or damp surfaces, in rain, snow, fog, or mist, when the steel temperature or surrounding air temperature is less than 5 degrees Fahrenheit (5°F) above the dew point, nor in conditions not recommended by the manufacturer. If unacceptable weather conditions are prevalent, coating or painting shall be delayed or postponed until conditions are favorable. The day's coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.
- C. The thickness of coatings shall be checked with a non-destructive, magnetic type thickness gauge. Coating thickness measurement procedures shall be pursuant to SSPC-PA-2. Additional measurements may be made when determined by the inspector to be in the best interest of the project. In cases of dispute concerning film thickness, measurements made with instruments shown to be in calibration with the National Bureau of Standards calibration plates shall predominate. The contractor shall furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of dry-film thickness gauge. All inspection devices shall be in good working order.

Dry film thickness that exceeds the coating manufacturer's recommendation is unacceptable and shall be removed by the Contractor at no extra cost to the Owner.

- D. The coating integrity of all interior coated metallic surfaces shall be tested with an approved wet sponge electronic holiday detection device. A non-sudsing type wetting agent such as Kodak Photo-Flo, shall be added to the water prior to wetting the detector sponge. Non-submersed roof and shell areas shall be included in the holiday testing. Holiday detection of interfaces between roof plate and rafters which are not seal welded is not required.

The contractor shall provide holiday detection devices in good working order. Acceptable devices include, but are not limited to, K-D "Bird Dog" non-destructive holiday detector and Tinker-Razor Model M-1 for coating to 20 mils dry film thickness.

All holiday detection devices shall be operated in the presence of a representative of the Owner. Testing shall be conducted pursuant the coating manufacturer's recommendations and NACE RP 0188 (latest edition). All rejected areas shall be marked and repaired in accordance with the manufacturer's printed recommendations and re-tested. No pinholes or other irregularities will be permitted in the final coating.

3.06 QUALITY ASSURANCE.

- A. The Owner may provide shop or field inspection of the work. The Contractor shall provide the Owner's Representative with a 3 day notice prior to any surface preparation or coating application. All work shall be performed with the presence of the Owner's Representative unless written prior approval has been granted. Coatings applied without inspection shall be removed by abrasive blasting and reapplied in accordance with this specification.

3.07 COATING SYSTEM – EXTERIOR OF NEW STEEL

- A. All exterior surfaces of the upgrade items shall be coated unless noted herein. Ladder safety climb rails, level gage board, vent screens and other "bolt on" hardware shall be removed during coating and replaced after completion.
- B. Included Items: All exterior surfaces of new appurtenances.
- C. Surface Preparation: Abrasive blast per SSPC-SP6 Commercial Blast Cleaning and the coating manufacturer's recommendations.
- D. Exterior Coating System (AWWA D-102 Outside Coating System No. 5). Epoxy prime coat with an epoxy intermediate coat followed by aliphatic polyurethane. Examples of approved coatings are as follows:
 - 1. Devoe
 - a. Primer: Devoe High Performance Coatings Bar-Rust 231 Multi-Purpose Epoxy Mastic, 3 - 5 mils
 - b. Intermediate: Devoe High Performance Coatings Bar-Rust 231 Multi-Purpose Epoxy Mastic, 3 - 5 mils
 - c. Finish: Devoe High Performance Coatings Devthane 378H Aliphatic Urethane Semi-Gloss, 2 - 3 milsor
 - 2. Carboline
 - a. Primer: Carboguard 893 @ 3-5 mils DFT
 - b. Intermediate: Carboguard 893 @ 3-5 mils DFT
 - c. Finish: Carbothane 134VOC @ 2-3 mils DFTor
 - 3. Tnemec
 - a. Primer: Tnemec L69 Epoxoline or V140F Pota-Pox, 3 - 5 mils
 - b. Intermediate: Tnemec L69 Epoxoline or V140F Pota-Pox, 3 - 5 mils
 - c. Finish: Tnemec 1075 Endura-Shield, 2 - 3 mils

or

4. Approved equal.

E. Color: Provide close match to existing. Submit color for Owner approval.

3.08 COATING SYSTEM – INTERIOR SURFACES

- A. Included items: All Interior surfaces including tops of new rafters.
- B. Surface Preparation: Abrasive blast per SSPC-SP10 Near White Blast Cleaning and the coating manufacturer's recommendations.
- C. Interior Coating System (AWWA D-102 Inside Coating System No. 2): Three coat, two component epoxy coating system. A prime, intermediate and finish coat of two component epoxy. The stripe coat shall be completed after the prime coat using the epoxy intermediate coat material. An example of approved coatings is as follows:

1. Devoe

- a. Primer: Devoe High Performance Coatings Bar-Rust 233H, 4-5 mils
- b. Intermediate: Devoe High Performance Coatings Bar-Rust 233H, 4-5 mils
- c. Finish: Devoe High Performance Coatings Bar-Rust 233H, 4-5 mils

or

2. Tnemec

- a. Primer: Tnemec V140F Pota-Pox, 4 - 5 mils
- b. Intermediate: Tnemec V140F Pota-Pox, 4 - 5 mils
- c. Finish: Tnemec V140F Pota-Pox, 4 - 5 mils

or

3. Carboline

- a. Primer: Carboguard 61 @ 5-6 mils DFT
- b. Intermediate: Carboguard 61 @ 5-6 mils DFT
- c. Finish: Carboguard 61 @ 5-6 mils DFT

or

4. Approved equal.

D. Color: Tank white

3.09 COATING SYSTEM – EXTERIOR ROOFS AND SPOT REPAIR OF DAMAGED AREAS

- A. Included Items (Additive Bid Item): All exterior surfaces of the tank roofs extending to the lower edge of the compression ring to the center (flat bar or angle shape protruding horizontally from the roof edge). All roof mounted appurtenances.
- B. Included Items (Base Bid): Spot repair of all areas damaged by welding or other actions associated with this project including, but not limited to; roof structure replacement and installation of upgrade appurtenances.
- C. Surface Preparation: Pressure wash cleaning and the coating manufacturer's recommendations.
- D. Exterior Coating System. Epoxy intermediate coat followed by aliphatic polyurethane. Examples of approved coatings are as follows:
 - 1. Devoe
 - a. Intermediate: Devoe High Performance Coatings Bar-Rust 231 Multi-Purpose Epoxy Mastic, 3 - 5 mils
 - b. Finish: Devoe High Performance Coatings Devthane 378H Aliphatic Urethane Semi-Gloss, 2 - 3 mils
 - or
 - 2. Carboline
 - a. Intermediate: Carboguard 893 @ 3-5 mils DFT
 - b. Finish: Carbothane 134VOC @ 2-3 mils DFT
 - or
 - 3. Tnemec
 - a. Intermediate: Tnemec L69 Epoxoline or V140F Pota-Pox, 3 - 5 mils
 - b. Finish: Tnemec 1075 Endura-Shield, 2 - 3 mils
 - or
 - 4. Approved equal.
- E. Color: Provide close match to existing. Submit color for Owner approval.

3.010 CURING AND VENTILATION

- A. Forced ventilation of the tank interior shall be conducted for a period equal or exceeding the coating manufacturer's recommended minimum recoat time for each coat and for at least 48 hours after the final coat. The ventilation shall be equal to or greater than specified in AWWA D102-14. Circulation through low areas of the tank, piping and other associated areas that will hold solvent vapors shall be assured.
- B. If heating or dehumidification are required for proper curing, the Contractor shall provide these as a part of the Base Bid and at no additional cost to the Owner.

3.011 CAULKING

- A. Caulk shall be applied to unsealed joints such as bolts, nuts, bolted flanges etc. to prevent moisture intrusion and rust staining (“bleeding”). Minimum recoat times for caulking shall be followed. Caulk shall be applied only to clean dry areas that are free of loose materials and dust. Follow manufacturer’s installation instructions. Caulk shall be applied between the prime and finish coats.

3.012 LABELING

- A. Label inside of roof hatch “PROTECT OPENING OR MONITOR WHEN OPEN”. Labeling shall be located on the inside of the hatch lid. The labeling shall be done with red or black colored NSF 61 approved epoxy. Letters shall be neatly stenciled and shall be 2” tall or larger.

3.013 CERTIFICATE OF COMPLIANCE

- A. The Contractor shall provide a Certificate of Compliance stating that “The Coating Work has been completed in conformance with the Specifications and Curing has been completed and confirmed pursuant to the Project Specifications and the coating manufacturer’s recommendations and the tank is ready to be filled.” The Certificate of Compliance shall be provided to the Owner and Engineer prior to disinfection.

3.014 TANK DISINFECTION.

- A. After cure of the completed interior coating has been completed, the interior of the tank shall be thoroughly cleaned and disinfected. All work shall conform to the requirements of ANSI/AWWA C652, Standard for Disinfection of Water-Storage Facilities, Method 2. The Contractor shall test the disinfection solution for chlorine concentration during the observation of the Owner Representative and prior to start of disinfection. Upon completion of disinfection, the Owner’s representative shall photograph the tank interior and the Contractor shall seal the tank.

3.015 SOAK TEST AND MONITORING

- A. The Owner will fill the tank and complete the five day soak test and VOC monitoring including organics listed on the coating manufacturer’s MSDS. The reservoir must also be sampled for coliforms and have satisfactory results. The Owner shall submit the results of all monitoring and testing to the State Water Resources Control Board and receive approval prior to putting the reservoir into service.

3.016 WARRANTY INSPECTION.

- A. The Owner shall provide for inspection of any or all of the work completed under this contract. The date and method of the inspection shall be established and notification given at least 30 days in advance. If an inspection date has not been established within 13 months after completion of the coating work, the first anniversary inspection shall be considered waived. Waiver of the warranty inspection will not relieve the Contractor of the responsibility to repair defective work.

3.017 WARRANTY REPAIR.

- A. If any work is found to be defective, as determined by the Owner, its employees or consultants, the Contractor shall promptly correct the defective work with no cost to the Owner.
- B. The surfaces shall be prepared and re-coated as per the applicable original coating system. Preparation and application procedures for coating repairs shall conform to manufacturer's recommendations and be approved by the Owner with the intent of bringing the defective areas up to the quality level of the original work required by this specification.
- C. The Owner may require delay of repair where necessary for efficient operation of the water treatment facility. If the Contractor does not complete corrective work promptly, the Owner may complete the work itself or hire others to complete it. The original Contractor and its Surety will be liable to the Owner for all direct and indirect costs.
- D. The cathodic protection system shall be energized and adjusted after completion of the warranty period and repair work if applicable.

END OF SECTION

Section 13010

UPGRADES OF EXISTING TANKS

PART 1 - GENERAL

1.01 SUMMARY

The intent of the work described in this section is to provide a safe workplace and assure compliance with applicable OSHA regulations for 2 existing steel tanks.

1.02 SCOPE

- A. Design, fabricate, install, and coat upgrades on 2 existing tanks in order to provide a safe workplace and assure compliance with applicable OSHA regulations. The Contractor's work will include engineering by the Contractor's Engineer for all work.
- B. Provide localized removal of lead containing and lead based coatings pursuant to all applicable regulations prior to any work. Coating removal shall be completed in a manner that contains all dust and protects contractor personnel and the public.
- C. Demolish, remove and recycle the applicable existing components that are being replaced or upgraded.
- D. The intent is to upgrade the exterior ladders, ladder doors, and guardrailing of each tank to current OSHA Standards and these special provisions. The specific accessories required for each tank are listed below. The dimensions provided herein are intended to be general information. The Contractor shall field verify all dimensions prior to fabrication.
- E. The Contractor shall design, fabricate, and erect all aspects of the repairs pursuant to AWWA D100-11 (including Section 13 for seismic design), CBC 2016, California Department of Public Health Drinking Water Statutes, and all other applicable rules and regulations. NSF/ANSI 61, Standard for Drinking Water System Components shall apply. All contractor design calculations and drawings shall be stamped by a Registered Professional Civil or Structural Engineer with design experience on over 50 similar welded steel tanks.
- F. Repair exterior coatings that are damaged as a part of this work. Not including welded patches on the roof unless Exterior Roof Coating additive bid item is included in the Contract

1.03 EXISTING CONDITIONS

- A. Million Gallon Tank #1
 - 1. See appendix C for Inspection Report for the Million Gallon Tank #1 (MG#1)
 - 2. Lead based coatings are present on the exterior of this tank. See appendix B for lead analysis.
 - 3. Tank type: ground-supported, welded steel

4. Erected: 1969 (USS, American Bridge)
 5. Tank diameter: 66'-0" (to be verified by contactor)
 6. Tank shell height: 40'-0" (to be verified by contactor)
- B. Million Gallon Tank #2
1. See appendix C for Inspection Report for the Million Gallon Tank #2 (MG#2)
 2. Lead based coatings are present on the exterior of this tank See appendix A for lead and other heavy metals analysis.
 3. Tank type: ground-supported, welded steel
 4. Erected: 1976
 5. Tank diameter: 66'-0" (to be verified by contactor)
 6. Tank shell height: 40'-0" (to be verified by contactor)

1.04 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01100, Scope and Control of the Work
- B. Section 09905, Protective Coatings

1.05 REFERENCES

The latest edition of standards and regulations herein form a part of this specification. Design details, repair methods, fabrication, erection, and all other aspects of the work and inspections shall conform to following Codes and Standards:

- A. AMERICAN WATER WORKS ASSOCIATION (AWWA)
 1. AWWA D100-11, AWWA Standard- Welded Carbon Steel Tanks for Water Storage
- B. CALIFORNIA BUILDING STANDARDS COMMISSION (CBSC)
 1. CBC 2016, California Building Code
- C. NATIONAL ASSOCIATION OF CORROSION ENGINEERS (NACE)
 1. NACE SP0178-2007, Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service.
- D. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
 1. ASCE/SEI 7, Minimum Design Loads For Buildings and Other Structures
- E. NATIONAL SANITATION FOUNDATION (NSF)
 1. NSF 61, Drinking Water System Components - Health Effects.
- F. AMERICAN PETROLEUM INSTITUTE (API)

1. API 653, Tank Inspection, Repair, Alteration and Reconstruction, API Standard 653-2009 w/ Addendum 2

1.06 SUBMITTALS

Engineering calculations shall be provided to show the adequacy of structural items where loads are specified by applicable industry standards. The design calculations and detailed drawings shall be signed by a Civil or Structural Engineer licensed to practice in the state of California.

- A. Tank roof structure and accessory drawings and supplemental information will include the following:
 1. Dimensional drawings indicating size and thickness of all members
 2. Attachment details
 3. List of appurtenances
 4. Fabrication details
 5. All details of welded joints. Weld joint details shall include, size, joint preparation, identification of field welds, and indication of welds requiring low hydrogen procedures.
- B. Welding Procedures
- C. Welder Certifications
- D. Mill Test Reports

PART 2 - PRODUCTS

2.01 PLATE AND SHEET

- A. Plate and sheet materials shall conform to the design requirements of AWWA D100.

2.02 COATINGS

- A. All new accessories shall be coated pursuant to these special provisions.
- B. Spot repair coatings damaged as part of this work pursuant to these special provisions. Prepare and coat locations with damage associated with this work pursuant to the exterior coatings section of these special provisions. Power tool cleaning will be an acceptable alternative to blast cleaning.

2.03 TANK ACCESSORIES

- A. OUTSIDE LADDER AND CAGE

The new outside ladder shall be full length (within 1'-0" above the foundation or landing). The ladder shall be coated with specified exterior coating system. The Contractor shall notify the Owner's Representative for final inspection. The top of the top rung of the ladder

shall be at the same elevation as the top of the tank nearest the ladder (where the user will step from the ladder). The ladder shall include a platform at mid height.

B. ROOF GUARDRAIL

Roof guardrails shall be provided at the locations and to the extent shown on the project drawings. Size of posts and rails and the height of the guardrail assemblies shall comply with applicable state and federal regulations and AWWA D100-11.

Guardrails shall be steel with a top rail, mid rail(s), and vertical posts. Spacing between vertical posts shall match existing and shall be spaced a maximum of 7'-0" apart. Guardrail shall include a 4" x 1/4" toeboard. The toeboards shall be provided with bolted attachment to allow removal for painting and maintenance. The Contractor shall notify the Owner's Representative for final inspection.

"Alleyway" railing sections are designed to prevent falls through unprotected openings at the outside ladders. The alleyway railing shall extend a minimum of 4'-0" inboard from the existing railing nearest the outside ladder. The inboard end of the alleyway shall be protected with a self closing gate (BlueWater GuardDog or equal) that is permanently attached to the post on one side such that it opens toward the tank center. The gate shall be hot dip galvanized.

Provide welded attachment between the new guardrail sections and the existing ladder cage or guardrail at locations opposite of the top and intermediate rails. Attachment may be made with flat bar (1/4" x 2" minimum) where appropriate.

C. PERSONNEL FALL PROTECTION SYSTEM

Provide a personnel fall protection system for protection of personnel working on the roof. The new roof guardrail will not be adequate protection for accessing all areas of the roof. The Contractor provided system shall include two stainless steel pivoting "D-ring" anchors near the roof vent which will be used as anchors for fall protection of personnel accessing various unprotected areas of the roof. Use swivel anchors (Miller# 365-RACSW100S-316) or equal. Anchor points shall be designed for loading in any direction on the roof without bolting to the roof. The anchors will be installed at a location specified by the Owner's Representative. Two cable systems shall be included. The cables will be permanently attached to the anchors. The cables shall extend radially to within three feet of the nearest roof edge. The D-rings and cable systems shall be designed as fall protection systems per OSHA regulations and 5,000 lb. minimum, whichever is greater. The Contractor shall provide a design drawing for the system that is stamped by an engineer experienced in the design of fall protection systems. Compression sleeves used in the system shall be stainless steel. Cables shall be nylon-coated wire rope of AISI Grade 304 stainless steel.

D. HORIZONTAL SWINGING LADDER DOOR FOR CAGED LADDERS

Where specified, provide an anti-climb door for a caged ladder. Each door shall fit beneath the ladder cage and shall incorporate a top closure plate which prevents access to the lower section of the ladder. The door shall be capable of being secured with a conventional padlock. The door shall be designed to be latched in the open position to permit safe access to the ladder. Minimum plate thickness shall be 3/16".

E. LEVEL INDICATOR

The Contractor shall provide a target type liquid level indicator. The indicator board shall be a one-piece extruded 6" aluminum channel. A bolt together board will not be acceptable. The indicator tape shall be pre-printed solid vinyl. Painted markings are not acceptable. The level pointer "target" shall be made from 3/16" galvanized steel. The target shall be balanced to eliminate binding during target movement. The internal hollow float shall be made of heavy gauge stainless steel. All parts, including cable conduits, tensioners, and bottom anchors, shall be made of corrosion resistant materials. The level gage shall be full length.

F. LADDER SAFETY SYSTEM

The outside ladders shall include galvanized steel ladder safety device. The ladder safety device shall be compatible with the Owner's other ladder climbing systems which are Miller, North Safety Product Saf-T-Climb systems. Each ladder safety system shall include harness and shuttle designed for the system.

G. SQUARE ROOF HATCH

Provide a 39" square hinged roof hatch to comply with requirements of OSHA and AWWA D100 for fixed ladders. Stainless steel hinges and latches are required to protect inaccessible wear points. The internal ladder shall extend to, and be welded to, the inside of the roof hatch curb.

H. WELDED PATCHES

Patch plate material shall be ASTM A36. Patches shall be 1/4" thick x 6" x 6".

PART 3 - EXECUTION

3.01 GENERAL FABRICATION AND WELDING

- A. All corners and edges that are exposed upon completion of fabrication shall be finished to a minimum radius of 1/16" to optimize coating application. Finishing with grinding wheels may produce "hard" corners which are not acceptable. Grinders equipped with "soft pads" or sanding discs on rubber backing are often necessary to produce acceptable finishes without corners and edges.

3.02 WELD PROFILES AND FINISHING

- A. All weld spatter shall be removed prior to coating. Abrasive blasting is not reliable for removal of all weld spatter, so all weld spatter shall be removed as part of tank erection and prior to the start of abrasive blasting.
- B. Removal of Temporary Attachments
1. All temporary and unnecessary brackets, lugs, and clips (such as those used during erection) shall be removed from the tank. Pits created during removal shall be repaired with consideration of minimum weld length and accepted welding

procedures. Welded repairs shall be ground flush. Removal of temporary attachments shall be by grinding followed by sanding to smooth course grinding marks (deeper than 4 mils as measured with profile tape) and radius any angular transitions.

3.03 QUALITY

- A. Shop and field welding quality control shall be the responsibility of the Contractor. Weld quality assurance inspection will be provided by the Owner's Representative. Safe access and lighting are an important aspect of producing a quality product for both the contractor personnel and quality assurance personnel. Safe access, lighting, and assistance shall be provided by the Contractor for the Owner's Representative(s) using the Contractor's rigging and equipment to allow inspection or observation of all work. This shall be provided by the Contractor at no additional cost.
- B. The intent of nondestructive testing on this project is to confirm that welds meet the specified minimum requirements. Testing will be done by sampling welds of the most questionable quality, those under higher stress, or by random selection.

3.04 MILLION GALLON TANK #1

- A. Remove and recycle the existing ladder, cage, platform and other associated items. Grind and sand attachment point locations smooth. Install new painted ladder (full length) with cage, mid-platform and ladder door. The new ladder shall be attached to the tank using welded connections.
- B. Install a new climber's fall protection device on the new ladder.

Remove existing guardrail and recycle. Fabricate and install new guardrail to conform to OSHA requirements. The new guardrail shall extend a minimum of 12'-0" clockwise (in plan view) from the ladder in 2 sections and shall extend a minimum of 6'-0" counterclockwise in 1 section. Each end of the guardrail shall terminate with an additional 6'-0" (min.) section of guardrail running toward the center of the tank. Include an "alleyway" (4'-0" min. length) at the ladder. The inboard end of the alleyway shall be protected with a self closing gate that is permanently attached to the post on one side such that it opens toward the tank center.
- C. Weld 2 fall protection anchor lugs at locations by the engineer. Install cable lanyards pursuant to the special provisions.
- D. Install new level gage if Owner contracts for the additive bid item.
- E. Install welded steel patches to cover abandoned cathodic protection hand-holes, misc. holes, corrosion or other as directed by the Owner's Representative. The patches shall lap the existing roof or bottom areas and shall be fully seal welded around the perimeter. Patch repairs shall conform to API 653. Patches shall be finish sanded to remove all sharp edges and round all corners to 1/8" minimum radius.

3.05 MILLION GALLON TANK #2

- A. Remove existing guardrail and recycle. Fabricate and install new guardrail to conform to OSHA requirements. The new guardrail shall extend a minimum of 12'-0"

counterclockwise (in plan view) from the ladder in 2 sections and shall extend a minimum of 6'-0" clockwise in 1 section. Each end of the guardrail shall terminate with an additional 6'-0" (min.) section of guardrail running toward the center of the tank. Include an "alleyway" (4'-0" min. length) at the ladder. The inboard end of the alleyway shall be protected with a self closing gate that is permanently attached to the post on one side such that it opens toward the tank center.

- B. Provide welded attachment between the new guardrail and the existing ladder cage at a minimum of 2 locations on each side opposite of the top and intermediate rails.
- C. Remove existing roof hatch that is located at the exterior ladder. Cover the roof opening, created by the roof hatch removal, with new ¼" plate that is cut to a square and sized for approximately 1" overlap of the opening. Cover plate shall be seal welded and the top edges shall be finished to a 1/8" radius.
- D. Install the new roof hatch as detailed on the drawings.
- E. Weld 2 fall protection anchor lugs at locations by the engineer. Install cable lanyards pursuant to the special provisions.
- F. Install welded steel patches to cover abandoned cathodic protection hand-holes, misc. holes, corrosion or other as directed by the Owner's Representative. The patches shall lap the existing roof or bottom areas and shall be fully seal welded around the perimeter. Patch repairs shall conform to API 653. Patches shall be finish sanded to remove all sharp edges and round all corners to 1/8" minimum radius.

END OF SECTION

Section 13020

REPLACE ROOF STRUCTURE FOR WELDED STEEL WATER STORAGE TANKS

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall remove existing structure and provide a new (replacement) roof structure for flat-bottom welded steel water storage tanks suitable for potable water storage and emergency (including post-earthquake fire suppression) service pursuant to these special provisions. The Contractor shall design, fabricate, coat and erect all aspects of the tank roof structure system, including the foundation (center column base plates), pursuant to AWWA D100-11 (including Section 13 for seismic design, CBC 2016, California Department of Public Health Drinking Water Statutes, and all other applicable rules and regulations). NSF/ANSI 61 (Standard for Drinking Water System Components) shall apply. All contractor design calculations and drawings shall be stamped by a registered Professional Civil or Structural Engineer with design experience on over 50 similar welded steel tanks.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01100, Scope and Control of the Work
- B. Section 16600, Cathodic Protection System
- C. Section 13010, Upgrades of Existing Tanks
- D. Section 09800, Protective Coatings

1.03 REFERENCES

The latest edition of standards and regulations herein form a part of this specification. Design details, repair methods, fabrication, erection, and all other aspects of the work and inspections shall conform to following codes and standards:

- A. AMERICAN WATER WORKS ASSOCIATION (AWWA)
 - 1. AWWA D100-11, AWWA Standard- Welded Carbon Steel Tanks for Water Storage
 - 2. AWWA C652-11, AWWA Disinfection of Water-Storage Facilities
- B. CALIFORNIA BUILDING STANDARDS COMMISSION (CBSC)
 - 1. CBC 2016, California Building Code
- C. NATIONAL ASSOCIATION OF CORROSION ENGINEERS (NACE)
 - 1. Standard RP0178-91, Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service

- D. ASTM INTERNATIONAL
 - 1. ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
- E. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
 - 1. ASCE/SEI 7, Minimum Design Loads For Buildings and Other Structures
- F. AMERICAN PETROLEUM INSTITUTE (API)
 - 1. API 653-2009 w/Addendums 1 & 2, Tank Inspection, Repair, Alteration and Reconstruction
- G. AMERICAN WELDING SOCIETY (AWS)
 - 1. AWS D1.1:2010 Structural Welding Code - Steel
- H. NATIONAL SANITATION FOUNDATION (NSF)
 - 1. NSF 61, Drinking Water System Components - Health Effects

1.04 DEFINITIONS

- A. Roof Structure: For the purposes of this project, roof structure includes all portions of the roof support system between the existing shell and the tank bottom. This includes rafter attachment "clips" at the shell, rafters, rafter bracing, center support, center column and base plate.

1.05 SUBMITTALS

- A. Engineering calculations. These will show the structural adequacy of all significant design items on the roof structure including but not limited to support of the roof plate considering its existing thickness, rafter sizing, center support, columns and base plate. The Contractor shall provide additional design calculations to show structural adequacy of additional structural items where structural loads are specified by applicable industry standards. The design calculations and detailed drawings shall be signed by a Civil or Structural Engineer licensed to practice in the state.
- B. Drawings and supplemental information. These will include: dimensional drawings (indicating size and thickness of all members), attachment details, fabrication details, testing and inspection requirements and all details of welded joints. Weld joint details shall include size, joint preparation, identification of field welds, and indication of welds requiring low hydrogen procedures.
- C. Welding Procedures
- D. Welder Certifications
- E. Mill Test Reports (including columns, rafters, associated plate)
- F. Temporary door sheet design and details drawings (if Contractor selects to use door sheet(s)).

1.06 DESIGN INFORMATION

- A. Diameter: Approximately 66'-0". Dimension shall be confirmed by the Contractor
- B. Shell Height: (Dimensions shall be confirmed by the Contractor)
 - 1. Tank MG#1: Approximately 40'-0"
 - 2. Tank MG#2: Approximatel 40'-0". .
- C. The center base plates shall be designed pursuant to 3,750 psf total allowable soil bearing pressure (including weight of water at 39 ft.).
- D. Roof Type: cone
- E. Roof Structure:
 - 1. The minimum thickness of the flanges of the roof support rafters (or equivalent structure) shall be ¼".
 - 2. The roof shall be a "single bay" design using a ring of 4 "center" columns located at an approximately 5'-0" radius to allow optimal access for welding and coating. This ring of center columns shall support a circular "ring girder" with a nominally rectangular section. The top of the "ring girder" shall be sloped to match the pitch of the roof. The minimum wall thickness of the ring girder shall be ¼ inch.
 - 3. The roof shall be a "single bay" design.
 - 4. Rafter quantity: 46 (minimum) and the quantity shall be adequate for the snow load and roof plate thickness.
 - 5. Lowest column base plate(s) shall be welded to the bottom but shall have a floating upper plate.
 - 6. All nuts and bolts in the roof structure shall be hot dip galvanized.
- F. Roof live load: 70 psf
- G. Roof plate thickness: 3/16"
- H. Roof slope:(to be confirmed by Contractor)
- I. Allowable soil bearing pressure:3,750 psf
- J. Temporary door sheet: If used, door sheet design shall conform to API 653.

PART 2 - PRODUCTS

2.01 BASE PLATES

- A. Plate shall conform to the design requirements of AWWA D100 and ASTM A36

2.02 STRUCTURAL SHAPES

A. COLUMN(S)

Columns shall be round tubular with minimum thickness of 1/4". Pipe shall conform to the design requirements of AWWA D100 and ASTM A53.

B. RAFTERS

Rafters shall conform to the design requirements of AWWA D100 and ASTM A36 or A992

2.03 PLATE AND SHEET

A. Plate and sheet materials shall conform to the design requirements of AWWA D100.

2.04 DOOR SHEET

A. The Contractor may install a temporary door sheet (at their option) for improved access. The temporary door sheet shall conform to AWWA D100 and API 653 (latest).

PART 3 - EXECUTION

3.01 QUALITY

- A. Shop and field welding quality control shall be the responsibility of the Contractor. Quality assurance inspection oversight and CBC required special inspection will be provided by the Owner's Representative. To help insure effective and efficient oversight, the Owner's quality assurance shall be conducted by or under the oversight of an experienced tank design engineer with minimum qualifications of a California PE Registration, AWS CWI and API 653 Tank Inspector Certification. Safe access and lighting are an important aspect of producing a quality product for both the contractor personnel and quality assurance personnel. Safe access, lighting, and assistance shall be provided by the Contractor for the Owner's Representative(s) using the Contractor's rigging and equipment to allow inspection or observation of all work. This shall be provided by the Contractor at no additional cost. The Contractor shall provide written notification to the Owner's Representative at least 48 hours in advance of the start or re-start of each work phase.
- B. Radiographic testing and other AWWA D100 required nondestructive testing shall be provided at the expense of the Contractor. The intent of nondestructive testing on this project is to confirm that welds meet the specified minimum requirements. Radiography shall be conducted pursuant to the requirements of AWWA D100 with the following changes: 100% of all the vertical and horizontal shell welds used to replace the door sheet shall be radiographed. The quantity of locations for radiography in other locations shall be increased by adding one additional location on each of the vertical joints in the lowest two shell rings; the locations for all radiographic testing shall be selected by the Owner's Representative. For each weld where quality is found to be unacceptable, the AWWA D100 procedure will be followed regarding additional locations and two supplementary radiographs shall be taken at locations selected by the owner's representative (in addition to the "tracer" locations required by AWWA D100). A copy of the radiographic inspection report shall be provided to the Owner's Representative.

3.02 GENERAL FABRICATION AND WELDING

A. Finishing of Corners and Edges

All corners and edges that are exposed upon completion of fabrication shall be finished to a minimum radius of 1/16" to optimize coating application. Finishing with grinding wheels may produce "hard" corners which are not acceptable. The Contractor shall use grinders equipped with "soft pads" or sanding discs on rubber backing where required to produce acceptable finishes and rounding of corners and edges.

B. Weld Profiles and Finishing

The maximum weld reinforcement allowed by AWWA D100 shall be reduced by 1/32" for all butt joints on this project. Weld reinforcement shall transition to the base metal in a manner that minimizes the mechanical notch at the toe of the weld. The maximum angle between the weld reinforcement and the adjoining base metal shall be 45 degrees. Welds with a less gradual transition shall be repaired by grinding followed by sanding to smooth course grinding marks (deeper than 4 mils as measured with profile tape) and radius any angular transitions.

All weld spatter shall be removed prior to coating. Abrasive blasting is not reliable for removal of all weld spatter so all weld spatter shall be removed as a part of tank erection and prior to the start of abrasive blasting.

C. Removal of Temporary Attachments

All temporary and unnecessary brackets, lugs, and clips, such as those used during erection, shall be removed from the tank. Pits created during removal shall be repaired with consideration of minimum weld length and accepted welding procedures. Welded repairs shall be ground flush. Removal of temporary attachments shall be by grinding followed by sanding in order to smooth course grinding marks (deeper than 4 mils as

D. Coating

1. The tops of rafters and other areas that will be inaccessible after erection, shall be shop coated with the full system for interior surfaces according to these specifications.

3.03 DOOR SHEET

A. If the Contractor chooses to use a door sheet (temporary shell opening), the removal and installation shall be pursuant to API 653 and the following:

1. All welding shall be with low hydrogen processes.
2. Plate edges shall be built up with low hydrogen electrode to replace material lost in the kerf of the cut during the removal of the door sheet. This must be done prior to beveling. The purpose is to help prevent a flat spot in the shell upon replacement.

END OF SECTION

Section 16600

IMPRESSED-CURRENT CATHODIC PROTECTION SYSTEM

PART 1 - GENERAL

1.01 SCOPE

- A. The cathodic protection design/install constructor shall provide all engineering services, materials equipment, labor, and supervision to furnish an automatically controlled, impressed-current cathodic protection system to provide corrosion control for the interior submerged surface of the specified tanks. All work furnished shall be in accordance with National Association of Corrosion Engineers (NACE) and American Water Works Association (AWWA) Standard D104-11 and features included in this specification.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01100, Scope and Control of the Work
- B. Section 13010, Upgrades of Existing Tanks
- C. Section 13020, Replace Roof Structure for Welded Steel Water Storage Tank
- D. Section 09905, Protective Coatings

1.03 REFERENCES

The latest edition of standards and regulations herein form a part of this specification. Design details, repair methods, fabrication, erection, and all other aspects of the work and inspections shall conform to following codes and standards:

- A. AMERICAN WATER WORKS ASSOCIATION (AWWA)
 - 1. AWWA D100-11, AWWA Standard- Welded Carbon Steel Tanks for Water Storage
 - 2. AWWA D104-11, AWWA Standard- Automatically Controlled, Impressed-Current Cathodic Protection for the Interior Submerged Surfaces of Steel Water Storage Tanks
- B. NATIONAL ASSOCIATION OF CORROSION ENGINEERS (NACE)
 - 1. NACE SP0388-2014, Standard Practice - Impressed Current Cathodic Protection of Internal Submerged Surfaces of Carbon Steel Water Storage Tanks
 - 2. NACE SP0178-2007, Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service.
- C. NATIONAL SANITATION FOUNDATION
 - 1. NSF 61, Drinking Water System Components - Health Effects

1.04 DESIGN

1. The system shall be designed by a corrosion specialist who is certified by NACE, as a Senior Corrosion Technologist or a Cathodic Protection Specialist, with not less than 5 years design experience on cathodic protection systems for water storage tanks. The corrosion specialist shall design the system to provide effective corrosion control in accordance with criteria for protection. The criteria for protection shall be based on a tank-to-water potential, free of IR drop error, within a range of -0.850 volts to -1.050 volts relative to a copper-copper sulfate reference electrode. This potential shall be measured free of the effect of voltage gradients (IR drops).
- B. The corrosion specialist shall also base system capacity and performance on:
1. Total submerged surface area of the tank. Ground storage total surface area includes floor (sidewalls to the TCL). Consideration shall be given to other submerged structures known to have metallic mass in contact with the water.
 2. Type of coating and condition of coating.
 3. Total design surface area to be protected shall be a minimum of 25 percent of total submerged surface area.
 4. Minimum design current density of 0.5 mA/ft.² bare surface area.
 5. Chemical analysis of water (including resistance expressed in ohm-cm).
 6. Susceptibility of tank to icing (this project tank is not subject to icing).
 7. Minimum anode system life of 20 years.
 8. Selection, dimensions, and layout of system components specified in Section C.

1.05 SUBMITTALS

- A. The cathodic protection constructor shall submit the following information to the purchaser for approval by the Owner's Representative:
1. System design calculations signed by corrosion specialist with NACE certification number.
 2. Corrosion specialist proof of experience designing water tank cathodic protection systems.
 3. Drawings showing system design/configuration and equipment layout. **This shall include what existing hand-holes can be used and which shall be abandoned and covered during welding work.**
 4. Description of system components.
 5. Cathodic protection contractor proof of experience.
 6. NSF-61 certification of all CP system materials within the tank.

PART 2 - PRODUCTS

2.01 RECTIFIER

- A. The rectifier cabinet shall be mounted to a stainless steel utility bracket such as unistrut or equal. The brackets shall be located on the tank shell near the exterior ladder with the meters placed at eye level (5'6"). All attachments to the tank shall be seal welded and a 6" minimum clear space shall be provided between the tank shell and the cabinet for future painting and maintenance.
- B. The rectifier shall include:
 - 1. Transformer. Primary with secondary winding type, including;
 - a. allowance for not less than 25 incremental settings from 0 to 100 percent of full rating of the rectifier unit;
 - b. pre-heated varnish dipped and baked dry for maximum moisture and corrosion resistance;
 - c. securely mounted within the cabinet behind the front instrument panel.
 - 2. Silicon full-wave bridge rectifying elements.
 - 3. Assembly on a single aluminum chassis that allows for easy removal of all components from the cabinet in one unit.
 - 4. AC circuit breaker(s) of the magnetic type.
 - 5. Lightning, surge, and overload protection.
 - 6. Individual 3.5 digit Voltmeter(s) and ammeter(s) with extra bright LED digital display.
 - 7. Waterproof 14 gauge steel cabinet in accordance with NEMA 4 requirements. Cabinet shall be mill galvanized with 3+ mils polyester fusion bonded powder paint (white).
 - 8. Provisions for mounting, grounding, and locking.
 - 9. A selector switch that allows for automatic or manual control.
 - 10. Provision to vary current output from 0 to 100 percent of rated capacity.
 - 11. Provision for 110-130 volt, 60 Hz, single phase AC power.
 - 12. D.C. output capacity in volts and amperes in accordance with Design (Section B).
 - 13. Number of circuits or separate rectifiers in accordance with Design (Section B).
 - 14. A dead front panel. All energized components or terminals shall be electrically shielded or located behind the front panel.
 - 15. An AWWA D104-11, Type A automatic controller, with adjustable current output to compensate for changes in water level, temperature of water, water chemistry, and cathodic polarization. The following provisions shall be met:

- a. Long-life solid-matrix copper-copper sulfate reference electrode(s) mounted within the tank per the design.
- b. Monitoring of the tank-to-water potential, free of IR drop error.
- c. Automatically adjust the tank-to-water potential, free of IR drop, to a preset value (Section B).
- d. Operate within 5 mV of field set potential value.
- e. Automatically limit current and/or voltage to a preset value with LED status indication.
- f. Utilize potential meter(s) to display tank-to-water potential, free of IR drop.
- g. The potential meter shall be extra bright LED digital display. Range of operation to be not less than +0.400 to -1.999 Volt.
- h. Include a potential/set switch to allow monitoring of potential or set-potential via potential meter display. Switch shall be spring loaded to automatically return to the monitoring position.
- i. Potential gathering and controller circuitry shall be high impedance of not less than 20 megohms. Reference cell inputs shall be galvanically isolated from the controller circuit.
- j. The tank to water potential (free of IR drop error) shall NOT be permitted to overshoot the pre-set value during initial startup, nor during normal operation; to prevent coating stress due to excessive polarization. At no time should the controlled potential or the preset potential be more negative than -1050 mV.
- k. Potential monitoring alarm circuit, field adjustable with green & red lights mounted on the exterior of the cabinet door. Alarm circuit shall have dry contacts that would show proper potential being maintained and not proper potential. A terminal block shall be connected to the alarm circuit NO & NC relays which will allow for future connection of remote monitoring wiring.

2.02 LONG LIFE REFERENCE ELECTRODE(S)

- A. The reference electrode shall consist of a copper-copper sulfate electrode which is of a solid matrix design manufactured to remain stable (plus or minus 10 mV) for a minimum of 20 years. The reference electrode lead wire shall be not less than AWG #14 type RHW (yellow). The connection shall be encapsulated to prevent water migration.

2.03 ANODE SUSPENSION SYSTEM

- A. The anode suspension system for non-icing tanks shall be a system which allows for vertical suspension from the roof of the tank. The anode lead wire shall be a minimum #10 HMW/PE or RHW/USE for precious metal anodes and will be used to secure the lead wire to a porcelain insulator bracket bolted to the interior of the tank roof.

- B. The anode suspension system for icing tanks shall consist of a minimum 5/16" polyester braid on braid cord. The cord shall be secured to steel anchors welded to the side wall of the tank bowl or to the exterior of the dry access column of spheroidal type tanks and the side wall of wet risers which are 30" diameter or larger. All cord to cord connections shall be tied, taped, and wire tied.
- C. Anode and/or test hand hole shall be 5" in diameter, cut in the tank with edges ground smooth, and coated. Hand hole assemblies used for the installation of vertical anode suspension systems from the roof of the tank shall consist of a 6" diameter hot dip galvanized steel cover plate, neoprene gasket, and a PVC clamping bar held in place by a ½" SS bolt.

2.04 ANODE MATERIALS

- A. The anode materials shall be selected in accordance with Design (Section B) and shall consist of one of the following types:
 - 1. Minimum .062" diameter platinized niobium with 25 micro inches of platinum.
 - 2. Minimum .062" diameter titanium with a precious metal oxide coating.
 - 3. All anode-to-header cable connections shall be factory sealed in a proven manor to prevent water migration to the header cable anode connection.

2.05 WIRING

- A. All wiring within the tank shall be AWG # 10 or larger type HMW/PE or RHW/USE with the exception of the reference cell (section C2) and the automatic controller wiring, which may be not less than AWG # 18 type TW.
- B. All wiring on the exterior of the tank shall be type THHN or TW and run in rigid galvanized conduit.

2.06 HARDWARE

- A. All metallic hardware used in conjunction with the system shall be hot dip galvanized, or coated pursuant to the tank coating specification.

PART 3 - EXECUTION

3.01 QUALIFICATIONS

- A. The cathodic protection constructor shall have a minimum of 5 years' experience installing and servicing the types of system described in this specification. The system shall be installed by employees of the cathodic protection constructor and trained in the installation of waterworks and related cathodic protection systems.

3.02 PERFORMANCE

- A. All work shall be in accordance with the following requirements:

1. Components of the cathodic protection system shall be installed in the manner and at the locations as shown on the approved design drawings prepared by the corrosion specialist.
2. Welding, cutting, and coating shall be in accordance with AWWA Standards D100, D102, and D105. Access holes shall be finished with a 1/16" minimum radius using a soft abrasive pad. Access holes and other holes shall be cut prior to tank coating.
3. Welding of steel coupling, anchors, and mounting bracket shall be furnished by the prime contractor prior to coating the tank. The cathodic protection constructor shall furnish approved design drawings of hardware installation and materials to the prime contractor prior to coating.
4. Electrical continuity of all sections of bolted or riveted tanks shall be furnished by the tank erector or prime contractor.
5. Materials and equipment shall be inspected prior to installation. Any defective component shall be repaired or replaced.
6. Electrical work shall be in accordance with the National Electrical Code and/or local code.
7. Lead wires shall be installed to prevent damage from abrasion.
8. Electrical connections within the tank shall be sealed to prevent water migration.
9. The rectifier shall be mounted at a convenient height (eye level) above grade for easy monitoring and service purposes.
10. Disinfection shall be the responsibility of the purchaser.
11. Work provided by the cathodic protection constructor shall be completed in a clean and safe manner.

3.03 ENERGIZING THE SYSTEM

- A. After the system is installed and the tank is filled, the cathodic protection constructor shall demonstrate to the Owner or his representative that the cathodic protection system is operating properly, at which time the system shall be shut OFF, fuses pulled, anode lead wire disconnected from the rectifier positive terminal, and secured. After the 11-month coating inspection and the tank is refilled, the cathodic protection constructor shall provide start-up service which includes energizing, testing, and adjusting the system for optimum performance of the cathodic protection system.
- B. This reenergizing service shall be requested by the Owner and coordinated with the Owner and/or his representative.
- C. All tank-to-water potential measurements shall be conducted with a calibrated portable copper-copper sulfate reference electrode and a portable high impedance voltmeter. A minimum of 5 locations shall be measured. All test data shall be reviewed and evaluated by the corrosion specialist then forwarded to the owner.

3.04 MONITORING

- A. The cathodic protection constructor shall furnish e-mail address and an e-form to record monthly system reading. The form shall be sent by the owner monthly. Monthly readings received by the cathodic protection constructor during the guarantee and/or service period(s) shall be evaluated for system performance and compliance with AWWA Standard D104-11. Deviations in the readings will warrant further investigation by the cathodic protection contractor.

3.05 GUARANTEE

- A. All workmanship, equipment, and materials furnished by the cathodic protection constructor shall be guaranteed for not less than 1 year from the date of the second (after warranty coating inspection) and final energizing of the system. This guarantee would not exceed 2 years from date of original energizing of the system.

3.06 SERVICE AGREEMENT PROPOSAL

- A. The cathodic protection constructor shall furnish the owner with a service agreement proposal for the type of system installed. The agreement shall include the annual service rate and a complete description of the scope of work proposed.
- B. The agreement for annual inspection and potential testing shall include as a minimum:
 - 1. 1 annual job site visit.
 - 2. Tank-to-water potential measurements conducted at representative locations within the tank. A minimum of 5 locations shall be measured.
 - 3. Tank-to-water potential test locations shall be representative of the high and low potentials to be encountered within the tank.
 - 4. Measurements shall be conducted with a portable high impedance voltmeter and a calibrated copper-copper sulfate reference cell.
 - 5. Adjustments for optimum corrosion control shall be in accordance with criteria for protection.
 - 6. Data recorded shall provide sufficient information to evaluate the performance of the system relating to criteria for protection.
 - 7. In the event additional work is required, the constructor shall submit a report with recommendations for optimizing the corrosion control system.

END OF SECTION