

TECHNICAL SPECIFICATIONS FOR

AMADOR REGIONAL SANITATION AUTHORITY
AMADOR COUNTY, CALIFORNIA

HENDERSON DAM UNDER DRAIN REPAIR

00-150-1440 ASSOCIATES
HENDERSON RESERVOIR
SCALE: 1" = 100', 1" D.E.
PLDW 11-17-08
BY AMERICAN AERIAL MAPPING, INC.

PROJECT NO. 175578307

March 2023

100% SUBMITTAL

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00 11 16 – NOTICE INVITING BIDS

NOTICE IS HEREBY GIVEN that the Board of Directors of the Amador Regional Sanitation Authority ("Authority") invites and will receive sealed Bids up to but not later than **2:00 p.m. on April 10th 2025** at the **City of Sutter Creek City Hall**, located at 18 Main Street, Sutter Creek, CA 95685, for the furnishing to Authority of all labor, equipment, materials, tools, services, transportation, permits, utilities, and all other items necessary for **2025 HENDERSON DAM UNDER DRAIN REPAIR PROJECT** (the "Project"). At said time, Bids will be publicly opened and read aloud at the Authority Office. Bids received after said time shall be returned unopened. Bids shall be valid for a period of 90 calendar days after the Bid opening date.

The work generally includes, but is not limited to, furnishing all products, labor, equipment, material, transportation, and incidental services to construct the following:

- A. Sliplining of existing 20" concrete outlet pipe using 16" DR 17 HDPE, ASTM F714 pipe for approximately 170 LF total and grouting the annulus between the host pipe and the sliplined pipe.
- B. Removal and replacement of approximately 95 LF of 20" AC concrete pipe with 16" DR 17 HDPE, ASTM F714 pipe.
- C. Connection of the sliplined and open-cut sections of the 16" DR 17 HDPE Pipe, and connection of the 16" DR 17 HDPE pipe to the existing 20" Ductile Iron Pipe at the concrete junction chamber.
- D. Completely backfill with cement-grout an existing abandoned-in-place 16" diameter outlet pipe which proceeds beneath approximately the middle of the dam.
- E. Field verification of post-installation conditions using a rover with a tilt and pan CCTV camera.

Bids must be submitted on the Authority's Bid Forms. Bidders may obtain a copy of the Contract Documents from the Authority at 18 Main Street, Sutter Creek, CA 95685, (209) 267-5647 for \$50 (non-refundable). An additional non-refundable charge of \$50 will be required of any bidder who requests the Contract Documents. be mailed within California (costs for out-of-state mailings will be higher). To the extent required by section 20103.7 of the Public Contract Code, upon request from a contractor plan room service, the Authority shall provide an electronic copy of the Contract Documents at no charge to the contractor plan room.

Each Bid shall be accompanied by cash, a certified or cashier's check, or Bid Bond secured from a surety company satisfactory to the Board of Directors, the amount of which shall not be less than ten percent (10%) of the submitted Total Bid Price, made payable to Amador Regional Sanitation Authority as bid security. The bid security shall be provided as a guarantee that within five (5) working days after the Authority provides the successful bidder the Notice of Award, the successful Bidder will enter into a contract and provide the necessary bonds and certificates of insurance. The bid security will be declared forfeited if the successful Bidder fails to comply within said time. No interest will be paid on funds deposited with Authority.

A MANDATORY Pre-Bid Conference is scheduled for **April 1, 2025 at 10:00 AM** to review the Project's existing conditions at **City of Sutter Creek City Hall at 18 Main Street, Sutter Creek, CA 95685**. Representatives of the Authority and consulting engineers, if any, will be present.

Questions asked by Bidders at the Pre-Bid Conference not specifically addressed within the Contract Documents shall be answered in writing, and shall be sent to all Bidders present at the Pre-Bid Conference. Bids will not be accepted from any bidder who did not attend the mandatory Pre-Bid Conference.

The successful Bidder will be required to furnish a Faithful Performance Bond and a Labor and Material Payment Bond each in an amount equal to one hundred percent (100%) of the Contract Price. Each bond shall be in the forms set forth herein, shall be secured from a surety company that meets all State of California bonding requirements, as defined in California Code of Civil Procedure Section 995.120, and that is a California admitted surety insurer.

Pursuant to Section 22300 of the Public Contract Code of the State of California, the successful Bidder may substitute certain securities for funds withheld by Authority to ensure its performance under the contract.

Pursuant to Labor Code Section 1773, Authority has obtained the prevailing rate of per diem wages and the prevailing wage rate for holiday and overtime work applicable in Amador County from the Director of the Department of Industrial Relations for each craft, classification, or type of worker needed to execute this contract. A copy of these prevailing wage rates may be obtained via the internet at: www.dir.ca.gov/dlsr/

The successful bidder shall post a copy of the prevailing wage rates at each job site. It shall be mandatory upon the Bidder to whom the Contract is awarded, and upon any subcontractors, to comply with all Labor Code provisions, which include but are not limited to the payment of not less than the said specified prevailing wage rates to all workers employed by them in the execution of the Contract, employment of apprentices, hours of labor and debarment of contractors and subcontractors.

Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the Department of Industrial Relations. No Bid will be accepted nor any contract entered into without proof of the contractor's and subcontractors' current registration with the Department of Industrial Relations to perform public work. If awarded a contract, the Bidder and its subcontractors, of any tier, shall maintain active registration with the Department of Industrial Relations for the duration of the Project.

This Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. In bidding on this Project, it shall be the Bidder's sole responsibility to evaluate and include the cost of complying with all labor compliance requirements under this contract and applicable law in its Bid.

Unless otherwise provided in the Instructions for Bidders, each Bidder shall be a licensed contractor pursuant to sections 7000 et seq. of the Business and Professions Code in the following classification(s) throughout the time it submits its Bid and for the duration of the contract: CLASS A LICENSE.

Substitution requests shall be made within 35 calendar days after the award of the contract. Pursuant to Public Contract Code Section 3400(b), the Authority may make findings designating that certain additional materials, methods or services by specific brand or trade name other than those listed in the Standard Specifications be used for the Project. Such findings, if any, as well

as the materials, methods or services and their specific brand or trade names that must be used for the Project may be found in the Special Conditions.

Authority shall award the contract for the Project to the lowest responsive, responsible Bidder as determined by the Authority from the BASE BID ALONE. Authority reserves the right to reject any or all bids or to waive any irregularities or informalities in any bids or in the bidding process.

For further information, contact Steven Whittlesey, ARSA Engineer, at swhittlesey@hydroscience.com or 916-518-9735.

END OF NOTICE INVITING BIDS

00 21 13 – INSTRUCTIONS TO BIDDERS

ARTICLE 1. SECURING DOCUMENTS

Bids must be submitted to the Authority on the Bid Forms which are a part of the Bid Package for the Project. Bid and Contract Documents may be obtained from the Authority at the location(s) and at the time(s) indicated in the Notice Inviting Bids. Prospective bidders are encouraged to telephone in advance to determine the availability of Contract Documents. Any charge for the Contract Documents is stated in the Notice Inviting Bids.

The Authority may also make the Contract Documents available for review at one or more plan rooms, as indicated in the Notice Inviting Bids. Please Note: Prospective Bidders who choose to review the Contract Documents at a plan room must contact the Authority to obtain the required Contract Documents if they decide to submit a bid for the Project.

Addenda, if any, issued during the bid period will be sent only to those contractors who have obtained documents from the Authority. Failure to acknowledge addenda may make a bid nonresponsive and not eligible for award of the contract.

ARTICLE 2. EXAMINATION OF SITE AND CONTRACT DOCUMENTS

At its own expense and prior to submitting its Bid, each Bidder shall visit the site of the proposed work and fully acquaint itself with the conditions relating to the construction and labor required so that the Bidder may fully understand the work, including but not limited to difficulties and restrictions attending the execution of the work under the contract. Each Bidder shall carefully examine the Drawings, and shall read the Specifications, Contract, and all other documents referenced herein. Each Bidder shall also determine the local conditions which may in any way affect the performance of the work, including local tax structure, contractors' licensing requirements, availability of required insurance, the prevailing wages and other relevant cost factors, shall familiarize itself with all federal, state and local laws, ordinances, rules, regulations and codes affecting the performance of the work, including the cost of permits and licenses required for the work, and shall make such surveys and investigations, including investigations of subsurface or latent physical conditions at the site or where work is to be performed as may be required. Bidders are responsible for consulting the standards referenced in the Contract. The failure or omission of any Bidder to receive or examine any contract documents, forms, instruments, addenda, or other documents, or to visit the site and acquaint itself with conditions there existing shall in no way relieve any Bidder from any obligation with respect to its Bid or to the contract and no relief for error or omission will be given except as required under State law. The submission of a Bid shall be taken as conclusive evidence of compliance with this Article.

ARTICLE 3. INTERPRETATION OF DRAWINGS AND DOCUMENTS

Prospective Bidders unclear as to the true meaning of any part of the Drawings, Specifications or other proposed contract documents may submit to the Engineer of the Authority a written request for interpretation. The prospective Bidder submitting the request is responsible for prompt delivery. Interpretation of the Drawings, Specifications or other proposed contract documents will be made only by a written addendum duly issued and a copy of such addenda will be mailed or delivered to each prospective Bidder who has purchased a set of Drawings and Specifications. The Authority will not be responsible for any other explanation or interpretations of the proposed documents. If a Prospective Bidders becomes aware of any errors or omissions in any part of the Contract Documents, it is the obligation of the Prospective Bidder to

promptly bring it to the attention of the Authority.

ARTICLE 4. PRE-BID CONFERENCE

A Mandatory Pre-Bid Conference is scheduled for **April, 2025 at 10:00 AM** to review the Project's existing conditions at **City of Sutter Creek City Hall at 18 Main Street, Sutter Creek, CA 95685**. Representatives of the Authority and consulting engineers, if any, will be present. Questions asked by Bidders at the Pre-Bid Conference not specifically addressed within the Contract Documents shall be answered in writing, and shall be sent to all Bidders present at the Pre-Bid Conference. Bids will not be accepted from any bidder who did not attend the mandatory Pre-Bid Conference.

ARTICLE 5. ADDENDA

The Authority reserves the right to revise the Contract Documents prior to the Bid opening date. Revisions, if any, shall be made by written Addenda. All Addenda issued by the Authority shall be included in the Bid and made part of the Contract Documents. Pursuant to Public Contract Code Section 4104.5, if the Authority issues an Addendum which includes material changes to the Project less than 72 hours prior to the deadline for submission of Bids, the Authority will extend the deadline for submission of Bids. The Authority may determine, in its sole discretion, whether an Addendum warrants postponement of the Bid submission date. Each prospective Bidder shall provide Authority a name, address, email address, and facsimile number to which Addenda may be sent, as well as a telephone number by which the Authority can contact the Bidder. Copies of Addenda will be furnished by email, facsimile, first class mail, express mail or other proper means of delivery without charge to all parties who have obtained a copy of the Contract Documents and provided such current information. Please Note: Bidders are responsible for ensuring that they have received any and all Addenda. To this end, each Bidder should contact the **ARSA Engineer at 916-518-9735** to verify that it has received all Addenda issued, if any, prior to the Bid opening. The Bidder shall indicate the Addenda received prior to bidding in the space provided in the Bid Form. Failure to indicate all Addenda may be sufficient cause for rejecting the Bid.

ARTICLE 6. ALTERNATE BIDS

If alternate bid items are called for in the Contract Documents, the time required for completion of the alternate bid items has already been factored into the Contract duration and no additional Contract time will be awarded for any of the alternate bid items. The Authority may elect to include one or more of the alternate bid items, or to otherwise remove certain work from the Project scope of work. Accordingly, each bidder must ensure that each bid item contains a proportionate share of profit, overhead, and other costs or expenses which will be incurred by the bidder.

ARTICLE 7. COMPLETION OF BID FORMS

Bids shall only be prepared using copies of the Bid Forms which are included in the Contract Documents. The use of substitute Bid Forms other than clear and correct photocopies of those provided by the Authority will not be permitted. Bids shall be executed by an authorized signatory as described in these Instructions to Bidders. In addition, Bidders shall fill in all blank spaces (including inserting "N/A" where applicable), and initial all interlineations, alterations, or erasures to the Bid Forms. Bidders shall neither delete, modify, nor supplement the printed matter on the Bid Forms nor make substitutions thereon. **USE OF BLACK OR BLUE INK,**

INDELIBLE PENCIL, OR A TYPEWRITER IS REQUIRED. Deviations in the Bid Forms may result in the Bid being deemed non-responsive.

ARTICLE 8. MODIFICATIONS OF BIDS

Each Bidder shall submit its Bid in strict conformity with the requirements of the Contract Documents. Unauthorized additions, modifications, revisions, conditions, limitations, exclusions or provisions attached to a Bid may render it non-responsive and may cause its rejection. Bidders shall not delete, modify, or supplement the printed matter on the Bid Forms, or make substitutions thereon. Oral, telephonic and electronic modifications will not be considered.

ARTICLE 9. SUBCONTRACTORS

Bidder shall set forth the name, address of the place of business, and contractor license number of each subcontractor who will perform work, labor, furnish materials or render services to the bidder on said contract and each subcontractor licensed by the State of California who, under subcontract to bidder, specially fabricates and installs a portion of the Work described in the Drawings and Specifications in an amount in excess of one half of one percent (0.5%) of the total bid price, and shall indicate the portion of the work to be done by such subcontractor in accordance with Public Contract Code Section 4104.

ARTICLE 10. LICENSING REQUIREMENTS

Pursuant to Business and Professions Code Section 7028.15 and Public Contract Code Section 3300, all bidders must possess proper licenses for performance of this Contract. Subcontractors must possess the appropriate licenses for each specialty subcontracted. Pursuant to Business and Professions Code Section 7028.5, the Authority shall consider any bid submitted by a contractor not currently licensed in accordance with state law and pursuant to the requirements found in the Contract Documents to be nonresponsive, and the Authority shall reject the Bid. The Authority shall have the right to request, and Bidders shall provide within ten (10) calendar days, evidence satisfactory to the Authority of all valid license(s) currently held by that Bidder and each of the Bidder's subcontractors, before awarding the Contract.

Notwithstanding anything contained herein, if the Work involves federal funds, the Contractor shall be properly licensed by the time the Contract is awarded, pursuant to the provisions of Public Contract Code section 20103.5.

ARTICLE 11. BID GUARANTEE (BOND)

Each bid shall be accompanied by: (a) cash; (b) a certified or cashier's check made payable to Amador Regional Sanitation Authority; or (c) a Bid Bond secured from a surety company satisfactory to the Board of Directors, the amount of which shall not be less than ten percent (10%) of the Total Bid Price, made payable to Amador Regional Sanitation Authority as bid security. Personal sureties and unregistered surety companies are unacceptable. The surety insurer shall be California admitted surety insurer, as defined in Code of Civil Procedure Section 995.120. The bid security shall be provided as a guarantee that within ten (10) working days after the Authority provides the successful bidder the Notice of Award, the successful bidder will enter into a contract and provide the necessary bonds and certificates of insurance. The bid security will be declared forfeited if the successful bidder fails to comply within said time, and Authority may enter into a contract with the next lowest responsive responsible bidder, or may

call for new bids. No interest shall be paid on funds deposited with the Authority. Authority will return the security accompanying the bids of all unsuccessful bidders no later than 60 calendar days after award of the contract.

ARTICLE 12. IRAN CONTRACTING ACT OF 2010

In accordance with Public Contract Code Section 2200 *et seq.*, the Authority requires that any person that submits a bid or proposal or otherwise proposes to enter into or renew a contract with the Authority with respect to goods or services of one million dollars (\$1,000,000) or more, certify at the time the bid is submitted or the contract is renewed, that the person is not identified on a list created pursuant to subdivision (b) of Public Contract Code Section 2203 as a person engaging in investment activities in Iran described in subdivision (a) of Public Contract Code Section 2202.5, or as a person described in subdivision (b) of Public Contract Code Section 2202.5, as applicable.

The form of such Iran Contracting Certificate is included with the bid package and must be signed and dated under penalty of perjury.

ARTICLE 13. NONCOLLUSION DECLARATION

Bidders on all public works contracts are required to submit a declaration of noncollusion with their bid. This form is included with the bid package and must be signed and dated under penalty of perjury.

ARTICLE 14. PUBLIC WORKS CONTRACTOR REGISTRATION CERTIFICATION

Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the Department of Industrial Relations. No bid will be accepted nor any contract entered into without proof of the contractor's and subcontractors' current registration with the Department of Industrial Relations to perform public work. If awarded a contract, the bidder and its subcontractors, of any tier, shall maintain active registration with the Department of Industrial Relations for the duration of the Project. To this end, Bidder shall sign and submit with its Bid the Public Works Contractor Registration Certification on the form provided, attesting to the facts contained therein. Failure to submit this form may render the bid non-responsive. In addition, each Bidder shall provide the registration number for each listed subcontractor in the space provided in the Designation of Subcontractors form.

ARTICLE 15. BIDDER INFORMATION AND EXPERIENCE FORM

Each Bidder shall complete the questionnaire provided herein and shall submit the questionnaire along with its Bid. Failure to provide all information requested within the questionnaire along with the Bid may cause the bid to be rejected as non-responsive. The Authority reserves the right to reject any Bid if an investigation of the information submitted does not satisfy the Engineer that the Bidder is qualified to properly carry out the terms of the contract.

ARTICLE 16. WORKERS' COMPENSATION CERTIFICATION

In accordance with the provisions of Labor Code Section 3700, Contractor shall secure the payment of compensation to its employees. Contractor shall sign and file with the Authority the

following certificate prior to performing the work under this Contract:

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

The form of such Workers' Compensation Certificate is included as part of this document.

ARTICLE 17. SIGNING OF BIDS

All Bids submitted shall be executed by the Bidder or its authorized representative. Bidders may be asked to provide evidence in the form of an authenticated resolution of its Board of Directors or a Power of Attorney evidencing the capacity of the person signing the Bid to bind the Bidder to each Bid and to any Contract arising therefrom.

If a Bidder is a joint venture or partnership, it may be asked to submit an authenticated Power of Attorney executed by each joint venturer or partner appointing and designating one of the joint venturers or partners as a management sponsor to execute the Bid on behalf of Bidder. Only that joint venturer or partner shall execute the Bid. The Power of Attorney shall also: (1) authorize that particular joint venturer or partner to act for and bind Bidder in all matters relating to the Bid; and (2) provide that each venturer or partner shall be jointly and severally liable for any and all of the duties and obligations of Bidder assumed under the Bid and under any Contract arising therefrom. The Bid shall be executed by the designated joint venturer or partner on behalf of the joint venture or partnership in its legal name.

ARTICLE 18. SUBMISSION OF SEALED BIDS

Once the Bid and supporting documents have been completed and signed as set forth herein, they shall be placed, along with the Bid Guarantee and other required materials, in a sealed envelope, addressed and delivered or mailed, postage prepaid, to the Engineering Department of the Authority before the time and day set for the receipt of bids. The envelope shall bear the title of the work and the name of the bidder. No oral or telephonic bids will be considered. No forms transmitted via the internet, e-mail, facsimile, or any other electronic means will be considered unless specifically authorized by the Authority as provided herein. Bids received after the time and day set for the receipt of bids shall be returned to the bidder unopened. The envelope shall also contain the following in the lower left-hand corner thereof:

Bid of _____ (Bidder's Name)
for the 2025 HENDERSON DAM UNDER DRAIN REPAIR

Only where expressly permitted in the Notice Inviting Bids may bidders submit their bids via electronic transmission pursuant to Public Contract Code sections 1600 and 1601. Any acceptable method(s) of electronic transmission shall be stated in the Notice Inviting Bids. Authority may reject any bid not strictly complying with Authority's designated methods for delivery.

ARTICLE 19. OPENING OF BIDS

At the time and place set for the opening and reading of bids, or any time thereafter, each and every bid received prior to the time and day set for the receipt of bids will be publicly opened

and read. The Authority will leave unopened any Bid received after the specified date and time, and any such unopened Bid will be returned to the bidder. It is the bidder's sole responsibility to ensure that its Bid is received as specified. Bids may be submitted earlier than the date(s) and time(s) indicated.

The public reading of each bid will include the following information:

- A. The name and business location of the bidder.
- B. The nature and amount of the bid security furnished by bidder.
- C. The bid amount.

Bidders or their representatives and other interested persons may be present at the opening of the bids. The Authority may, in its sole discretion, elect to postpone the opening of the submitted Bids. The Authority reserves the right to reject any or all Bids and to waive any informality or irregularity in any Bid.

ARTICLE 20. WITHDRAWAL OF BID

Any bid may be withdrawn either personally or by written request, incurring no penalty, at any time prior to the scheduled closing time for receipt of bids. Requests to withdraw bids shall be worded so as not to reveal the amount of the original bid. Withdrawn bids may be resubmitted until the time and day set for the receipt of bids, provided that resubmitted bids are in conformance with the instructions herein.

Bids may be withdrawn after bid opening only by providing written notice to Authority within five (5) working days of the bid opening and in compliance with Public Contract Code Section 5100 *et seq.*, or as otherwise may be allowed with the consent of the Authority.

ARTICLE 21. BIDDERS INTERESTED IN MORE THAN ONE BID

No Bidder shall be allowed to make, file or be interested in more than one bid for the same work unless alternate bids are specifically called for. A person, firm or corporation that has submitted a sub-proposal to a Bidder, or that has quoted prices of materials to a Bidder, is not thereby disqualified from submitting a sub-proposal or quoting prices to other bidders. No person, firm, corporation, or other entity may submit a sub-proposal to a Bidder, or quote prices of materials to a Bidder, when also submitting a prime Bid on the same Project.

ARTICLE 22. SUBSTITUTION OF SECURITY

The Contract Documents call for monthly progress payments based upon the percentage of the Work completed. The Authority will retain a percentage of each progress payment as provided by the Contract Documents. At the request and expense of the successful Bidder, the Authority will substitute securities for the amount so retained in accordance with Public Contract Code Section 22300.

ARTICLE 23. PREVAILING WAGES

The Authority has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages in the locality in which this work is to be performed for

each craft or type of worker needed to execute the Contract. These rates may be obtained online at <http://www.dir.ca.gov>. Bidders are advised that a copy of these rates must be posted by the successful Bidder at the job site(s).

ARTICLE 24. DEBARMENT OF CONTRACTORS AND SUBCONTRACTORS

In accordance with the provisions of the Labor Code, contractors or subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant to Labor Code Sections 1777.1 or 1777.7. Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid to a debarred subcontractor by the Contractor for the Project shall be returned to the Authority. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project.

ARTICLE 25. INSURANCE REQUIREMENTS

Prior to commencing work, the successful bidder shall purchase and maintain insurance as set forth in the General Conditions.

ARTICLE 26. PERFORMANCE BOND AND PAYMENT BOND REQUIREMENTS

The successful bidder will be required to furnish a Labor and Material Payment Bond and a Faithful Performance Bond each in an amount equal to one hundred percent (100%) of the contract price. Each bond shall be secured from a surety company that meets all State of California bonding requirements, as defined in California Code of Civil Procedure Section 995.120 and is admitted by the State of California. Each bond shall be accompanied, upon the request of Authority, with all documents required by California Code of Civil Procedure Section 995.660 to the extent required by law. All bonding and insurance requirements shall be completed and submitted to Authority within ten (10) working days from the date the Authority provides the successful bidder with the Notice of Award.

ARTICLE 27. SALES AND OTHER APPLICABLE TAXES, PERMITS, LICENSES AND FEES

Contractor and its subcontractors performing work under this Contract will be required to pay California sales tax and other applicable taxes, and to pay for permits, licenses and fees required by the agencies with authority in the jurisdiction in which the Work will be located, unless otherwise expressly provided by the Contract Documents.

ARTICLE 28. PERMIT AND INSPECTION FEE ALLOWANCE

Notwithstanding anything contained herein, the Bid Form contains an allowance for the Contractor's cost of acquiring traffic control permits and for construction inspection fees that may be charged to the Contractor by the Agency of Jurisdiction. The allowance is included within the Bid Form to eliminate the need by bidders to research or estimate the costs of traffic control permits and construction inspection fees prior to submitting a bid. The allowance is specifically intended to account for the costs of traffic control permits and construction inspection fees charged by the local Agency of Jurisdiction only. No other costs payable by Contractor to the Agency of Jurisdiction are included within the allowance.

ARTICLE 29. FILING OF BID PROTESTS

Bidders may file a “protest” of a Bid with the Authority’s General Manager. In order for a Bidder’s protest to be considered valid, the protest must:

- A. Be filed in writing within five (5) calendar days after the bid opening date;
- B. Clearly identify the specific irregularity or accusation;
- C. Clearly identify the specific Authority staff determination or recommendation being protested;
- D. Specify in detail the grounds for protest and the facts supporting the protest; and
- E. Include all relevant, supporting documentation with the protest at time of filing.

If the protest does not comply with each of these requirements, the Authority may reject the protest without further review.

If the protest is timely and complies with the above requirements, the Authority’s General Manager, or other designated Authority staff member, shall review the protest, any response from the challenged Bidder(s), and all other relevant information. The General Manager will provide a written decision to the protestor.

The procedure and time limits set forth in this Article are mandatory and are the sole and exclusive remedy in the event of a Bid protest. Failure to comply with these procedures shall constitute a failure to exhaust administrative remedies and a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings.

ARTICLE 30. BASIS OF AWARD; BALANCED BID

The Authority shall award the Contract to the lowest responsible Bidder submitting a responsive Bid. The lowest Bid will be determined on the basis of the Total Bid Price.

The Authority may reject any Bid which, in its opinion when compared to other Bids received or to the Authority’s internal estimates, does not accurately reflect the cost to perform the Work. The Authority may reject as non-responsive any Bid which unevenly weights or allocates costs, including but not limited to overhead and profit to one or more particular bid items.

ARTICLE 31. AWARD PROCESS

Once all Bids are opened and reviewed to determine the lowest responsive and responsible Bidder, the Board of Directors may award the contract. The apparent successful Bidder should begin to prepare the following documents: (1) the Performance Bond; (2) the Payment Bond; and (3) the required insurance certificates and endorsements. Once the Authority notifies the Bidder of the award, the Bidder will have ten (10) working days from the date of this notification to execute the Contract and supply the Authority with all of the required documents and certifications. Regardless of whether the Bidder supplies the required documents and certifications in a timely manner, the Contract time will begin to run twenty (20) working days from the date of the notification. Once the Authority receives all of the properly drafted and executed documents and certifications from the Bidder, the Authority shall issue a Notice to

Proceed to that Bidder.

ARTICLE 32. EXECUTION OF CONTRACT

As required herein the Bidder to whom an award is made shall execute the Contract in the amount determined by the Contract Documents. The Authority may require appropriate evidence that the persons executing the Contract are duly empowered to do so. The Contract and bond forms to be executed by the successful Bidder are included within these Specifications and shall not be detached.

ARTICLE 33. QUESTIONS

Questions regarding this Notice Inviting Bids may be directed to Steven Whittlesey, ARSA Engineer, at 916-518-9735 or email at swhittlesey@hydroscience.com. No other members of the Authority's staff or Board of Directors should be contacted about this procurement during the bidding process. Any and all inquiries and comments regarding this Bid must be communicated in writing, unless otherwise instructed by the Authority. The Authority may, in its sole discretion, disqualify any Bidder who engages in any prohibited communications.

00 41 43 – BID FORMS

1.1 Bid.

Bids will be received at the main offices of the Amador Regional Sanitation Authority, 18 Main Street, Sutter Creek, CA 95685, until **2:00 P.M on April 10th, 2025.**

NAME OF BIDDER: _____

To the Board of Directors
of the Amador Regional Sanitation Authority
18 Main Street
Sutter Creek, CA 95685

The undersigned hereby declare that we have carefully examined the location of the proposed Work, and have read and examined the Contract Documents, including all plans, specifications, and all addenda, if any for the following Project:

2025 HENDERSON DAM UNDER DRAIN REPAIR

We hereby propose to furnish all labor, materials, equipment, tools, transportation, and services, and to discharge all duties and obligations necessary and required to perform and complete the Project, as described and in strict conformity with the Drawings, and these Specifications for TOTAL BID PRICE indicated herein.

The undersigned acknowledges receipt, understanding, and full consideration of the following addenda to the Contract Documents:

Addenda No. _____

1. Attached is the required Bid Guarantee in the amount of not less than 10% of the Total Bid Price.
2. Attached is the completed Designation of Subcontractors form.
3. Attached is the fully executed Noncollusion Declaration form.
4. Attached is the completed Iran Contracting Act Certification form.
5. Attached is the completed Public Works Contractor Registration Certification form.
6. Attached is the completed Contractor's Certificate Regarding Workers' Compensation form.
7. Attached is the completed Bidder Information and Experience form.

A. BID SCHEDULE

NO.	ITEM DESCRIPTION	UNIT OF MEASURE	EST. QTY.	UNIT PRICE	ITEM COST
1.	Mobilization, Bonds, Permits, and Demobilization	LS	1		
2.	Sliplining for Henderson Dam Outlet Pipe	LS	1		
3.	Open-Cut Installation from Slipline Section to Concrete Junction Chamber	LS	1		
4.	Open-Cut Installation from Concrete Junction Chamber to Flume	LS	1		
5.	Backfilling of Existing Abandoned-In-Place Concrete Pipe	LS	1		
6.	(Provisional) GPR of Existing Abandoned-in-Place Concrete Pipe	LS	1		

The costs for any Work shown or required in the Contract Documents, but not specifically identified as a line item are to be included in the related line items and no additional compensation shall be due to Contractor for the performance of the Work.

In case of discrepancy between the Unit Price and the Item Cost set forth for a unit basis item, the unit price shall prevail and shall be utilized as the basis for determining the lowest responsive, responsible Bidder. However, if the amount set forth as a unit price is ambiguous, unintelligible or uncertain for any cause, or is omitted, or is the same amount as the entry in the "Item Cost" column, then the amount set forth in the "Item Cost" column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the Unit Price.

For purposes of evaluating Bids, the Authority will correct any apparent errors in the extension of unit prices and any apparent errors in the addition of lump sum and extended prices.

The estimated quantities for Unit Price items are for purposes of comparing Bids only and the Authority makes no representation that the actual quantities of work performed will not vary from the estimates. Final payment shall be determined by the Engineer from measured quantities of work performed based upon the Unit Price.

B. TOTAL BID PRICE:

TOTAL BID PRICE BASED ON BID SCHEDULE TOTAL OF UNIT PRICES FOR 2025 HENDERSON DAM UNDER DRAIN REPAIR	
\$ _____	Total Bid Price in Numbers
\$ _____	Total Bid Price in Written Form
In case of discrepancy between the written price and the numerical price, the written price shall prevail.	

The undersigned agrees that this Bid Form constitutes a firm offer to the Authority which cannot be withdrawn for the number of calendar days indicated in the Notice Inviting Bids from and after the Bid opening, or until a Contract for the Work is fully executed by the Authority and a third party, whichever is earlier.

The successful bidder hereby agrees to sign the contract and furnish the necessary bonds and certificates of insurance within ten (10) working days after the Authority provides the successful bidder with the Notice of Award.

Upon receipt of the signed contract and other required documents, the contract will be executed by the Authority, after which the Authority will prepare a letter giving Contractor Notice to Proceed. The official starting date shall be the date of the Notice to Proceed, unless otherwise specified. The undersigned agrees to begin the Work within ten (10) working days of the date of the Notice to Proceed, unless otherwise specified.

The undersigned has examined the location of the proposed work and is familiar with the Drawings and Specifications and the local conditions at the place where work is to be done.

If awarded the contract, the undersigned agrees that there shall be paid by the undersigned and by all subcontractors to all laborers, workers and mechanics employed in the execution of such contract no less than the prevailing wage rate within San Luis Obispo County for each craft, classification, or type of worker needed to complete the Work contemplated by this contract as established by the Director of the Department of Industrial Relations. A copy of the prevailing rate of per diem wages are on file at the Authority's Administration Office and shall be made available to interested parties upon request.

Enclosed find cash, bidder's bond, or cashier's or certified check No. _____ from the _____ Bank in the amount of _____, which is not less than ten percent (10%) of this bid, payable to Amador Regional Sanitation Authority as bid security and which is given as a guarantee that the undersigned will enter into a contract and provide the necessary bonds and certificates of insurance if awarded the Work.

The bidder furthermore agrees that in case of bidder's default in executing said contract and furnishing required bonds and certificates of insurance, the cash, bidder's bond, or cashier's or certified check accompanying this proposal and the money payable thereon shall become and shall remain the property of the Amador Regional Sanitation Authority.

Bidder is an individual _____, or corporation _____, or partnership _____, organized under the laws of the State of _____.

Bidder confirms license(s) required by California State Contractor's License Law for the performance of the subject project are in full effect and proper order. The following are the Bidder's applicable license number(s), with their expiration date(s) and class of license(s):

If the Bidder is a joint venture, each member of the joint venture must include the required licensing information.

Sureties that will furnish the Faithful Performance Bond and the Labor and Material Payment Bond, in the form specified herein, in an amount equal to one hundred percent (100%) of the contract price within ten (10) working days from the date the Authority provides the successful bidder the Notice of Award. Sureties must meet all of the State of California bonding requirements, as defined in California Code of Civil Procedure Section 995.120 and must be authorized by the State of California.

The insurance company or companies to provide the insurance required in the contract documents must have a Financial Strength Rating of not less than "A-" and a Financial Size Category of not less than "Class VII" according to the latest Best Key Rating Guide. At the sole discretion of the Authority, the Authority may waive the Financial Strength Rating and the Financial Size Category classifications for Workers' Compensation insurance.

(signatures continued on next page)

I hereby certify under penalty of perjury under the laws of the State of California that all of the information submitted in connection with this Bid and all of the representations made herein are true and correct.

Executed at _____, on this ____ day of _____, ____.

(Bidders Name – Print or Type)

(Name and Title)

(Corporate Seal)

(Signature)

Names of individual members of firm or names and titles of all officers of corporation and their addresses are listed below:

Name _____ Title _____

Complete Address _____

Phone _____ FAX _____

Name _____ Title _____

Complete Address _____

Phone _____ FAX _____

Name _____ Title _____

Complete Address _____

Phone _____ FAX _____

Name _____ Title _____

Complete Address _____

Phone _____ FAX _____

1.2 Bid Bond

[Note: Not required when other form of Bidder's Security, e.g. cash, certified check or cashier's check, accompanies bid.]

The makers of this bond are, _____, as Principal, and _____, as Surety and are held and firmly bound unto the Amador Regional Sanitation Authority, hereinafter called the Authority, in the penal sum of TEN PERCENT (10%) OF THE TOTAL BID PRICE of the Principal submitted to the Amador Regional Sanitation Authority for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted the accompanying bid dated _____, 20____, for 2025 HENDERSON DAM UNDER DRAIN REPAIR.

If the Principal does not withdraw its Bid within the time specified in the Contract Documents; and if the Principal is awarded the Contract and provides all documents to the Authority as required by the Contract Documents; then this obligation shall be null and void. Otherwise, this bond will remain in full force and effect.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract Documents shall in affect its obligation under this bond, and Surety does hereby waive notice of any such changes.

In the event a lawsuit is brought upon this bond by the Authority and judgment is recovered, the Surety shall pay all litigation expenses incurred by the Authority in such suit, including reasonable attorneys' fees, court costs, expert witness fees and expenses.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals this _____ day of _____, 20____, the name and corporate seal of each corporation.

(Corporate Seal)

Contractor/ Principal

By _____

Title _____

(Corporate Seal)

Surety

By _____

Attorney-in-Fact

(Attach Attorney-in-Fact Certificate)

Title _____

Notary Acknowledgment

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.

STATE OF CALIFORNIA

COUNTY OF _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory

Name(s) of Signer(s)

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.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

Title or Type of Document

- ☐ Partner(s) ☐ Limited
 ☐ General

Number of Pages

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Date of Document

Signer is representing:
Name Of Person(s) Or Entity(ies)

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for Contractor/Principal.

Notary Acknowledgment

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.

STATE OF CALIFORNIA

COUNTY OF _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory

evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

- ☐ Partner(s) ☐ Limited
 ☐ General

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Signer is representing:
Name Of Person(s) Or Entity(ies)

Title or Type of Document

Number of Pages

Date of Document

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of-Attorney to local representatives of the bonding company must also be attached.

END OF BID BOND

1.3 List of Subcontractors

In compliance with the Subletting and Subcontracting Fair Practices Act Chapter 4 (commencing at Section 4100), Part 1, Division 2 of the Public Contract Code of the State of California and any amendments thereof, Bidder shall set forth below: (a) the name and the location of the place of business, (b) the California contractor license number, (c) the DIR public works contractor registration number, and (d) the portion of the work which will be done by each subcontractor who will perform work or labor or render service to the Bidder in or about the construction of the work or improvement to be performed under this Contract in an amount in excess of one-half of one percent (0.5%) of the Bidder's Total Bid Price. Notwithstanding the foregoing, if the work involves the construction of streets and highways, then the Bidder shall list each subcontractor who will perform work or labor or render service to the Bidder in or about the work in an amount in excess of one-half of one percent (0.5%) of the Bidder's Total Bid Price or \$10,000, whichever is greater. No additional time shall be granted to provide the below requested information.

If a Bidder fails to specify a subcontractor or if a contractor specifies more than one subcontractor for the same portion of work, then the Bidder shall be deemed to have agreed that it is fully qualified to perform that portion of work and that it shall perform that portion itself.

Work to be done by Subcontractor	Name of Subcontractor	Location of Business	CSLB Contractor License No.	DIR Registration Number	% of Work

Work to be done by Subcontractor	Name of Subcontractor	Location of Business	CSLB Contractor License No.	DIR Registration Number	% of Work

(Attach additional sheets if necessary)

Name of Bidder _____

Signature _____

Name and Title _____

Dated _____

1.4 Bidder Information and Experience Form

ARTICLE 1. INFORMATION ABOUT BIDDER

(Indicate not applicable ("N/A") where appropriate.)

NOTE: Where Bidder is a joint venture, pages shall be duplicated and information provided for all parties to the joint venture.

1.0 Name of Bidder: _____

2.0 Type, if Entity: _____

3.0 Bidder Address: _____

Facsimile Number

Telephone Number

Email Address

4.0 How many years has Bidder's organization been in business as a Contractor?

5.0 How many years has Bidder's organization been in business under its present name? _____

5.1 Under what other or former names has Bidder's organization operated? _____

6.0 If Bidder's organization is a corporation, answer the following:

6.1 Date of Incorporation: _____

6.2 State of Incorporation: _____

6.3 President's Name: _____

6.4 Vice-President's Name(s): _____

6.5 Secretary's Name: _____

6.6 Treasurer's Name: _____

7.0 If an individual or a partnership, answer the following:

7.1 Date of Organization: _____

7.2 Name and address of all partners (state whether general or limited partnership):

8.0 If other than a corporation or partnership, describe organization and name principals:

9.0 List other states in which Bidder's organization is legally qualified to do business.

10.0 What type of work does the Bidder normally perform with its own forces?

11.0 Has Bidder ever failed to complete any work awarded to it? If so, note when, where, and why:

12.0 Within the last five years, has any officer or partner of Bidder's organization ever been an officer or partner of another organization when it failed to complete a contract? If so, attach a separate sheet of explanation:

13.0 List Trade References:

14.0 List Bank References (Bank and Branch Address):

15.0 Name of Bonding Company and Name and Address of Agent:

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

ARTICLE 2. LIST OF CURRENT PROJECTS (BACKLOG)

[**Duplicate Page if needed for listing additional current projects.**]

Project	Description of Bidder's Work	Completion Date	Cost of Bidder's Work

ARTICLE 3. LIST OF COMPLETED PROJECTS – LAST THREE YEARS

[**Duplicate Page if needed for listing additional completed projects.**]

Please include only those projects which are similar enough to demonstrate Bidder's ability to perform the required Work.

Project	Description of Bidder's Work	Completion Date	Cost of Bidder's Work

ARTICLE 4. EXPERIENCE AND TECHNICAL QUALIFICATIONS QUESTIONNAIRE

Personnel:

The Bidder shall identify the key personnel to be assigned to this project in a management, construction supervision or engineering capacity.

1. List each person's job title, name and percent of time to be allocated to this project:

2. Summarize each person's specialized education:

3. List each person's years of construction experience relevant to the project:

4. Summarize such experience:

Bidder agrees that personnel named in this Bid will remain on this Project until completion of all relevant Work, unless substituted by personnel of equivalent experience and qualifications approved in advance by the Authority.

Changes Occuring Since Prequalification

If any substantive changes have occurred since Bidder submitted its prequalification package for this Project, Bidder shall list them below. If none are listed, Bidder certifies that no substantive changes have occurred.

Additional Bidder's Statements:

If the Bidder feels that there is additional information which has not been included in the questionnaire above, and which would contribute to the qualification review, it may add that information in a statement here or on an attached sheet, appropriately marked:

ARTICLE 5. VERIFICATION AND EXECUTION

These Bid Forms shall be executed only by a duly authorized official of the Bidder:

I declare under penalty of perjury under the laws of the State of California that the foregoing information is true and correct:

Name of Bidder_____

Signature_____

Name_____

Title_____

Date_____

1.5 Non-Collusion Declaration

The undersigned declares:

I am the _____ of _____, the party making the foregoing Bid.

The Bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The Bid is genuine and not collusive or sham. The Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid. The Bidder has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, or to refrain from bidding. The Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the Bid Price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the Bid Price, or of that of any other Bidder. All statements contained in the Bid are true. The Bidder has not, directly or indirectly, submitted his or her Bid Price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a Bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the Bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [date], at _____ [city], _____ [state].

Name of Bidder_____

Signature_____

Name_____

Title_____

1.6 Iran Contracting Act Certification.
(Public Contract Code section 2200 et seq.)

As required by California Public Contract Code Section 2204, the Contractor certifies subject to penalty for perjury that the option checked below relating to the Contractor's status in regard to the Iran Contracting Act of 2010 (Public Contract Code Section 2200 *et seq.*) is true and correct:

☐ The Contractor is not:

(1) identified on the current list of person and entities engaged in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code Section 2203; or

(2) a financial instruction that extends, for 45 days or more, credit in the amount of \$20,000,000 or more to any other person or entity identified on the current list of persons and entities engaging in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code Section 2203, if that person or entity uses or will use the credit to provide goods or services in the energy sector in Iran.

☐ The Authority has exempted the Contractor from the requirements of the Iran Contracting Act of 2010 after making a public finding that, absent the exemption, the Authority will be unable to obtain the goods and/or services to be provided pursuant to the Contract.

☐ The amount of the Contract payable to the Contractor for the Project does not exceed \$1,000,000.

Signature: _____

Printed Name: _____

Title: _____

Firm Name: _____

Date: _____

Note: In accordance with Public Contract Code Section 2205, false certification of this form shall be reported to the California Attorney General and may result in civil penalties equal to the greater of \$250,000 or twice the Contract amount, termination of the Contract and/or ineligibility to bid on contracts for three years.

1.7 Public Works Contractor Registration Certification

Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the Department of Industrial Relations. See <http://www.dir.ca.gov/Public-Works/PublicWorks.html> for additional information.

No bid will be accepted nor any contract entered into without proof of the contractor's and subcontractors' current registration with the Department of Industrial Relations to perform public work.

Bidder hereby certifies that it is aware of the registration requirements set forth in Labor Code sections 1725.5 and 1771.1 and is currently registered as a contractor with the Department of Industrial Relations.

Name of Bidder:_____

DIR Registration Number:_____

DIR Registration Expiration:_____

Bidder further acknowledges:

1. Bidder shall maintain a current DIR registration for the duration of the project.
2. Bidder shall include the requirements of Labor Code sections 1725.5 and 1771.1 in its contract with subcontractors and ensure that all subcontractors are registered at the time of bid opening and maintain registration status for the duration of the project.
3. Failure to submit this form or comply with any of the above requirements may result in a finding that the bid is non-responsive.

Name of Bidder_____

Signature_____

Name and Title_____

Dated_____

1.8 Contractor's Certificate Regarding Workers' Compensation.

I am aware of the provisions of section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract.

Name of Bidder _____

Signature _____

Name _____

Title _____

Dated _____

00 52 13 – CONTRACT

This CONTRACT, No. _____ is made and entered into this ____ day of _____, _____, by and between Amador Regional Sanitation Authority, sometimes hereinafter called "Authority," and _____, sometimes hereinafter called "Contractor."

WITNESSETH: That the parties hereto have mutually covenanted and agreed, and by these presents do covenant and agree with each other as follows:

a. **SCOPE OF WORK.** The Contractor shall perform all Work within the time stipulated in the Contract, and shall provide all labor, materials, equipment, tools, utility services, and transportation to complete all of the Work required in strict compliance with the Contract Documents as specified in Article 5, below, for the following Project:

2025 HENDERSON DAM UNDER DRAIN REPAIR

The Contractor and its surety shall be liable to the Authority for any damages arising as a result of the Contractor's failure to comply with this obligation.

b. **TIME FOR COMPLETION.** Time is of the essence in the performance of the Work. The Work shall be commenced on the date stated in the District's Notice to Proceed. The Contractor shall complete all Work required by the Contract Documents within **Sixty [60]** calendar days from the commencement date stated in the Notice to Proceed. By its signature hereunder, Contractor agrees the time for completion set forth above is adequate and reasonable to complete the Work.

c. **CONTRACT PRICE.** The Authority shall pay to the Contractor as full compensation for the performance of the Contract, subject to any additions or deductions as provided in the Contract Documents, and including all applicable taxes and costs, the sum of _____ Dollars (\$_____). Payment shall be made as set forth in the General Conditions.

d. **LIQUIDATED DAMAGES.** In accordance with Government Code section 53069.85, it is agreed that the Contractor will pay the Authority the sum set forth in Section 00 73 13, Article 1.11 for each and every calendar day of delay beyond the time prescribed in the Contract Documents for finishing the Work, as Liquidated Damages and not as a penalty or forfeiture. In the event this is not paid, the Contractor agrees the Authority may deduct that amount from any money due or that may become due the Contractor under the Contract. This Article does not exclude recovery of other damages specified in the Contract Documents.

e. **COMPONENT PARTS OF THE CONTRACT.** The "Contract Documents" include the following:

- Notice Inviting Bids
- Instructions to Bidders
- Bid Form
- Bid Bond
- Designation of Subcontractors
- Information Required of Bidders

Non-Collusion Declaration Form
Iran Contracting Act Certification
Public Works Contractor Registration Certification
Performance Bond
Payment (Labor and Materials) Bond
General Conditions
Special Conditions
Technical Specifications
Addenda
Plans and Drawings
Caltrans Standard Specifications, 2015 Edition (excluding Division I)
Applicable Local Agency Standards and Specifications, as last revised
Approved and fully executed change orders
Any other documents contained in or incorporated into the Contract

The Contractor shall complete the Work in strict accordance with all of the Contract Documents.

All of the Contract Documents are intended to be complementary. Work required by one of the Contract Documents and not by others shall be done as if required by all. This Contract shall supersede any prior agreement of the parties.

f. **PROVISIONS REQUIRED BY LAW AND CONTRACTOR COMPLIANCE.** Each and every provision of law required to be included in these Contract Documents shall be deemed to be included in these Contract Documents. The Contractor shall comply with all requirements of applicable federal, state and local laws, rules and regulations, including, but not limited to, the provisions of the California Labor Code and California Public Contract Code which are applicable to this Work.

g. **INDEMNIFICATION.** Contractor shall provide indemnification and defense as set forth in the General Conditions.

h. **PREVAILING WAGES.** Contractor shall be required to pay the prevailing rate of wages in accordance with the Labor Code which such rates shall be made available at the Authority's Administrative Office or may be obtained online at <http://www.dir.ca.gov> and which must be posted at the job site.

[REMAINDER OF PAGE LEFT INTENTIONALLY BLANK]

IN WITNESS WHEREOF, this Contract has been duly executed by the above-named parties,
on the day and year above written.

AMADOR REGIONAL SANITATION AUTHORITY [INSERT NAME OF CONTRACTOR]

By: _____
[INSERT NAME]
[INSERT TITLE]

By: _____
Its: _____
Printed Name: _____

ATTEST:

By: _____
Board Clerk

**(CONTRACTOR'S SIGNATURE MUST BE
NOTARIZED AND CORPORATE
SEAL AFFIXED, IF APPLICABLE)**

END OF CONTRACT

Notary Acknowledgment

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.

STATE OF CALIFORNIA

COUNTY OF _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory

evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

- ☐ Partner(s) ☐ Limited
 ☐ General

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Signer is representing:
Name Of Person(s) Or Entity(ies)

Title or Type of Document

Number of Pages

Date of Document

Signer(s) Other Than Named Above

00 61 13 – BOND FORMS

1.1 Performance Bond.

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, the Amador Regional Sanitation Authority, (hereinafter referred to as “Authority”) has awarded to _____, (hereinafter referred to as the “Contractor”) an agreement for **Contract No.** _____, (hereinafter referred to as the “Project”).

WHEREAS, the work to be performed by the Contractor is more particularly set forth in the Contract Documents for the Project dated _____, (hereinafter referred to as “Contract Documents”), the terms and conditions of which are expressly incorporated herein by reference; and

WHEREAS, the Contractor is required by said Contract Documents to perform the terms thereof and to furnish a bond for the faithful performance of said Contract Documents.

NOW, THEREFORE, we, _____, the undersigned Contractor and _____ as Surety, a corporation organized and duly authorized to transact business under the laws of the State of California, are held and firmly bound unto the Authority in the sum of _____ DOLLARS, (\$ _____), said sum being not less than one hundred percent (100%) of the total amount of the Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if the Contractor, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the Contract Documents and any alteration thereof made as therein provided, on its part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill all obligations including the one (1) year guarantee of all materials and workmanship; and shall indemnify and save harmless the Authority, its officials, officers, employees, and authorized volunteers, as stipulated in said Contract Documents, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses and fees including reasonable attorney’s fees, incurred by Authority in enforcing such obligation.

As a condition precedent to the satisfactory completion of the Contract Documents, unless otherwise provided for in the Contract Documents, the above obligation shall hold good for a period of one (1) year after the acceptance of the work by Authority, during which time if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect the Authority from loss or damage resulting from or caused by defective materials or faulty workmanship. The obligations of Surety hereunder shall continue so long as any obligation of Contractor remains. Nothing herein shall limit the Authority’s rights or the

Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure Section 337.15.

Whenever Contractor shall be, and is declared by the Authority to be, in default under the Contract Documents, the Surety shall remedy the default pursuant to the Contract Documents, or shall promptly, at the Authority's option:

- i. Take over and complete the Project in accordance with all terms and conditions in the Contract Documents; or
- ii. Obtain a bid or bids for completing the Project in accordance with all terms and conditions in the Contract Documents and upon determination by Surety of the lowest responsive and responsible bidder, arrange for a Contract between such bidder, the Surety and the Authority, and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Contractor by the Authority under the Contract and any modification thereto, less any amount previously paid by the Authority to the Contractor and any other set offs pursuant to the Contract Documents.
- iii. Permit the Authority to complete the Project in any manner consistent with California law and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Contractor by the Authority under the Contract and any modification thereto, less any amount previously paid by the Authority to the Contractor and any other set offs pursuant to the Contract Documents.

Surety expressly agrees that the Authority may reject any contractor or subcontractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Contractor.

Surety shall not utilize Contractor in completing the Project nor shall Surety accept a bid from Contractor for completion of the Project if the Authority, when declaring the Contractor in default, notifies Surety of the Authority's objection to Contractor's further participation in the completion of the Project.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract Documents or to the Project to be performed thereunder shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract Documents or to the Project.

[REMAINDER OF PAGE LEFT INTENTIONALLY BLANK]

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20____.

(Corporate Seal)

Contractor/ Principal

By _____

Title _____

(Corporate Seal)

Surety

By _____
Attorney-in-Fact

(Attach Attorney-in-Fact Certificate)

Title _____

The rate of premium on this bond is _____ per thousand. The total amount of premium charges is \$_____.
(The above must be filled in by corporate attorney.)

THIS IS A REQUIRED FORM

Any claims under this bond may be addressed to:

(Name and Address of Surety)

(Name and Address of Agent or Representative for service of process in California, if different from above)

(Telephone number of Surety and Agent or Representative for service of process in California)

Notary Acknowledgment

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.

STATE OF CALIFORNIA

COUNTY OF _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory

evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

- ☐ Partner(s) ☐ Limited
 ☐ General

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Signer is representing:
Name Of Person(s) Or Entity(ies)

Title or Type of Document

Number of Pages

Date of Document

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for Contractor/Principal.

Notary Acknowledgment

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STATE OF CALIFORNIA

COUNTY OF _____

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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.

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WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

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CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

Title or Type of Document

- ☐ Partner(s) ☐ Limited
 ☐ General

Number of Pages

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Date of Document

Signer is representing:
Name Of Person(s) Or Entity(ies)

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of Attorney to local representatives of the bonding company must also be attached.

END OF PERFORMANCE BOND

1.2 Payment Bond (Labor and Materials).

KNOW ALL MEN BY THESE PRESENTS That

WHEREAS, the Amador Regional Sanitation Authority (hereinafter designated as the "Authority"), by action taken or a resolution passed _____, 20____, has awarded to _____ hereinafter designated as the "Principal," a contract for the work described as follows: **Contract No.**_____ (the "Project"); and

WHEREAS, said Principal is required to furnish a bond in connection with said contract; providing that if said Principal or any of its Subcontractors shall fail to pay for any materials, provisions, provender, equipment, or other supplies used in, upon, for or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, or for amounts due under the Unemployment Insurance Code or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of said Principal and its Subcontractors with respect to such work or labor the Surety on this bond will pay for the same to the extent hereinafter set forth.

NOW THEREFORE, we, the Principal and _____ as Surety, are held and firmly bound unto the Authority in the penal sum of _____ Dollars (\$_____) lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, his or its subcontractors, heirs, executors, administrators, successors or assigns, shall fail to pay any of the persons named in Civil Code Section 9100, fail to pay for any materials, provisions or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department or Franchise Tax Board from the wages of employees of the contractor and his subcontractors pursuant to Revenue and Taxation Code Section 18663, with respect to such work and labor the Surety or Sureties will pay for the same, in an amount not exceeding the sum herein above specified, and also, in case suit is brought upon this bond, all litigation expenses incurred by the Authority in such suit, including reasonable attorneys' fees, court costs, expert witness fees and investigation expenses.

This bond shall inure to the benefit of any of the persons named in Civil Code Section 9100 so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

It is further stipulated and agreed that the Surety on this bond shall not be exonerated or released from the obligation of this bond by any change, extension of time for performance, addition, alteration or modification in, to, or of any contract, plans, specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described, or pertaining or relating to the furnishing of labor, materials, or equipment therefore, nor by any change or modification of any terms of payment or extension of the time for any payment pertaining or relating to any scheme or work of improvement herein above described, nor by any rescission or attempted rescission or attempted rescission of the contract, agreement or bond, nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or

under the bond, nor by any fraud practiced by any person other than the claimant seeking to recover on the bond and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given, and under no circumstances shall Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the owner or Authority and original contractor or on the part of any obligee named in such bond, but the sole conditions of recovery shall be that claimant is a person described in Civil Code Section 9100, and has not been paid the full amount of his claim and that Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned, including but not limited to the provisions of sections 2819 and 2845 of the California Civil Code.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20__.

(Corporate Seal)

Contractor/ Principal

By _____

Title _____

(Corporate Seal)

Surety

By _____
Attorney-in-Fact

(Attach Attorney-in-Fact Certificate)

Title _____

Notary Acknowledgment

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STATE OF CALIFORNIA

COUNTY OF _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory

evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

- ☐ Partner(s) ☐ Limited
☐ General

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Signer is representing:
Name Of Person(s) Or Entity(ies)

Title or Type of Document

Number of Pages

Date of Document

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for Contractor/Principal.

Notary Acknowledgment

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STATE OF CALIFORNIA

COUNTY OF _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory

evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

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☐ Other:

Signer is representing:
Name Of Person(s) Or Entity(ies)

Title or Type of Document

Number of Pages

Date of Document

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of-Attorney to local representatives of the bonding company must also be attached.

END OF PAYMENT BOND

00 72 13 – GENERAL CONDITIONS

ARTICLE 1. DEFINED TERMS

Whenever used in the Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined below, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

- A. Act of God -- An earthquake of magnitude of 3.5 or higher on the Richter scale or a tidal wave.
- B. Addenda -- Written or graphic instruments issued prior to the submission of Bids which clarify, correct, or change the Contract Documents.
- C. Additional Work -- New or unforeseen work will be classified as “Additional Work” when the Authority’s Representative determines that it is not covered by the Contract.
- D. Applicable Laws -- The laws, statutes, ordinances, rules, codes, regulations, permits, and licenses of any kind, issued by local, state or federal governmental authorities or private authorities with jurisdiction (including utilities), to the extent they apply to the Work.
- E. Authority -- The Amador Regional Sanitation Authority.
- F. Bid -- The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices and other terms for the Work to be performed.
- G. Bidder -- The individual or entity who submits a Bid directly to the Authority.
- H. Board of Directors, Board -- The Board of Directors of the Authority.
- I. Change Order (“CO”) -- A document that authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Contract, in accordance with the Contract Documents and in the form contained in the Contract Documents.
- J. Change Order Request (“COR”) -- A request made by the Contractor for an adjustment in the Contract Price and/or Contract Times as the result of a Contractor-claimed change to the Work. This term may also be referred to as a Change Order Proposal (“COP”), or Request for Change (“RFC”).
- K. Authority’s Representative -- The individual or entity as identified in the Special Conditions to act as the Authority’s Representative.
- L. Claim -- A demand or assertion by the Authority or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

- M. Contract -- The entire integrated written agreement between the Authority and Contractor concerning the Work. "Contract" may be used interchangeably with "Agreement" in the Contract Documents. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral, and includes all Contract Documents.
- N. Contract Documents -- The documents listed in Section 00 52 13, Article 5. Some documents provided by the Authority to the Bidders and Contractor, including but not limited to reports and drawings of subsurface and physical conditions are not Contract Documents.
- O. Contract Price -- Amount to be paid by the Authority to the Contractor as full compensation for the performance of the Contract and completion of the Work, subject to any additions or deductions as provided in the Contract Documents, and including all applicable taxes and costs.
- P. Contract Times -- The number of days or the dates stated in the Contract Documents to: achieve defined Milestones, if any; and to complete the Work so that it is ready for final payment.
- Q. Contractor -- The individual or entity with which the Authority has contracted for performance of the Work.
- R. Contractor's Designated On-Site Representative -- The Contractor's Designated On-Site Representative will be as identified in Section 00 72 13, Article 3 and shall not be changed without prior written consent of the Authority.
- S. Daily Rate -- The Daily Rate stipulated in the Contract Documents as full compensation to the Contractor due to the Authority's unreasonable delay to the Project that was not contemplated by the parties.
- T. Day -- A calendar day of 24 hours measured from midnight to the next midnight.
- U. Defective Work -- Work that is unsatisfactory, faulty, or deficient; or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referenced in the Contract Documents.
- V. Demobilization -- The complete dismantling and removal by the Contractor of all of the Contractor's temporary facilities, equipment, and personnel at the Site.
- W. Drawings -- That part of the Contract Documents prepared by of the Engineer of Record which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
- X. Effective Date of the Contract -- The date indicated in the Contract on which it becomes effective, but if no such date is indicated, it means the date on which the Contract is signed and delivered by the last of the two parties to sign and deliver.

- Y. Engineer, whenever not qualified, shall mean the Engineer of the Authority, acting either directly or through properly authorized agents, such agents acting severally within the scope of the particular duties entrusted to them. On all questions concerning the acceptance of materials, machinery, the classifications of material, the execution of work, conflicting interest of the contractors performing related work and the determination of costs, the decision of the Engineer, duly authorized by the Board of Directors, shall be binding and final upon both parties.
- Z. Engineer of Record -- The individual, partnership, corporation, joint venture, or other legal entity named as such in Section 00 73 13, Article 1.1. or any succeeding entity designated by the Authority.
- AA. Hazardous Waste -- The term "Hazardous Waste" shall have the meaning provided in Section 104 of the Solid Waste Disposal Act (42 U.S.C. § 6903) as amended from time to time or, 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, whichever is more restrictive.
- BB. Holiday – The Holidays occur on:
- New Year's Day - January 1
 President's Day – Third Monday in February
 Memorial Day - Last Monday in May
 Independence Day - July 4
 Labor Day - First Monday in September
 Veteran's Day - November 11
 Thanksgiving Day - Fourth Thursday in November
 Friday after Thanksgiving
 Christmas Eve – December 24
 Christmas Day - December 25
 Day After Christmas – December 26
 New Year's Eve – December 31
- If any Holiday listed above falls on a Saturday, Saturday and the preceding Friday are both Holidays. If the Holiday should fall on a Sunday, Sunday and the following Monday are both Holidays.
- CC. Notice of Award -- The written notice by the Authority to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, the Authority will sign and deliver the Contract.
- DD. Notice of Completion -- The form which may be executed by the Authority and recorded by the county where the Project is located constituting final acceptance of the Project.
- EE. Notice to Proceed -- A written notice given by the Authority to Contractor fixing the date on which the Contractor may proceed with the Work and when Contract Times will commence to run.

- FF. Project -- The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
- GG. Recyclable Waste Materials -- Materials removed from the Site which are required to be diverted to a recycling center rather than an area landfill. Recyclable Waste Materials include asphalt, concrete, brick, concrete block, and rock.
- HH. Schedule of Submittals -- A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to facilitate scheduled performance of related construction activities.
- II. Shop Drawings -- All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
- JJ. Specifications -- That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
- KK. Standard Specifications -- Caltrans Standard Specifications, 2015 Edition (excluding Division I).
- LL. Stop Payment Notice -- A written notice as defined in Civil Code section 8044.
- MM. Subcontractor -- An individual or entity other than a Contractor having a contract with any other entity than the Authority for performance of any portion of the Work at the Site.
- NN. Submittal -- Written and graphic information and physical samples prepared and supplied by the Contractor demonstrating various portions of the Work.
- OO. Successful Bidder -- The Bidder submitting a responsive Bid to whom the Authority makes an award.
- PP. Supplier -- A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment used in the performance of the Work or to be incorporated in the Work.
- QQ. Underground Facilities -- All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
- RR. Unit Price Work -- Work to be paid for on the basis of unit prices as provided by the Contractor in its bid or as adjusted in accordance with the Contract Documents.

- SS. Warranty -- A written guarantee provided to the Authority by the Contractor that the Work will remain free of defects and suitable for its intended use for the period required by the Contract Documents or the longest period permitted by the law of this State, whichever is longer.
- TT. Work -- The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

ARTICLE 2. CONTRACT DOCUMENTS

- A. **Contract Documents.** The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all.
- B. **Interpretations.** The Contract Documents are intended to be fully cooperative and complementary. If the Contractor observes that any documents are in conflict, the Contractor shall promptly notify the Engineer in writing. In case of conflicts between the Contract Documents, the order of precedence shall be as follows:
1. Change Orders
 2. Addenda
 3. Special Conditions
 4. Technical Specifications
 5. Plans (Contract Drawings)
 6. Contract
 7. General Conditions
 8. Instructions to Bidders
 9. Notice Inviting Bids
 10. Contractor's Bid Forms
 11. Caltrans Standard Specifications, 2015 Edition (excluding Division I)
 12. Applicable Local Agency Standards and Specifications
 13. Standard Drawings
 14. Reference Documents

With reference to the Drawings, the order of precedence shall be as follows:

1. Figures govern over scaled dimensions
 2. Detail drawings govern over general drawings
 3. Addenda or Change Order drawings govern over Contract Drawings
 4. Contract Drawings govern over Standard Drawings
 5. Contract Drawings govern over Shop Drawings
- C. **Conflicts in Contract Documents.** Notwithstanding the orders of precedence established above, in the event of conflicts, the higher standard, higher quality, and most expensive shall always apply.
- D. **Organization of Contract Documents.** Organization of the Contract Documents into divisions, sections, and articles, and arrangement of drawings shall not control

the Contractor in dividing Project Work among subcontractors or in establishing the extent of Work to be performed by any trade.

ARTICLE 3. PRECONSTRUCTION AND CONSTRUCTION COMMUNICATION

Before any Work at the site is started, a conference attended by the Authority, Contractor, Authority's Representative, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to herein, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

At this conference the Authority and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

ARTICLE 4. CONTRACT DOCUMENTS: COPIES & MAINTENANCE

Contractor will be furnished, free of charge, **five (5)** copies of the Contract Documents. Additional copies may be obtained at cost of reproduction.

Contractor shall maintain a clean, undamaged set of Contract Documents, including submittals, at the Project site.

ARTICLE 5. EXAMINATION OF DRAWINGS, SPECIFICATIONS AND SITE OF WORK

- A. **Examination of Contract Documents.** Before commencing any portion of the Work, Contractor shall again carefully examine all applicable Contract Documents, the Project site, and other information given to Contractor as to materials and methods of construction and other Project requirements. Contractor shall immediately notify the Engineer of any potential error, inconsistency, ambiguity, conflict, or lack of detail or explanation. If Contractor performs, permits, or causes the performance of any Work which is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all resulting costs, including, without limitation, the cost of correction. In no case shall the Contractor or any subcontractor proceed with Work if uncertain as to the applicable requirements.
- B. **Additional Instructions.** After notification of any error, inconsistency, ambiguity, conflict, or lack of detail or explanation, the Engineer will provide any required additional instructions, by means of drawings or other written direction, necessary for proper execution of Work.
- C. **Quality of Parts, Construction and Finish.** All parts of the Work shall be of the best quality of their respective kinds and the Contractor must use all diligence to inform itself fully as to the required construction and finish.
- D. **Contractor's Variation from Contract Document Requirements.** If it is found that the Contractor has varied from the requirements of the Contract Documents including the requirement to comply with all applicable laws, ordinances, rules and regulations, the Engineer may at any time, before or after completion of the Work,

order the improper Work removed, remade or replaced by the Contractor at the Contractor's expense.

ARTICLE 6. MOBILIZATION

- A. When a bid item is included in the Bid Form for mobilization, the costs of Work in advance of construction operations and not directly attributable to any specific bid item will be included in the progress estimate ("Initial Mobilization"). When no bid item is provided for "Initial Mobilization," payment for such costs will be deemed to be included in the other items of the Work.
- B. Payment for Initial Mobilization based on the lump sum provided in the Bid Form, which shall constitute full compensation for all such Work. No payment for Initial Mobilization will be made until all of the listed items have been completed to the satisfaction of the Engineer. The scope of the Work included under Initial Mobilization shall include, but shall not be limited to, the following principal items:
 - 1. Obtaining and paying for all bonds, insurance, and permits.
 - 2. Moving on to the Project site of all Contractor's plant and equipment required for the first month's operations.
 - 3. Installing temporary construction power, wiring, and lighting facilities, as applicable.
 - 4. Establishing fire protection system, as applicable.
 - 5. Developing and installing a construction water supply, if applicable.
 - 6. Providing and maintaining the field office trailers for the Contractor, if necessary, and the Engineer (if specified), complete, with all specified furnishings and utility services.
 - 7. Providing on-site sanitary facilities and potable water facilities as specified per Cal-OSHA and these Contract Documents.
 - 8. Furnishing, installing, and maintaining all storage buildings or sheds required for temporary storage of products, equipment, or materials that have not yet been installed in the Work. All such storage shall meet manufacturer's specified storage requirements, and the specific provisions of the specifications, including temperature and humidity control, if recommended by the manufacturer, and for all security.
 - 9. Arranging for and erection of Contractor's work and storage yard.
 - 10. Posting all OSHA required notices and establishment of safety programs per Cal-OSHA.
 - 11. Full-time presence of Contractor's superintendent at the job site as required herein.

12. Submittal of Construction Schedule as required by the Contract Documents.

ARTICLE 7. EXISTENCE OF UTILITIES AT THE WORK SITE

- A. The Authority has endeavored to determine the existence of utilities at the Project site from the records of the owners of known utilities in the vicinity of the Project. The positions of these utilities as derived from such records are shown on the Plans.
- B. Unless indicated otherwise on the Plans and Specifications, no excavations were made to verify the locations shown for underground utilities. The service connections to these utilities are not shown on the Plans. Water service connections may be shown on the Plans showing general locations of such connections. It shall be the responsibility of the Contractor to determine the exact location of all service connections. The Contractor shall make its own investigations, including exploratory excavations, to determine the locations and type of service connections, prior to commencing Work which could result in damage to such utilities. The Contractor shall immediately notify the Authority in writing of any utility discovered in a different position than shown on the Plans or which is not shown on the Plans.
- C. If applicable, all water meters, water valves, fire hydrants, electrical utility vaults, telephone vaults, gas utility valves, and other subsurface structures shall be relocated or adjusted to final grade by the Contractor. Locations of existing utilities shown on the Plans are approximate and may not be complete. The Contractor shall be responsible for coordinating its Work with all utility companies during the construction of the Work.
- D. Notwithstanding the above, pursuant to section 4215 of the Government Code, the Authority has the responsibility to identify, with reasonable accuracy, main or trunkline facilities on the plans and specifications. In the event that main or trunkline utility facilities are not identified with reasonable accuracy in the plans and specifications made a part of the invitation for Bids, the Authority shall assume the responsibility for their timely removal, relocation, or protection.
- E. Contractor, except in an emergency, shall contact the appropriate regional notification center at 811 or 1-800-227-2600 or on-line at www.digalert.org at least two working days prior to commencing any excavation if the excavation will be performed in an area which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the Authority, and obtain an inquiry identification number from that notification center. No excavation shall be commenced or carried out by the Contractor unless such an inquiry identification number has been assigned to the Contractor or any subcontractor of the Contractor and the Authority has been given the identification number by the Contractor.

ARTICLE 8. SOILS INVESTIGATIONS

- A. Reports and Drawings. The Special Conditions identify:
 - 1. those reports known to the Authority of explorations and tests of subsurface conditions at or contiguous to the site; and

2. those drawings known to the Authority of physical conditions relating to existing surface or subsurface structures at the site (except Underground Facilities).
- B. Limited Reliance by Contractor on Technical Data Authorized. Contractor may rely upon the accuracy of the “technical data” contained in such reports and drawings, which were expressly not created or obtained to evaluate or assist in the evaluation of constructability, and are not Contract Documents. Contractor shall make its own interpretation of the “technical data” and shall be solely responsible for any such interpretations. Except for reliance on the accuracy of such “technical data,” Contractor may not rely upon or make any claim against the Authority, Authority’s Representative, or Engineer of Record, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor’s purposes, including without limitation any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions, conclusions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions, or information.

ARTICLE 9. CONTRACTOR’S SUPERVISION

Contractor shall continuously keep at the Project site, a competent and experienced full-time Project superintendent acceptable to the Authority. Superintendent must be able to proficiently speak, read and write in English and shall have the authority to make decisions on behalf of the Contractor. Contractor shall continuously provide efficient supervision of the Project.

ARTICLE 10. WORKERS

- A. Contractor shall at all times enforce strict discipline and good order among its employees. Contractor shall not employ on the Project any unfit person or any one not skilled in the Work assigned to him or her.
- B. Any person in the employ of the Contractor whom the Authority may deem incompetent or unfit shall be dismissed from the Work and shall not be employed on this Project.

ARTICLE 11. INDEPENDENT CONTRACTORS

Contractor shall be an independent contractor for the Authority and not an employee. Contractor understands and agrees that it and all of its employees shall not be considered officers, employees, or agents of Authority and are not entitled to benefits of any kind normally provided employees of Authority, including but not limited to, state unemployment compensation or workers’ compensation. Contractor assumes full responsibility for the acts and omissions of its employees or agents related to the Work.

ARTICLE 12. SUBCONTRACTS

- A. Contractor agrees to bind every subcontractor to the terms of the Contract Documents as far as such terms are applicable to subcontractor's portion of the Work. Contractor shall be as fully responsible to the Authority for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by its subcontractors, as Contractor is for acts and omissions of persons directly employed by Contractor. Nothing contained in these Contract Documents shall create any contractual relationship between any subcontractor and the Authority.
- B. The Authority reserves the right to accept all subcontractors. The Authority's acceptance of any subcontractor under this Contract shall not in any way relieve Contractor of its obligations in the Contract Documents.
- C. Prior to substituting any subcontractor listed in the Bid Forms, Contractor must comply with the requirements of the Subletting and Subcontracting Fair Practices Act pursuant to California Public Contract Code section 4100 et seq.

ARTICLE 13. VERIFICATION OF EMPLOYMENT ELIGIBILITY

By executing this Contract, Contractor verifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time, and shall require all subcontractors, sub-subcontractors and consultants to comply with the same. Each person executing this Contract on behalf of Contractor verifies that he or she is a duly authorized officer of Contractor and that any of the following shall be grounds for the Authority to terminate the Contract for cause: (1) failure of the Contractor or its subcontractors, sub-subcontractors or consultants to meet any of the requirements provided for in this Article; (2) any misrepresentation or material omission concerning compliance with such requirements; or (3) failure to immediately remove from the Work any person found not to be in compliance with such requirements.

ARTICLE 14. REQUESTS FOR SUBSTITUTION

- A. For the purposes of this provision, the term "substitution" shall mean the substitution of any material, method or service substantially equal to or better in every respect to that indicated in the Standard Specifications or otherwise referenced herein.
- B. Pursuant to Public Contract Code section 3400(b), the Authority may make a finding that is described in the Notice Inviting Bids that designates certain products, things, or services by specific brand or trade name.
- C. Unless specifically designated in the Special Conditions, whenever any material, process, or article is indicated or specified by grade, patent, or proprietary name or by name of manufacturer, such specifications shall be deemed to be used for the purpose of facilitating the description of the material, process, or article desired and shall be deemed to be followed by the words "or equal." Contractor may, unless otherwise stated, offer for substitution any material, process, or article which may be substantially equal to or better in every respect to that so indicated or specified in the Contract Documents. However, the Authority has adopted uniform standards for certain materials, processes, and articles.

- D. The Contractor shall submit substitution requests, together with substantiating data, for substitution of any "or equal" material, process, or article no later than thirty-five (35) calendar days after award of Contract. Provisions regarding submission of substitution requests shall not in any way authorize an extension of time for the performance of this Contract. If a substitution request is rejected by the Authority, the Contractor shall provide the material, method or service specified herein. The Authority shall not be responsible for any costs incurred by the Contractor associated with substitution requests. The burden of proof as to the equality of any material, process, or article shall rest with the Contractor. The Engineer has the complete and sole discretion to determine if a material, process, or article is substantially equal to or better than that specified and to approve or reject all substitution requests.
- E. Substantiating data as described above shall include, at a minimum, the following information:
1. A signed affidavit from the Contractor stating that the material, process, or article proposed as a substitution is substantially equal to or better than that specified in every way except as may be listed on the affidavit.
 2. Illustrations, specifications, catalog cut sheets, and any other relevant data required to prove that the material, process, or article is substantially equal to or better than that specified.
 3. A statement of the cost implications of the substitution being requested, indicating whether and why the proposed substitution will reduce or increase the amount of the contract.
 4. Information detailing the durability and lifecycle costs of the proposed substitution.
- F. Failure to submit all the required substantiating data detailed above in a timely manner so that the substitution request can be adequately reviewed may result in rejection of the substitution request. The Engineer is not obligated to review multiple submittals related the same substitution request resulting from the Contractor's failure to initially submit a complete package.
- G. Time limitations within this Article shall be strictly complied with and in no case will an extension of time for completion of the contract be granted because of Contractor's failure to provide substitution requests at the time and in the manner described herein.
- H. The Contractor shall bear the costs of all Authority work associated with the review of substitution requests.
- I. If substitution requests approved by the Engineer require that Contractor furnish materials, methods or services more expensive than that specified, the increased costs shall be borne by Contractor.

ARTICLE 15. SHOP DRAWINGS

- A. Contractor shall check and verify all field measurements and shall submit with such promptness as to provide adequate time for review and cause no delay in its own Work or in that of any other contractor, subcontractor, or worker on the Project, six (6) copies of all shop drawings, calculations, schedules, and materials list, and all other provisions required by the Contract Documents. Contractor shall sign all submittals affirming that submittals have been reviewed and approved by Contractor prior to submission to Engineer. Each signed submittal shall affirm that the submittal meets all the requirements of the Contract Documents except as specifically and clearly noted and listed on the transmittal letter of the submittal.
- B. Contractor shall make any corrections required by the Engineer, and file with the Engineer six (6) corrected copies each, and furnish such other copies as may be needed for completion of the Work. Engineer's acceptance of shop drawings shall not relieve Contractor from responsibility for deviations from the Contract Documents unless Contractor has, in writing, called Engineer's attention to such deviations at time of submission and has secured the Engineer's written acceptance. Engineer's acceptance of shop drawings shall not relieve Contractor from responsibility for errors in shop drawings.

ARTICLE 16. SUBMITTALS

- A. Contractor shall furnish to the Engineer for approval, prior to purchasing or commencing any Work, a log of all samples, material lists and certifications, mix designs, schedules, and other submittals, as required in the Contract Documents. The log shall indicate whether samples will be provided in accordance with other provisions of this Contract.
- B. Contractor will provide samples and submittals, together with catalogs and supporting data required by the Engineer, to the Engineer within a reasonable time period to provide for adequate review and avoid delays in the Work.
- C. These requirements shall not authorize any extension of time for performance of this Contract. Engineer will check and approve such samples, but only for conformance with design concept of work and for compliance with information given in the Contract Documents. Work shall be in accordance with approved samples and submittals.

ARTICLE 17. MATERIALS

- A. Except as otherwise specifically stated in the Contract Documents, Contractor shall provide and pay for all materials, labor, tools, equipment, lights, power, transportation, superintendence, temporary constructions of every nature, and all other services and facilities of every nature whatsoever necessary to execute and complete this Contract within specified time.
- B. Unless otherwise specified, all materials shall be new and the best of their respective kinds and grades as noted and/or specified, and workmanship shall be of good quality.

- C. Materials shall be furnished in ample quantities and at such times as to ensure uninterrupted progress of the Work and shall be stored properly and protected as required by the Contract Documents. Contractor shall be entirely responsible for damage or loss by weather or other causes to materials or Work.
- D. No materials, supplies, or equipment for Work under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in the Work and agrees upon completion of all work to deliver the Project, to the Authority free from any claims, liens, or charges.
- E. Materials shall be stored on the Project site in such manner so as not to interfere with any operations of the Authority or any independent contractor.
- F. Contractor shall verify all measurements, dimensions, elevations, and quantities before ordering any materials or performing any Work, and the Authority shall not be liable for Contractor's failure to do so. No additional compensation, over and above payment for the actual quantities at the prices set out in the Bid Form, will be allowed because of differences between actual measurements, dimension, elevations and quantities and those indicated on the Plans and in the Specifications. Any difference therein shall be submitted to the Engineer for consideration before proceeding with the Work.

ARTICLE 18. PERMITS AND LICENSES

- A. Authority will apply and pay for the review of necessary encroachment permits for Work within the public rights-of-way. Contractor shall obtain all other necessary permits and licenses for the construction of the Project, including encroachment permits, and shall pay all fees required by law and shall comply with all laws, ordinances, rules and regulations relating to the Work and to the preservation of public health and safety. Before acceptance of the Project, the Contractor shall submit all licenses, permits, certificates of inspection and required approvals to the Authority.
- B. The Bid Form contains an allowance for the Contractor's cost of acquiring traffic control permits and for construction inspection fees that may be charged to the Contractor by the Agency of Jurisdiction. The allowance is included within the Bid Form to eliminate the need by bidders to research or estimate the costs of traffic control permits and construction inspection fees prior to submitting a bid. The allowance is specifically intended to account for the costs of traffic control permits and construction inspection fees charged by the local Agency of Jurisdiction only. No other costs payable by Contractor to the Agency of Jurisdiction are included within the allowance. Payment by Authority to Contractor under the Permit and Inspection Allowance Bid Item shall be made based on actual cost receipts only and in accordance with the provisions of these specifications.

ARTICLE 19. TRENCHES

- A. **Trenches Five Feet or More in Depth.** Contractor shall submit to the Engineer at the preconstruction meeting, a detailed plan showing the design of shoring, bracing,

sloping or other provisions to be made for worker protection from hazards of caving ground during the excavation of any trench or trenches five feet or more in depth. If such plan varies from shoring system standards established by the Construction Safety Orders of the California Code of Regulations, Department of Industrial Relations, the plan shall be prepared by a California registered civil or structural engineer. The plan shall not be less effective than the shoring, bracing, sloping, or other provisions of the Construction Safety Orders, as defined in the California Code of Regulations. The Contractor shall designate in writing the "competent person" as defined in Title 8, California Code of Regulations, who shall be present at the Work Site each day that trenching/excavation is in progress. The "competent person" shall prepare and provide daily trenching/excavation inspection reports to the Engineer. Contractor shall also submit a copy of its annual California Occupational Safety and Health Administration (Cal/OSHA) trench/excavation permit.

B. Excavations Deeper than Four Feet. If the Work involves excavating trenches or other excavations that extend deeper than four feet below the surface, Contractor shall promptly, and before the excavation is further disturbed, notify the Authority in writing of any of the following conditions:

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

The Authority shall promptly investigate the conditions, and if it finds that the conditions do so materially differ, or do involve hazardous waste, and cause a decrease or increase in Contractor's cost of, or the time required for, performance of any part of the Work, shall issue a change order under the procedures described in the Contract Documents.

In the event that a dispute arises between the Authority and the Contractor as to 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. Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the parties.

ARTICLE 20. TRAFFIC CONTROL

A. Traffic control plan(s) for the Work may be required by the Agency(s) of Jurisdiction. Traffic control plans, if required, shall be prepared at Contractor's expense, and traffic control shall be performed at Contractor's expense in accordance with the requirements of the Agency(s) of Jurisdiction. The Permit and Inspection Allowance

included within the Bid Form includes the cost of required traffic control permit(s) and construction inspection by the Agency(s) of Jurisdiction only. The Permit and Inspection Allowance does not include costs for preparation of any required traffic control plans, implementation of any traffic control requirements or for any traffic signal services that may be required. Costs for traffic control plans, implementation of traffic control, or traffic signal services required by the Agency(s) of Jurisdiction shall be included in the Contractor's Bid.

- B. All warning signs and safety devices used by the Contractor to perform the Work shall conform to the requirements contained in the State of California, Department of Transportation's current edition of "Manual of Traffic Controls for Construction and Maintenance Work Zones" or to the requirements of the local agency. The Contractor shall also be responsible for all traffic control required by the agency having jurisdiction over the project on the intersecting streets. Contractor must submit a traffic control plan to the agency having jurisdiction over the project for approval prior to starting work.
- C. The Contractor's representative on the site responsible for traffic control shall produce evidence that he/she has completed training acceptable to the California Department of Transportation for safety through construction zones. All of the streets in which the Work will occur shall remain open to traffic and one lane of traffic maintained at all times unless otherwise directed by the agency of jurisdiction. Businesses and residences adjacent to the Work shall be notified forty-eight (48) hours in advance of closing of driveways. The Contractor shall make every effort to minimize the amount of public parking temporarily eliminated due to construction in areas fronting businesses. No stockpiles of pipe or other material will be allowed in traveled right-of-ways after working hours unless otherwise approved by the Engineer.

ARTICLE 21. DIVERSION OF RECYCLABLE WASTE MATERIALS

In compliance with the applicable Authority's waste reduction and recycling efforts, Contractor shall divert all Recyclable Waste Materials to appropriate recycling centers as required for compliance with the local jurisdiction's waste diversion ordinances. Contractor will be required to submit weight tickets and written proof of diversion with its monthly progress payment requests. Contractor shall complete and execute any certification forms required by Authority or other applicable agencies to document Contractor's compliance with these diversion requirements. All costs incurred for these waste diversion efforts shall be the responsibility of the Contractor.

ARTICLE 22. REMOVAL OF HAZARDOUS MATERIALS

Should Contractor encounter material reasonably believed to be polychlorinated biphenyl (PCB) or other toxic wastes and hazardous materials which have not been rendered harmless at the Project site, the Contractor shall immediately stop work at the affected Project site and shall report the condition to the Authority in writing. The Authority shall contract for any services required to directly remove and/or abate PCBs and other toxic wastes and hazardous materials, if required by the Project site(s), and shall not require the Contractor to subcontract for such services. The Work in the affected area shall not thereafter be resumed except by written agreement of the Authority and Contractor.

ARTICLE 23. SANITARY FACILITIES

Contractor shall provide sanitary temporary toilet buildings and hand washing facilities for the use of all workers. All toilets and hand washing facilities shall comply with local codes and ordinances. Toilets shall be kept supplied with toilet paper and shall have workable door fasteners. Toilets and hand washing facilities shall be serviced no less than once weekly and shall be present in a quantity of not less than 1 per 20 workers as required by Cal/OSHA regulations. The toilets and hand washing facilities shall be maintained in a sanitary condition at all times. Use of toilet and hand washing facilities in the Work under construction shall not be permitted. Any other Sanitary Facilities required by Cal/OSHA shall be the responsibility of the Contractor.

ARTICLE 24. AIR POLLUTION CONTROL

Contractor shall comply with all air pollution control rules, regulations, ordinances and statutes, including, but not limited to, those required by the appropriate Air Quality Management District. All containers of paint, thinner, curing compound, solvent or liquid asphalt shall be labeled to indicate that the contents fully comply with the applicable material requirements.

ARTICLE 25. LAYOUT AND FIELD ENGINEERING

All field engineering required for laying out the Work and establishing grades for earthwork operations shall be furnished by the Contractor at its expense.

ARTICLE 26. TESTS AND INSPECTIONS

- A. If the Contract Documents, the Engineer, or any instructions, laws, ordinances, or public authority requires any part of the Work to be tested or Approved, Contractor shall provide the Engineer at least two (2) working days' notice of its readiness for observation or inspection. If inspection is by a public authority other than the Authority, Contractor shall promptly inform the Authority of the date fixed for such inspection. Required certificates of inspection (or similar) shall be secured by Contractor. Costs for Authority testing and Authority inspection shall be paid by the Authority. Costs of tests for Work found not to be in compliance shall be paid by the Contractor.
- B. If any Work is done or covered up without the required testing or approval, the Contractor shall uncover or deconstruct the Work, and the Work shall be redone after completion of the testing at the Contractor's cost in compliance with the Contract Documents.
- C. Where inspection and testing are to be conducted by an independent laboratory or agency, materials or samples of materials to be inspected or tested shall be selected by such laboratory or agency, or by the Authority, and not by Contractor. All tests or inspections of materials shall be made in accordance with the commonly recognized standards of national organizations.
- D. In advance of manufacture of materials to be supplied by Contractor which must be tested or inspected, Contractor shall notify the Authority so that the Authority may arrange for testing at the source of supply. Any materials which have not

satisfactorily passed such testing and inspection shall not be incorporated into the Work.

- E. If the manufacture of materials to be inspected or tested will occur in a plant or location greater than sixty (60) miles from the Authority, the Contractor shall pay for any excessive or unusual costs associated with such testing or inspection, including but not limited to excessive travel time, standby time and required lodging.
- F. Reexamination of Work may be ordered by the Authority. If so ordered, Work must be uncovered or deconstructed by Contractor. If Work is found to be in accordance with the Contract Documents, the Authority shall pay the costs of reexamination and reconstruction. If such work is found not to be in accordance with the Contract Documents, Contractor shall pay all costs.

ARTICLE 27. PROTECTION OF WORK AND PROPERTY

- A. The Contractor shall be responsible for all damages to persons or property that occurs as a result of the Work. Contractor shall be responsible for the proper care and protection of all materials delivered and Work performed until completion and final Acceptance by the Authority. All Work shall be solely at the Contractor's risk. Contractor shall adequately protect adjacent property from settlement or loss of lateral support as necessary. Contractor shall comply with all applicable safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the Project site where Work is being performed. Contractor shall erect and properly maintain at all times, as required by field conditions and progress of work, all necessary safeguards, signs, barriers, lights, and watchmen for protection of workers and the public, and shall post danger signs warning against hazards created in the course of construction.
- B. In an emergency affecting safety of life or of work or of adjoining property, Contractor, without special instruction or authorization from the Engineer, is hereby permitted to act to prevent such threatened loss or injury; and Contractor shall so act, without appeal, if so authorized or instructed by the Engineer or the Authority. Any compensation claimed by Contractor on account of emergency work shall be determined by and agreed upon by the Authority and the Contractor.

ARTICLE 28. CONTRACTOR'S MEANS AND METHODS

Contractor is solely responsible for the means and methods utilized to perform the Work. In no case shall the Contractor's means and methods deviate from commonly used industry standards.

ARTICLE 29. AUTHORIZED REPRESENTATIVES

The Authority shall designate representatives, who shall have the right to be present at the Project site at all times. The Authority may designate an inspector who shall have the right to observe all of the Contractor's Work. The inspector shall not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. Contractor shall provide safe and proper facilities for such access.

ARTICLE 30. HOURS OF WORK

- A. As provided in Article 3 (commencing at section 1810), Chapter 1, Part 7, Division 2 of the Labor Code, Contractor stipulates that eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by the Contractor or by any subcontractor on any subcontract under this Contract upon the Work or upon any part of the Work contemplated by this Contract is limited and restricted to eight (8) hours during any one calendar day and 40 hours during any one calendar week, except as hereinafter provided. Notwithstanding the provisions herein above set forth, work performed by employees of Contractor in excess of eight (8) hours per day, and 40 hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.
- B. The Contractor and every subcontractor shall keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed in connection with the Work or any part of the Work contemplated by this Contract. The record shall be kept open at all reasonable hours to the inspection of the Authority and to the Division of Labor Law Enforcement, Department of Industrial Relations of the State of California.
- C. The Contractor shall pay to the Authority a penalty of twenty-five dollars (\$25.00) for each worker employed in the execution of this Contract by the Contractor or by any subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any calendar day and 40 hours in any one calendar week in violation of the provisions of Article 3 (commencing at section 1810), Chapter 1, Part 7, Division 2 of the Labor Code.
- D. Any work necessary to be performed after regular working hours, or on Saturdays and Sundays or other holidays, shall be performed without additional expense to the Authority.
- E. Authority will provide inspection during normal working hours from 7:00 a.m. to 3:30 p.m. Monday through Friday. Inspection before or after this time will be charged to the Contractor as reimbursable inspection time. Inspections on weekends requires two days' notice for review and approval. Upon written request and approval the 8.5 hour working day may be changed to other limits subject to city/county ordinance.
- F. It shall be unlawful for any person to operate, permit, use, or cause to operate any of the following at the Project site, other than between the hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, with no Work allowed on the Authority-observed holidays, unless otherwise approved by the Authority:
 - 1. Powered Vehicles
 - 2. Construction Equipment
 - 3. Loading and Unloading Vehicles
 - 4. Domestic Power Tools

ARTICLE 31. PAYROLL RECORDS

- A. Pursuant to Labor Code section 1776, Contractor and all subcontractors shall maintain weekly certified payroll records, showing the names, addresses, Social Security numbers, work classifications, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by them in connection with the Work under this Contract. Contractor shall certify under penalty of perjury that records maintained and submitted by Contractor are true and accurate. Contractor shall also require subcontractor(s) to certify weekly payroll records under penalty of perjury.
- B. In accordance with Labor Code section 1771.4, the Contractor and each subcontractor shall furnish the certified payroll records directly to the Department of Industrial Relations ("DIR") on the specified interval and format prescribed by the DIR, which may include electronic submission. Contractor shall comply with all requirements and regulations from the DIR relating to labor compliance monitoring and enforcement.
- C. The payroll records described herein shall be certified and submitted by the Contractor at a time designated by the Authority. The Contractor shall also provide the following:
 - 1. A certified copy of the employee's payroll records shall be made available for inspection or furnished to such employee or his or her authorized representative on request.
 - 2. A certified copy of all payroll records described herein shall be made available for inspection or furnished upon request of the DIR.
- D. Unless submitted electronically, the certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement ("DLSE") of the DIR or shall contain the same information as the forms provided by the DLSE.
- E. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency, the Authority, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address and social security number. The name and address of the Contractor awarded the Contract or performing the contract shall not be marked or obliterated.
- F. In the event of noncompliance with the requirements of this Article, the Contractor shall have ten (10) calendar days in which to comply subsequent to receipt of written notice specifying in what respects the Contractor must comply with this Article. Should noncompliance still be evident after such 10-day period, the Contractor shall pay a penalty of one hundred dollars (\$100.00) to the Authority for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, such penalties shall be withheld from progress payment then due.

- G. The responsibility for compliance with this Article shall rest upon the Contractor.

ARTICLE 32. PREVAILING RATES OF WAGES

- A. The Contractor is aware of the requirements of Labor Code sections 1720 *et seq.* and 1770 *et seq.*, as well as California Code of Regulations, Title 8, Section 16000 *et seq.* ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects. Since this Project involves an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and since the total compensation is \$1,000 or more, Contractor agrees to fully comply with such Prevailing Wage Laws. The Contractor shall obtain a copy of the prevailing rates of per diem wages at the commencement of this Contract from the website of the Division of Labor Statistics and Research of the Department of Industrial Relations located at www.dir.ca.gov. In the alternative, the Contractor may view a copy of the prevailing rate of per diem wages which are on file at the Authority's Administration Office and shall be made available to interested parties upon request. Contractor shall make copies of the prevailing rates of per diem wages for each craft, classification, or type of worker needed to perform work on the Project available to interested parties upon request, and shall post copies at the Contractor's principal place of business and at the Project site. Contractor shall defend, indemnify and hold the Authority, its officials, officers, employees and authorized volunteers free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or allege failure to comply with the Prevailing Wage Laws.
- B. The Contractor shall forfeit as a penalty to the Authority not more than Two Hundred Dollars (\$200.00), pursuant to Labor Code section 1775, for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate as determined by the Director of the Department of Industrial Relations for such work or craft in which such worker is employed for any public work done under the Contract by it or by any subcontractor under it. The difference between such prevailing wage rate and the amount paid to each worker for each calendar 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.
- C. Contractor shall post, at appropriate conspicuous points on the Project site, a schedule showing all determined general prevailing wage rates and all authorized deductions, if any, from unpaid wages actually earned.

ARTICLE 33. PUBLIC WORKS CONTRACTOR REGISTRATION

Pursuant to Labor Code sections 1725.5 and 1771.1, the Contractor and its subcontractors must be registered with the Department of Industrial Relations prior to the execution of a contract to perform public works. By entering into this Contract, Contractor represents that it is aware of the registration requirement and is currently registered with the DIR. Contractor shall maintain a current registration for the duration of the Project. Contractor shall further include the requirements of Labor Code sections 1725.5 and 1771.1 in any subcontract and ensure that all subcontractors are registered at the time this Contract is entered into and maintain registration for the duration of the Project.

ARTICLE 34. EMPLOYMENT OF APPRENTICES

- A. Contractor and all subcontractors shall comply with the requirements of Labor Code sections 1777.5 and 1777.6 in the employment of apprentices.
- B. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.
- C. Knowing violations of Labor Code section 1777.5 will result in forfeiture not to exceed one hundred dollars (\$100.00) for each calendar day of non-compliance pursuant to Labor Code section 1777.7.
- D. The responsibility for compliance with this Article shall rest upon the Contractor.

ARTICLE 35. NONDISCRIMINATION/EQUAL EMPLOYMENT OPPORTUNITY

Pursuant to Labor Code section 1735 and other applicable provisions of law, the Contractor and its subcontractors shall not discriminate against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, or any other classifications protected by law on this Project. The Contractor will take affirmative action to insure that employees are treated during employment or training without regard to their race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, or any other classifications protected by law.

Employment Eligibility; Contractor. By executing this Contract, Contractor verifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time. Such requirements and restrictions include, but are not limited to, examination and retention of documentation confirming the identity and immigration status of each employee of the Contractor. Contractor also verifies that it has not committed a violation of any such law within the five (5) years immediately preceding the date of execution of this Contract, and shall not violate any such law at any time during the term of the Contract. Contractor shall avoid any violation of any such law during the term of this Contract by participating in an electronic verification of work authorization program operated by the United States Department of Homeland Security, by participating in an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, or by some other legally acceptable method. Contractor shall maintain records of each such verification, and shall make them available to the Authority or its representatives for inspection and copy at any time during normal business hours. The Authority shall not be responsible for any costs or expenses related to Contractor's compliance with the requirements provided for or referred to herein.

Employment Eligibility; Subcontractors, Sub-subcontractors and Consultants. To the same extent and under the same conditions as Contractor, Contractor shall require all of its subcontractors, sub-subcontractors and consultants performing any part of the Work or of this Contract to make the same verifications and comply with all requirements and restrictions provided for herein.

Employment Eligibility; Failure to Comply. Each person executing this Contract on behalf of Contractor verifies that he or she is a duly authorized officer of Contractor, and understands that any of the following shall be grounds for the Authority to terminate the Contract for cause: (1) failure of Contractor or its subcontractors, sub-subcontractors or consultants to meet any of the requirements provided for herein; (2) any misrepresentation or material omission concerning compliance with such requirements; or (3) failure to immediately remove from the Work any person found not to be in compliance with such requirements.

ARTICLE 36. DEBARMENT OF CONTRACTORS AND SUBCONTRACTORS

Contractors or subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant to Labor Code section 1777.1 or 1777.7. Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid, or may have been paid to a debarred subcontractor by a contractor on the project shall be returned to the Authority. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the project.

ARTICLE 37. LABOR/EMPLOYMENT SAFETY

The Contractor shall comply with all applicable laws and regulations of the federal, state, and local government, including Cal/OSHA requirements and requirements for verification of employees' legal right to work in the United States.

The Contractor shall maintain emergency first aid treatment for his employees which complies with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 *et seq.*), and California Code of Regulations, Title 8, Industrial Relations Division 1, Department of Industrial Relations, Chapter 4. The Contractor shall ensure the availability of emergency medical services for its employees in accordance with California Code of Regulations, Title 8, Section 1512.

The Contractor shall submit the Illness and Injury Prevention Program and a Project site specific safety program to the Authority prior to beginning Work at the Project site. Contractor shall maintain a confined space program that meets or exceeds the Authority Standards. Contractor shall adhere to the Authority's lock out tag out program.

ARTICLE 38. INSURANCE

The Contractor shall obtain, and at all times during performance of the Work of Contract, maintain all of the insurance described in this Article. Contractor shall not commence Work under this Contract until it has provided evidence satisfactory to the Authority that it has secured all insurance required hereunder. Contractor shall not allow any subcontractor to commence work on any subcontract until it has provided evidence satisfactory to the Authority that the subcontractor has secured all insurance required under this Article. Failure to provide and maintain all required insurance shall be grounds for the Authority to terminate this Contract for cause. Contractor shall furnish Authority with original certificates of insurance and endorsements effective coverage required by this Contract on forms satisfactory to the Authority. The certificates and endorsements for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf, and shall be on forms

acceptable to the Authority. All certificates and endorsements must be received and approved by the Authority before Work commences.

- A. **Additional Insureds; Waiver of Subrogation.** The Authority, its officials, officers, employees, agents and authorized volunteers shall be named as Additional Insureds on Contractor's All Risk policy and on Contractor's and its subcontractors' policies of Commercial General Liability and Automobile Liability insurance using, for Contractor's policy/ies of Commercial General Liability insurance, ISO CG forms 20 10 and 20 37 (or endorsements providing the exact same coverage, including completed operations), and, for subcontractors' policies of Commercial General Liability insurance, ISO CG form 20 38 (or endorsements providing the exact same coverage). Notwithstanding the minimum limits set forth in this Contract for any type of insurance coverage, all available insurance proceeds in excess of the specified minimum limits of coverage shall be available to the parties required to be named as Additional Insureds hereunder. Contractor and its insurance carriers shall provide a Waiver of Subrogation in favor of those parties.
- B. **Workers' Compensation Insurance.** The Contractor shall provide workers' compensation insurance for all of the employees engaged in Work under this Contract, on or at the Site, and, in case of any sublet Work, the Contractor shall require the subcontractor similarly to provide workers' compensation insurance for all the latter's employees as prescribed by State law. Any class of employee or employees not covered by a subcontractor's insurance shall be covered by the Contractor's insurance. In case any class of employees engaged in work under this Contract, on or at the Site, is not protected under the Workers' Compensation Statutes, the Contractor shall provide or shall cause a subcontractor to provide, adequate insurance coverage for the protection of such employees not otherwise protected. The Contractor is required to secure payment of compensation to his employees in accordance with the provisions of section 3700 of the Labor Code. The Contractor shall file with the Authority certificates of his insurance protecting workers. Company or companies providing insurance coverage shall be acceptable to the Authority, if in the form and coverage as set forth in the Contract Documents.
- C. **Employer's Liability Insurance.** Contractor shall provide Employer's Liability Insurance, including Occupational Disease, in the amount of at least one million dollars (\$1,000,000.00) per person per accident. Contractor shall provide Authority with a certificate of Employer's Liability Insurance. Such insurance shall comply with the provisions of the Contract Documents. The policy shall be endorsed, if applicable, to provide a Borrowed Servant/Alternate Employer Endorsement and contain a Waiver of Subrogation in favor of the Authority.
- D. **Commercial General Liability Insurance.** Contractor shall provide "occurrence" form Commercial General Liability insurance coverage at least as broad as the most current ISO CGL Form 00 01, including but not limited to, premises liability, contractual liability, products/completed operations, personal and advertising injury which may arise from or out of Contractor's operations, use, and management of the Site, or the performance of its obligations hereunder. The policy shall not contain any exclusion contrary to this Contract including but not limited to endorsements or provisions limiting coverage for (1) contractual liability (including but not limited to ISO CG 24 26 or 21 39); or (2) cross-liability for claims or suits against one insured against another. Policy limits shall not be less than \$1,000,000 per occurrence for

bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit. Defense costs shall be paid in addition to the limits.

1. Such policy shall comply with all the requirements of this Article. The limits set forth herein shall apply separately to each insured against whom claims are made or suits are brought, except with respect to the limits of liability. Further the limits set forth herein shall not be construed to relieve the Contractor from liability in excess of such coverage, nor shall it limit Contractor's indemnification obligations to the Authority, and shall not preclude the Authority from taking such other actions available to the Authority under other provisions of the Contract Documents or law.
 2. All general liability policies provided pursuant to the provisions of this Article shall comply with the provisions of the Contract Documents.
 3. All general liability policies shall be written to apply to all bodily injury, including death, property damage, personal injury, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, under-ground excavation, removal of lateral support, and other covered loss, however occasioned, occurring during the policy term, and shall specifically insure the performance by Contractor of that part of the indemnification contained in these General Conditions relating to liability for injury to or death of persons and damage to property.
 4. If the coverage contains one or more aggregate limits, a minimum of 50% of any such aggregate limit must remain available at all times; if over 50% of any aggregate limit has been paid or reserved, the Authority may require additional coverage to be purchased by Contractor to restore the required limits. Contractor may combine primary, umbrella, and as broad as possible excess liability coverage to achieve the total limits indicated above. Any umbrella or excess liability policy shall include the additional insured endorsement described in the Contract Documents.
 5. All policies of general liability insurance shall permit and Contractor does hereby waive any right of subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss.
- E. **Automobile Liability Insurance.** Contractor shall provide "occurrence" form Automobile Liability Insurance at least as broad as ISO CA 00 01 (Any Auto) in the amount of, at least, one million dollars (\$1,000,000) per accident for bodily injury and property damage. Such insurance shall provide coverage with respect to the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by Contractor or for which Contractor is responsible, in a form and with insurance companies acceptable to the Authority. All policies of automobile insurance shall permit and Contractor does hereby waive any right of subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss.

F. Builder's Risk ["All Risk"]

1. It is the Contractor's responsibility to maintain or cause to be maintained Builder's Risk ["All Risk"] extended coverage insurance on all work, material, equipment, appliances, tools, and structures that are or will become part of the Work and subject to loss or damage by fire, and vandalism and malicious mischief, in an amount to cover 100% of the replacement cost. The Authority accepts no responsibility for the Work until the Work is formally accepted by the Authority. The Contractor shall provide a certificate evidencing this coverage before commencing performance of the Work.
2. The named insureds shall be Contractor, all Subcontractors of any tier (excluding those solely responsible for design work), suppliers, and Authority, its elected officials, officers, employees, agents and authorized volunteers, as their interests may appear. Contractor shall not be required to maintain property insurance for any portion of the Work following acceptance by Authority.
3. Policy shall be provided for replacement value on an "all risk" basis. There shall be no coinsurance penalty provision in any such policy. Policy must include: (1) coverage for any ensuing loss from faulty workmanship, nonconforming work, omission or deficiency in design or specifications; (2) coverage against machinery accidents and operational testing; (3) coverage for removal of debris, and insuring the buildings, structures, machinery, equipment, materials, facilities, fixtures and all other properties constituting a part of the Project; (4) transit coverage, including ocean marine coverage (unless insured by the supplier), with sub-limits sufficient to insure the full replacement value of any key equipment item; and (5) coverage with sub-limits sufficient to insure the full replacement value of any property or equipment stored either on or off the Site. Such insurance shall be on a form acceptable to Authority to ensure adequacy and sublimit.
4. In addition, the policy shall meet the following requirements:
 - a. Insurance policies shall be so conditioned as to cover the performance of any extra work performed under the Contract.
 - b. Coverage shall include all materials stored on site and in transit.
 - c. Coverage shall include Contractor's tools and equipment.
 - d. Insurance shall include boiler, machinery and material hoist coverage.

G. Contractor's Pollution Liability Coverage. Contractor shall provide pollution liability insurance in an amount not less than \$1,000,000 per occurrence and \$2,000,000 aggregate.

H. Contractor shall require all tiers of sub-contractors working under this Contract to provide the insurance required under this Article unless otherwise agreed to in writing by Authority. Contractor shall make certain that any and all subcontractors hired by Contractor are insured in accordance with this Contract. If any subcontractor's coverage does not comply with the foregoing provisions, Contractor

shall indemnify and hold the Authority harmless from any damage, loss, cost, or expense, including attorneys' fees, incurred by the Authority as a result thereof.

ARTICLE 39. FORM AND PROOF OF CARRIAGE OF INSURANCE

- A. Any insurance carrier providing insurance coverage required by the Contract Documents shall be admitted to and authorized to do business in the State of California unless waived, in writing, by the Authority's Risk Manager. Carrier(s) shall have an A.M. Best rating of not less than an A:VII. Insurance deductibles or self-insured retentions must be declared by the Contractor. At the election of the Authority the Contractor shall either 1) reduce or eliminate such deductibles or self-insured retentions, or 2) procure a bond which guarantees payment of losses and related investigations, claims administration, and defense costs and expenses. If umbrella or excess liability coverage is used to meet any required limit(s) specified herein, the Contractor shall provide a "follow form" endorsement satisfactory to the Authority indicating that such coverage is subject to the same terms and conditions as the underlying liability policy.
- B. Each insurance policy required by this Contract shall be endorsed to state that: (1) coverage shall not be suspended, voided, reduced or cancelled except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the Authority; and (2) any failure to comply with reporting or other provisions of the policies, including breaches of warranties, shall not affect coverage provided to the Authority, its officials, officers, agents, employees, and volunteers.
- C. The Certificate(s) and policies of insurance shall contain or shall be endorsed to contain the covenant of the insurance carrier(s) that it shall provide no less than thirty (30) days written notice be given to the Authority prior to any material modification or cancellation of such insurance. In the event of a material modification or cancellation of coverage, the Authority may terminate the Contract or stop the Work in accordance with the Contract Documents, unless the Authority receives, prior to such effective date, another properly executed original Certificate of Insurance and original copies of endorsements or certified original policies, including all endorsements and attachments thereto evidencing coverage's set forth herein and the insurance required herein is in full force and effect. Contractor shall not take possession, or use the Site, or commence operations under this Contract until the Authority has been furnished original Certificate(s) of Insurance and certified original copies of endorsements or policies of insurance including all endorsements and any and all other attachments as required in this Article. The original endorsements for each policy and the Certificate of Insurance shall be signed by an individual authorized by the insurance carrier to do so on its behalf.
- D. The Certificate(s) of Insurance, policies and endorsements shall so covenant and shall be construed as primary, and the Authority's insurance and/or deductibles and/or self-insured retentions or self-insured programs shall not be construed as contributory.
- E. Authority reserves the right to adjust the monetary limits of insurance coverages during the term of this Contract including any extension thereof if, in the Authority's reasonable judgment, the amount or type of insurance carried by the Contractor becomes inadequate.

- F. Contractor shall report to the Authority, in addition to the Contractor's insurer, any and all insurance claims submitted by the Contractor in connection with the Work under this Contract.

ARTICLE 40. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- A. **Time for Completion/Liquidated Damages.** Time is of the essence in the completion of the Work. Work shall be commenced within ten (10) Days of the date stated in the Authority's Notice to Proceed and shall be completed by Contractor in the time specified in the Contract Documents. The Authority is under no obligation to consider early completion of the Project; and the Contract completion date shall not be amended by the Authority's receipt or acceptance of the Contractor's proposed earlier completion date. Furthermore, Contractor shall not, under any circumstances, receive additional compensation from the Authority (including but not limited to indirect, general, administrative or other forms of overhead costs) for the period between the time of earlier completion proposed by the Contractor and the Contract completion date. If the Work is not completed as stated in the Contract Documents, it is understood that the Authority will suffer damage. In accordance with Government Code section 53069.85, being impractical and infeasible to determine the amount of actual damage, it is agreed that Contractor shall pay to the Authority as fixed and liquidated damages, and not as a penalty, the sum stipulated in the Contract for each calendar day of delay until the Work is fully completed. Contractor and its surety shall be liable for any liquidated damages. Any money due or to become due the Contractor may be retained to cover liquidated damages.
- B. **Inclement Weather.** Contractor shall abide by the Engineer's determination of what constitutes inclement weather. Time extensions for inclement weather shall only be granted when the Work stopped during inclement weather is on the critical path of the Project schedule.
- C. **Extension of Time.** Contractor shall not be charged liquidated damages because of any delays in completion of the Work due to unforeseeable causes beyond the control and without the fault or negligence of Contractor (or its subcontractors or suppliers). Contractor shall within five (5) Days of identifying any such delay notify the Authority in writing of causes of delay. The Authority shall ascertain the facts and extent of delay and grant extension of time for completing the Work when, in its judgment, the facts justify such an extension. Time extensions to the Project shall be requested by the Contractor as they occur and without delay. No delay claims shall be permitted unless the event or occurrence delays the completion of the Project beyond the Contract completion date.
- D. **No Damages for Reasonable Delay.** The Authority's liability to Contractor for delays for which the Authority is responsible shall be limited to only an extension of time unless such delays were unreasonable under the circumstances. In no case shall the Authority be liable for any costs which are borne by the Contractor in the regular course of business, including, but not limited to, home office overhead and other ongoing costs. Damages caused by unreasonable Authority delay, including delays caused by items that are the responsibility of the Authority pursuant to Government Code section 4215, shall be based on actual costs only, no proportions or formulas shall be used to calculate any delay damages.

ARTICLE 41. COST BREAKDOWN AND PERIODIC ESTIMATES

Contractor shall furnish on forms Approved by the Authority:

- A. Within ten (10) Days of Notice to Proceed with the Contract, a detailed estimate giving a complete breakdown of the Contract price, if the Contract amount is a lump sum.
- B. A monthly itemized estimate of Work done for the purpose of making progress payments. In order for the Authority to consider and evaluate each progress payment application, the Contractor shall submit a detailed measurement of Work performed and a progress estimate of the value thereof before the tenth (10th) Day of the following month.
- C. Contractor shall submit, with each of its payment requests, an adjusted list of actual quantities, verified by the Engineer, for unit price items listed, if any, in the Bid Form.
- D. Following the Authority's Acceptance of the Work, the Contractor shall submit to the Authority a written statement of the final quantities of unit price items for inclusion in the final payment request.
- E. The Authority shall have the right to adjust any estimate of quantity and to subsequently correct any error made in any estimate for payment.

Contractor shall certify under penalty of perjury, that all cost breakdowns and periodic estimates accurately reflect the Work on the Project.

ARTICLE 42. PROGRESS ESTIMATES AND PAYMENT

- A. By the tenth (10th) Day of the following calendar month, Contractor shall submit to Engineer a payment request which shall set forth in detail the value of the Work done for the period beginning with the date work was first commenced and ending on the end of the calendar month for which the payment request is prepared. Contractor shall include any amount earned for authorized extra work. From the total thus computed, a deduction shall be made in the amount of five percent (5%) for retention, except where the Authority has adopted a finding that the Work done under the Contract is substantially complex, and then the amount withheld as retention shall be the percentage specified in the Notice Inviting Bids. From the remainder a further deduction may be made in accordance with Section B below. The amount computed, less the amount withheld for retention and any amounts withheld as set forth below, shall be the amount of the Contractor's payment request.
- B. The Authority may withhold a sufficient amount or amounts of any payment or payments otherwise due to Contractor, as in his judgment may be necessary to cover:
 - 1. Payments which may be past due and payable for just claims against Contractor or any subcontractors for labor or materials furnished in and about the performance of work on the Project under this Contract.
 - 2. Defective work not remedied.

3. Failure of Contractor to make proper payments to his subcontractor or for material or labor.
 4. Completion of the Contract if there is a reasonable doubt that the Work can be completed for balance then unpaid.
 5. Damage to another contractor or a third party.
 6. Amounts which may be due the Authority for claims against Contractor.
 7. Failure of Contractor to keep the record ("as-built") drawings up to date.
 8. Failure to provide update on construction schedule as required herein.
 9. Site cleanup.
 10. Failure to comply with Contract Documents.
 11. Liquidated damages.
 12. Legally permitted penalties.
- C. The Authority may apply such withheld amount or amounts to payment of such claims or obligations at its discretion with the exception of subsections (B)(1), (3), and (5) of this Article, which must be retained or applied in accordance with applicable law. In so doing, the Authority shall be deemed the agent of Contractor and any payment so made by the Authority shall be considered as a payment made under contract by the Authority to Contractor and the Authority shall not be liable to Contractor for such payments made in good faith. Such payments may be made without prior judicial determination of claim or obligations. The Authority will render Contractor a proper accounting of such funds disbursed on behalf of Contractor.
- D. Upon receipt, the Engineer shall review the payment request to determine whether it is undisputed and suitable for payment. If the payment request is determined to be unsuitable for payment, it shall be returned to Contractor as soon as practicable but not later than seven (7) Days after receipt, accompanied by a document setting forth in writing the reasons why the payment request is not proper. The Authority shall make the progress payment within 30 calendar days after the receipt of an undisputed and properly submitted payment request from Contractor, provided that a release of liens and claims has been received from the Contractor pursuant to Civil Code section 8132. The number of days available to the Authority to make a payment without incurring interest pursuant to this paragraph shall be reduced by the number of days by which the Engineer exceeds the seven (7) Day requirement.
- E. A payment request shall be considered properly executed if funds are available for payment of the payment request and payment is not delayed due to an audit inquiry by the financial officer of the Authority.

ARTICLE 43. SECURITIES FOR MONEY WITHHELD

Pursuant to section 22300 of the Public Contract Code of the State of California, Contractor may

request the Authority to make retention payments directly to an escrow agent or may substitute securities for any money withheld by the Authority to ensure performance under the contract. At the request and expense of Contractor, securities equivalent to the amount withheld shall be deposited with the Authority or with a state or federally chartered bank as the escrow agent who shall return such securities to Contractor upon satisfactory completion of the contract. Deposit of securities with an escrow agent shall be subject to a written agreement substantially in the form provided in section 22300 of the Public Contract Code.

ARTICLE 44. CHANGES AND EXTRA WORK.

A. Contract Change Orders.

1. The Authority, without invalidating the Contract, may order changes in the Work consisting of additions, deletions or other revisions, and the Contract Price and Contract Time shall be adjusted accordingly. Except as otherwise provided herein, all such changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents. A Change Order signed by the Contractor indicates the Contractor's agreement therewith, including any adjustment in the Contract Price or the Contract Time, and the full and final settlement of all costs (direct, indirect and overhead) related to the Work authorized by the Change Order.
2. Contractor shall promptly execute changes in the Work as directed in writing by the Authority even when the parties have not reached agreement on whether the change increases the scope of Work or affects the Contract Price or Contract Time. All claims for additional compensation to the Contractor shall be presented in writing. No claim will be considered after the Work in question has been done unless a written Change Order has been issued or a timely written notice of claim has been made by Contractor.
3. Whenever any change is made as provided for herein, such change shall be considered and treated as though originally included in the Contract, and shall be subject to all terms, conditions, and provisions of the original Contract.
4. Contractor shall not be entitled to claim or bring suit for damages, whether for loss of profits or otherwise, on account of any decrease or omission of any item or portion of Work to be done.
5. No dispute, disagreement, or failure of the parties to reach agreement on the terms of the Change Order shall relieve the Contractor from the obligation to proceed with performance of the work, including Additional Work, promptly and expeditiously.
6. Contractor shall make available to the Authority any of the Contractor's documents related to the Project immediately upon request of the Authority, as set forth in Article 52.
7. Any alterations, extensions of time, Additional Work, or any other changes may be made without securing consent of the Contractor's surety or sureties.

B. Contract Price Change.

1. Process for Determining Adjustments in Contract Price.

- a. Owner Initiated Change. The Contractor must submit a complete cost proposal, including any change in the Contract Price or Contract Time, within seven (7) Days after receipt of a scope of a proposed change order initiated by the Authority, unless the Authority requests that proposals be submitted in less than seven (7) Days.
- b. Contractor Initiated Change. The Contractor must give written notice of a proposed change order required for compliance with the Contract Documents within seven (7) Days of discovery of the facts giving rise to the proposed change order.
- c. Whenever possible, any changes to the Contract amount shall be in a lump sum mutually agreed to by the Contractor and the Authority.
- d. Price quotations from the Contractor shall be accompanied by sufficiently detailed supporting documentation to permit verification by the Authority, including but not limited to estimates and quotations from subcontractors or material suppliers, as the Authority may reasonably request. Contractor shall certify the accuracy of all Change Order Requests under penalty of perjury.
- e. If the Contractor fails to submit a complete cost proposal within the seven (7) Day period (or as requested), the Authority has the right to order the Contractor in writing to commence the Work immediately on a time and materials basis and/or issue a lump sum change to the Contract Price and/or Contract Time in accordance with the Authority's estimate. If the change is issued based on the Authority's estimate, the Contractor will waive its right to dispute the action unless within fifteen (15) Days following completion of the added/deleted work, the Contractor presents written proof that the Authority's estimate was in error.

2. Unit Price Change Orders.

- a. When the actual quantity of a Unit Price item varies from the Bid Form, compensation for the change in quantity will be calculated by multiplying the actual quantity by the Unit Price. This calculation may result in either an additive or deductive Final Change Order pursuant to the Contract Documents.
- b. No Mark up for Overhead and Profit. Because the Contract Unit Prices provided in the Bid Form include Overhead and Profit as determined by Contractor at the time of Bid submission, no mark up or deduction for Overhead and Profit will be included in Unit Price Change Orders.
- c. Bid items included on the Bid Form may be deducted from the Work in their entirety without any negotiated extra costs.
- d. Contractor acknowledges that unit quantities are estimates and agrees that the estimated unit quantities listed on the Bid Form will be adjusted to reflect the actual unit quantities which may result in an adjustment to the Contract

Unit Prices. Such an adjustment will be made by execution of a final additive or deductive Change Order following Contractor's completion of the Work. Upon notification, Contractor's failure to respond within seven (7) Days will result in Authority's issuance of a unit quantity adjustment to the Contract Unit Prices and/or Contract Time in accordance with the Contract Documents.

- e. The Authority or Contractor may make a Claim for an adjustment in the Unit Price in accordance with the Contract Documents if:
 - i. the quantity of any item of Unit Price Work performed by Contractor differs by twenty-five percent (25%) or more from the estimated quantity of such item indicated in the Contract; and
 - ii. there is no corresponding adjustment with respect to any other item of Work; and
 - iii. Contractor believes that Contractor is entitled to an increase in Unit Price as a result of having incurred additional expense or the Authority believes that the Authority is entitled to a decrease in Unit Price and the parties are unable to agree as to the amount of any such increase or decrease..
- 3. Lump Sum Change Orders. Compensation for Lump Sum Change Orders shall be limited to expenditures necessitated specifically by the Additional Work, and shall be segregated as follows:
 - a. Labor. The costs of labor will be the actual cost for wages prevailing locally for each craft or type of worker at the time the Additional Work is done, plus employer payments of payroll taxes and insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State or local laws, as well as assessment or benefits required by lawful collective bargaining agreements. The use of a labor classification which would increase the Additional Work cost will not be permitted unless the Contractor establishes the necessity for such new classifications. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental.
 - b. Materials. The cost of materials reported shall be at invoice or lowest current price at which such materials are locally available in the quantities involved, plus sales tax, freight, and delivery. Materials costs shall be based upon supplier or manufacturer's invoice. If invoices or other satisfactory evidence of cost are not furnished within fifteen (15) Days of delivery, then the Authority shall determine the materials cost, at its sole discretion.
 - c. Tool and Equipment Use. Costs for the use of small tools, which are tools that have a replacement value of \$1,000 or less, shall be considered included in the Overhead and Profit mark-ups established below. Regardless of ownership, the rates to be used in determining equipment use costs shall not exceed listed rates prevailing locally at equipment rental agencies, or distributors, at the time the Work is performed.
- 4. Time and Materials Change Orders.

- a. General. The term Time and Materials means the sum of all costs reasonably and necessarily incurred and paid by Contractor for labor, materials, and equipment in the proper performance of Additional Work. Except as otherwise may be agreed to in writing by the Authority, such costs shall be in amounts no higher than those prevailing in the locality of the Project, and shall include only the following items.
- b. Timely and Final Documentation.
 - i. T&M Daily Sheets. Contractor must submit timesheets, materials invoices, records of equipment hours, and records of rental equipment hours to the Authority's Representative for an approval signature **each day** Additional Work is performed. Failure to get the Authority's Representative's approval signature each Day shall result in a waiver of Contractor's right to claim these costs. The Authority's Representative's signature on time sheets only serves as verification that the Work was performed and is not indicative of Authority's agreement to Contractor's entitlement to the cost.
 - ii. T&M Daily Summary Sheets. All documentation of incurred costs ("T&M Daily Summary Sheets") shall be submitted by Contractor within **three (3) Days** of incurring the cost for labor, material, equipment, and special services as Additional Work is performed. Contractor's actual costs shall be presented in a summary table in an electronic spreadsheet file by labor, material, equipment, and special services. Each T&M Daily Summary Sheet shall include Contractor's actual costs incurred for the Additional Work performed that day and a cumulative total of Contractor's actual costs incurred for the Additional Work. Contractor's failure to provide a T&M Daily Summary Sheet showing a total cost summary within three (3) Days but within five (5) Days of performance of the Work will result in the Contractor's otherwise allowable overhead and profit being reduced by 50% for that portion of Additional Work which was not documented in a timely manner. Contractor's failure to submit the T&M Daily Summary Sheet within five (5) Days of performance of the Work will result in a total waiver of Contractor's right to claim these costs.
 - iii. T&M Total Cost Summary Sheet. Contractor shall submit a T&M Total Cost Summary Sheet, which shall include total actual costs, within **seven (7) Days** following completion of Authority approved Additional Work. Contractor's total actual cost shall be presented in a summary table in an electronic spreadsheet file by labor, material, equipment, and special services. Contractor's failure to submit the T&M Total Cost Summary Sheet within seven (7) Days of completion of the Additional Work will result in Contractor's waiver for any reimbursement of any costs associated with the T&M Summary Sheets or the performance of the Additional Work.
- c. Labor. The Contractor will be paid the cost of labor for the workers used in the actual and direct performance of the Work. The cost of labor will be the sum of the actual wages paid (which shall include any employer payments to or on behalf of the workers for health and welfare, pension, vacation, and

similar purposes) substantiated by timesheets and certified payroll for wages prevailing for each craft or type of workers performing the Additional Work at the time the Additional Work is done, and the labor surcharge set forth in the Department of Transportation publication entitled *Labor Surcharge and Equipment Rental Rates*, which is in effect on the date upon which the Work is accomplished and which is a part of the Contract. The labor surcharge shall constitute full compensation for all payments imposed by Federal, State, or local laws and for all other payments made to, or on behalf of, the workers, other than actual wages.

- i. Equipment Operator Exception. Labor costs for equipment operators and helpers shall be paid only when such costs are not included in the invoice for equipment rental.
 - ii. Foreman Exception. The labor costs for foremen shall be proportioned to all of their assigned work and only that applicable to the Additional Work shall be paid. Indirect labor costs, including, without limitation, the superintendent, project manager, and other labor identified in the Contract Documents will be considered Overhead.
- d. Materials. The cost of materials reported shall be itemized at invoice or lowest current price at which materials are locally available and delivered to the Project site in the quantities involved, plus the cost of sales tax, freight, delivery, and storage.
- i. Trade discounts available to the purchaser shall be credited to the Authority notwithstanding the fact that such discounts may not have been taken by Contractor.
 - ii. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the Authority's Representative.
 - iii. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on Additional Work items or the current wholesale price for such materials delivered to the Project site, whichever price is lower.
 - iv. If, in the opinion of the Authority's Representative, the cost of materials is excessive, or Contractor does not furnish satisfactory evidence of the cost of such materials, then the cost shall be deemed to be the lowest current wholesale price for the total quantity concerned delivered to the Project site less trade discounts.
 - v. The Authority reserves the right to furnish materials for the Additional Work and no Claim shall be allowed by Contractor for costs of such materials or Indirect Costs or profit on Authority furnished materials.
- e. Equipment.

- i. Rental Time. The rental time to be paid for equipment on the Project site shall be the time the equipment is in productive operation on the Additional Work being performed and, in addition, shall include the time required to move the equipment to the location of the Additional Work and return it to the original location or to another location requiring no more time than that required to return it to its original location; except that moving time will not be paid if the equipment is used on other than the Additional Work, even though located at the site of the Additional Work.
 - (a) Rental Time Not Allowed. Rental time will not be allowed while equipment is inoperative due to breakdowns.
 - (b) Computation Method. The following shall be used in computing the rental time of equipment on the Project site.
 - (i) When hourly rates are paid, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
 - (ii) When daily rates are paid, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation, and any part of an hour in excess of 4 hours will be considered one day of operation.
- ii. Rental Rates. Contractor will be paid for the use of equipment at the lesser of (i) the actual rental rate, or (ii) the rental rate listed for that equipment in the California Department of Transportation publication entitled *Labor Surcharge and Equipment Rental Rates*, which is in effect on the date upon which the Contract was executed. Such rental rates will be used to compute payments for equipment whether the equipment is under Contractor's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate (i.e., daily, monthly) resulting in the least total cost to the Authority for the total period of use. If it is deemed necessary by Contractor to use equipment not listed in the publication, an equitable rental rate for the equipment will be established by the Authority's Representative. Contractor may furnish cost data which might assist the Authority's Representative in the establishment of the rental rate.
- iii. Contractor-Owned Equipment.
 - (a) For Contractor-owned equipment, the allowed equipment rental rate will be limited to the monthly equipment rental rate using a utilization rate of 173 hours per month.
 - (b) For Contractor-owned equipment, the rental time to be paid for equipment on the Site shall be the time the equipment is in productive operation, unless, in the instance of standby time, the equipment could be actively used by Contractor on another project,

then Authority shall pay for the entirety of the time the equipment is on Site. It shall be Contractor's burden to demonstrate to the Authority that the equipment could be actively used on another project.

- iv. All equipment shall, in the opinion of the Authority's Representative, be in good working condition and suitable for the purpose for which the equipment is to be used.
 - v. Before construction equipment is used on the Additional Work, Contractor shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the Authority's Representative, in duplicate, a description of the equipment and its identifying number and the scheduled Additional Work activities planned.
 - vi. Unless otherwise specified, manufacturer's rating and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
- f. Special Services. Special work or services are defined as that Additional Work characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry.
- i. Invoices for Special Services. When the Authority's Representative and Contractor determine that a special service is required which cannot be performed by the forces of Contractor or those of any of its Subcontractors, the special service may be performed by an entity especially skilled in the Additional Work. Invoices for special services based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental costs, after validation of market values by the Authority's Representative.
 - ii. Discount and Allowance. All invoices for special services will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of Overhead and Profit specified herein, a total allowance not to exceed fifteen percent (15%) for Overhead and Profit will be added to invoices for Special Services.
 - iii. When the Authority determines, in its sole discretion, that competitive bidding is necessary for certain special services, Contractor shall solicit competitive bids for those special services.
- g. Excluded Costs. The term Time and Material shall not include any of the following costs or any other home or field office overhead costs, all of which are to be considered administrative costs covered by Contractor's allowance for Overhead and Profit.

- i. Overhead Cost. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, timekeepers, clerks, and other personnel employed by Contractor whether at the Site or in Contractor's principal office or any branch office, material yard, or shop for general administration of the Additional Work;
 - ii. Office Expenses. Expenses of Contractor's principal and branch offices;
 - iii. Capital Expenses. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Additional Work and charges against Contractor for delinquent payments;
 - iv. Negligence. Costs due to the negligence of Contractor or any Subcontractor or Supplier, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including without limitation the correction of Defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property;
 - v. Other. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in the Contract Documents;
 - vi. Small Tools. Cost of small tools valued at less than \$1,000 and that remain the property of Contractor;
 - vii. Administrative Costs. Costs associated with the preparation of Change Orders (whether or not ultimately authorized), cost estimates, or the preparation or filing of Claims;
 - viii. Anticipated Lost Profits. Expenses of Contractor associated with anticipated lost profits or lost revenues, lost income or earnings, lost interest on earnings, or unpaid retention;
 - ix. Home Office Overhead. Costs derived from the computation of a "home office overhead" rate by application of the *Eichleay, Allegheny*, burden fluctuation, or other similar methods;
 - x. Special Consultants and Attorneys. Costs of special consultants or attorneys, whether or not in the direct employ of Contractor, employed for services specifically related to the resolution of a Claim, dispute, or other matter arising out of or relating to the performance of the Additional Work.
- h. Overhead, Profit and Other Charges. The mark-up for overhead (including supervision) and profit on work added to the Contract shall be according to the following:
- i. "Net Cost" is defined as consisting of costs of labor, materials, and tools and equipment only excluding overhead and profit. The costs of applicable insurance and bond premium will be reimbursed to the

Contractor and subcontractors at cost only, without mark-up. Contractor shall provide Authority with documentation of the costs, including, but not limited to, payroll records, invoices, and such other information as Authority may reasonably request.

- ii. For Work performed by the Contractor's forces, the added cost for overhead and profit shall not exceed fifteen percent (15%) of the Net Cost of the Work.
 - iii. For Work performed by a subcontractor, the added cost for overhead and profit shall not exceed fifteen percent (15%) of the subcontractor's Net Cost of the Work to which the Contractor may add five percent (5%) of the subcontractor's Net Cost.
 - iv. For Work performed by a sub-subcontractor, the added cost for overhead and profit shall not exceed fifteen percent (15%) of the sub-subcontractor's Net Cost for Work to which the subcontractor and general contractor may each add an additional five percent (5%) of the Net Cost of the lower tier subcontractor.
 - v. No additional mark-up will be allowed for lower tier subcontractors, and in no case shall the added cost for overhead and profit payable by Authority exceed twenty-five percent (25%) of the Net Cost as defined herein, of the party that performs the Work.
5. All of the following costs are included in the markups for overhead and profit described above, and Contractor shall not receive any additional compensation for: Submittals, drawings, field drawings, Shop Drawings, including submissions of drawings; field inspection; General Superintendence; General administration and preparation of cost proposals, schedule analysis, Change Orders, and other supporting documentation; computer services; reproduction services; Salaries of project engineer, superintendent, timekeeper, storekeeper, and secretaries; Janitorial services; Small tools, incidentals and consumables; Temporary On-Site facilities (Offices, Telephones, High Speed Internet Access, Plumbing, Electrical Power, Lighting; Platforms, Fencing, Water), Jobsite and Home office overhead or other expenses; vehicles and fuel used for work otherwise included in the Contract Documents; Surveying; Estimating; Protection of Work; Handling and disposal fees; Final Cleanup; Other Incidental Work; Related Warranties; insurance and bond premiums.
6. For added or deducted Work by subcontractors, the Contractor shall furnish to the Authority the subcontractor's signed detailed record of the cost of labor, material and equipment, including the subcontractor markup for overhead and profit. The same requirement shall apply to sub-subcontractors
7. For added or deducted work furnished by a vendor or supplier, the Contractor shall furnish to the Authority a detailed record of the cost to the Contractor, signed by such vendor or supplier.
8. Any change in the Work involving both additions and deletions shall indicate a net total cost, including subcontracts and materials. Allowance for overhead and

profit, as specified herein, shall be applied if the net total cost is an increase in the Contract Price; overhead and profit allowances shall not be applied if the net total cost is a deduction to the Contract Price. The estimated cost of deductions shall be based on labor and material prices on the date the Contract was executed.

9. Contractor shall not reserve a right to assert impact costs, extended job site costs, extended overhead, constructive acceleration and/or actual acceleration beyond what is stated in the Change Order for Work. No claims shall be allowed for impact, extended overhead costs, constructive acceleration and/or actual acceleration due to a multiplicity of changes and/or clarifications. The Contractor may not change or modify the Authority's change order form in an attempt to reserve additional rights.
10. If the Authority disagrees with the proposal submitted by Contractor, it will notify the Contractor and the Authority will provide its opinion of the appropriate price and/or time extension. If the Contractor agrees with the Authority, a Change Order will be issued by the Authority. If no agreement can be reached, the Authority shall have the right to issue a unilateral Change Order setting forth its determination of the reasonable additions or savings in costs and time attributable to the extra or deleted work. Such determination shall become final and binding if the Contractor fails to submit a claim in writing to the Authority within fifteen (15) Days of the issuance of the unilateral Change Order, disputing the terms of the unilateral Change Order, and providing such supporting documentation for its position as the Authority may require.

C. Change of Contract Times.

1. The Contract Times may only be changed by a Change Order.
2. All changes in the Contract Price and/or adjustments to the Contract Times related to each change shall be included in Contractor's COR pursuant to this Article. No cost or time will be allowed for cumulative effects of multiple changes. All Change Orders must state that the Contract Time is not changed or is either increased or decreased by a specific number of days. Failure to include a change to time shall waive any change to the time unless the parties mutually agree in writing to postpone a determination of the change to time resulting from the Change Order.
3. Notice of the amount of the request for adjustment in the Contract Times with supporting data shall be delivered within seven (7) Days after such start of occurrence, unless Authority's Representative allows an additional period of time to ascertain more accurate data in support of the request. No extension of time or additional compensation shall be given for a delay if the Contractor failed to give notice in the manner and within the time prescribed.
4. Authority may elect, at Authority's sole discretion, to grant an extension in Contract Times, without Contractor's request, because of delays or other factors.
5. Use of Float and Critical Path.

- a. Float is for the benefit of the Project. Float shall not be considered for the exclusive use or benefit of either the Authority or the Contractor.
 - b. Contractor shall not be entitled to compensation, and Authority will not compensate Contractor, for delays which impact early completion. Any difference in time between the Contractor's early completion and the Contract Time shall be considered a part of the Project float.
6. Contractor's entitlement to an extension of the Contract Times is limited to a Authority-caused extension of the critical path, reduced by the Contractor's concurrent delays, and established by a proper time impact analysis. No time extension shall be allowed unless, and then only to the extent that, the Authority-caused delay extends the critical path beyond the previously approved Contract Time. If approved, the increase in time required to complete the Work shall be added to the Contract Time.
- a. Contractor shall not be entitled to an adjustment in the Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.
 - b. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions (as determined by the Authority), Acts of God, acts or failures to act of utility owners not under the control of Authority, or other causes not the fault of and beyond control of Authority and Contractor, then Contractor shall be entitled to a time extension when the Work stopped is on the critical path. Such a non-compensable adjustment shall be Contractor's sole and exclusive remedy for such delays. Contractor must submit a timely request in accordance with the requirements of this Article.
 - c. Utility-Related Delays.
 - i. Contractor shall immediately notify in writing the utility owner and Authority's Representative of its construction schedule and any subsequent changes in the construction schedule which will affect the time available for protection, removal, or relocation of utilities. Requests for extensions of time arising out of utility relocation or repair delays shall be filed in accordance with this Article.
 - ii. Contractor shall not be entitled to damages or additional payment for delays attributable to utility relocations or alterations if correctly located, as noted in the Contract Documents or by the Underground Service Alert survey.
7. Content for Requests for Contract Extension. Contractor's justification for entitlement shall be clear and complete citing specific Contract Document references and reasons on which Contractor's entitlement is based. At a minimum, each request for a time extension must include:

- a. Each request for an extension of Contract Time must identify the impacting event, in narrative form, providing a description of the delay event and sufficient justification as to why the Contractor is entitled to a time extension. Contractor must demonstrate that the delay arises from unforeseeable causes beyond the control and without the fault or negligence of both Contractor and any Subcontractors or Suppliers, or any other persons or organizations employed by any of them or for whose acts any of them may be liable, and that such causes in fact lead to performance or completion of the Work, or specified part in question, beyond the corresponding Contract Times, despite Contractor's reasonable and diligent actions to guard against those effects.
 - b. Each request for an extension of Contract Time must include a time impact analysis in CPM format, using the Contemporaneous Impacted As-Planned Schedule Analysis to calculate the impact of the delay event.
8. No Damages for Reasonable Delay.
 - a. Authority's liability to Contractor for delays for which Authority is responsible shall be limited to only an extension of time unless such delays were unreasonable under the circumstances. In no case shall Authority be liable for any costs which are borne by the Contractor in the regular course of business, including, but not limited to, home office overhead and other ongoing costs.
 - b. Damages caused by unreasonable Authority delay that impact the critical path, including delays caused by items that are the responsibility of the Authority pursuant to Government Code section 4215, shall be compensated at the Daily Rate established in the Special Conditions. No other calculations, proportions or formulas shall be used to calculate any delay damages.
 - c. Authority and Authority's Representative, and the officers, members, partners, employees, agents, consultants, or subcontractors of each of them, shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
9. Contractor's failure, neglect, or refusal to comply with the requirements of the Contract Documents, or any portion thereof, shall bar Contractor's request for extensions of the Contract Times. Such failure, neglect, or refusal prejudices Authority's and Authority's Representative's ability to recognize and mitigate delay, and such failure, neglect, or refusal prevent the timely analysis of requests for extensions of Contract Times, and whether such extensions may be warranted. Contractor hereby waives all rights to extensions of Contract Times due to delays or accelerations that result from or occur during periods of time for which Contractor fails, neglects, or refuses to fully comply with the requirements of this Article.

ARTICLE 45. FINAL ACCEPTANCE AND PAYMENT

- A. The acceptance of the Work on behalf of the Authority will be made by the Engineer. Such acceptance by the Authority shall not constitute a waiver of defects. When the Work has been accepted there shall be paid to Contractor a sum equal to the contract price less any amounts previously paid Contractor and less any amounts withheld by the Authority from Contractor under the terms of the contract. The final five percent (5%), or the percentage specified in the notice inviting bids where the Authority has adopted a finding of substantially complete, shall not become due and payable until five (5) calendar days shall have elapsed after the expiration of the period within which all claims may be filed under the provisions of Civil Code section 9356. If the Contractor has placed securities with the Authority as described herein, the Contractor shall be paid a sum equal to one hundred percent (100%) of the contract price less any amounts due the Authority under the terms of the Contract.
- B. Unless Contractor advises the Authority in writing prior to acceptance of the final five percent (5%) or the percentage specified in the notice inviting bids where the Authority has adopted a finding of substantially complete, or the return of securities held as described herein, said acceptance shall operate as a release to the Authority of all claims and all liability to Contractor for all things done or furnished in connection with this work and for every act of negligence of the Authority and for all other claims relating to or arising out of this work. If Contractor advises the Authority in writing prior to acceptance of final payment or return of the securities that there is a dispute regarding the amount due the Contractor, the Authority may pay the undisputed amount contingent upon the Contractor furnishing a release of all undisputed claims against the Authority with the disputed claims in stated amounts being specifically excluded by Contractor from the operation of the release. No payments, however, final or otherwise, shall operate to release Contractor or its sureties from the Faithful Performance Bond, Labor and Material Payment Bond, or from any other obligation under this contract.
- C. In case of suspension of the contract any unpaid balance shall be and become the sole and absolute property of the Authority to the extent necessary to repay the Authority any excess in the cost of the Work above the contract price.
- D. Final payment shall be made no later than 60 days after the date of acceptance of the Work by the Authority or the date of occupation, beneficial use and enjoyment of the Work by the Authority including any operation only for testing, start-up or commissioning accompanied by cessation of labor on the Work, provided that a release of liens and claims has been received from the Contractor pursuant to Civil Code section 8136. In the event of a dispute between the Authority and the Contractor, the Authority may withhold from the final payment an amount not to exceed 150% of the disputed amount.
- E. Within ten (10) calendar days from the time that all or any portion of the retention proceeds are received by Contractor, Contractor shall pay each of its subcontractors from whom retention has been withheld each subcontractor's share of the retention received. However, if a retention payment received by Contractor is specifically designated for a particular subcontractor, payment of the retention shall be made to the designated subcontractor if the payment is consistent with the terms of the subcontract.

ARTICLE 46. OCCUPANCY

The Authority reserves the right to occupy or utilize any portion of the Work at any time before completion, and such occupancy or use shall not constitute acceptance of any part of Work covered by this Contract. This use shall not relieve the Contractor of its responsibilities under the Contract.

ARTICLE 47. INDEMNIFICATION

To the fullest extent permitted by law, Contractor shall immediately defend (with counsel of the Authority's choosing), indemnify and hold harmless the Authority, officials, officers, agents, employees, and representatives, and each of them from and against:

- A. Any and all claims, demands, causes of action, costs, expenses, injuries, losses or liabilities, in law or in equity, of every kind or nature whatsoever, but not limited to, injury to or death, including wrongful death, of any person, and damages to or destruction of property of any person, arising out of, related to, or in any manner directly or indirectly connected with the Work or this Contract, including claims made by subcontractors for nonpayment, including without limitation the payment of all consequential damages and attorney's fees and other related costs and expenses, however caused, regardless of whether the allegations are false, fraudulent, or groundless, and regardless of any negligence of the Authority or its officers, employees, or authorized volunteers (including passive negligence), except the sole negligence or willful misconduct or active negligence of the Authority or its officials, officers, employees, or authorized volunteers.
- B. Contractor's defense and indemnity obligation herein includes, but is not limited to damages, fines, penalties, attorney's fees and costs arising from claims under the Americans with Disabilities Act (ADA) or other federal or state disability access or discrimination laws arising from Contractor's Work during the course of construction of the improvements or after the Work is complete, as the result of defects or negligence in Contractor's construction of the improvements.
- C. Any and all actions, proceedings, damages, costs, expenses, fines, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Contractor;
- D. Any and all losses, expenses, damages (including damages to the Work itself), attorney's fees, and other costs, including all costs of defense which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the Work and all of Contractor's obligations under the agreement. Such costs, expenses, and damages shall include all costs, including attorney's fees, incurred by the indemnified parties in any lawsuit to which they are a party.

Contractor shall immediately defend, at Contractor's own cost, expense and risk, with the Board of Directors's choosing, any and all such aforesaid suits, actions or other legal proceedings of every kind that may be brought or instituted against the Authority, its officials, officers, agents, employees and representatives. Contractor shall pay and satisfy any judgment, award or decree that may be rendered against the Authority, its officials, officers, employees, agents, employees and representatives, in any such suit, action or other legal proceeding. Contractor shall

reimburse the Authority, its officials, officers, agents, employees and representatives for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided. The only limitations on this provision shall be those imposed by Civil Code section 2782.

ARTICLE 48. PROCEDURE FOR RESOLVING DISPUTES

In accordance with Public Contract Code sections 20104 *et seq.* and other applicable law, public works claims of \$375,000 or less which arise between the Contractor and the Authority shall be resolved under the following statutory procedure unless the Authority has elected to resolve the dispute pursuant to Public Contract Code section 10240 *et seq.*

- A. **All Claims.** All claims shall be submitted in writing and accompanied by substantiating documentation. Claims must be filed on or before the date of final payment unless other notice requirements are provided in the contract. "Claim" means a separate demand by the Contractor for (1) a time extension, (2) payment of money or damages arising from work done by or on behalf of the Contractor and payment of which is not otherwise expressly provided for or the Contractor is not otherwise entitled, or (3) an amount the payment of which is disputed by the Authority.
- B. **Claims Under \$50,000.** The Authority shall respond in writing to the claim within 45 calendar days of receipt of the claim, or, the Authority may request, in writing, within 30 calendar days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the Authority may have. If additional information is needed thereafter, it shall be provided upon mutual agreement of the Authority and the Contractor. The Authority's written response shall be submitted 15 calendar days after receiving the additional documentation, or within the same period of time taken by the Contractor to produce the additional information, whichever is greater.
- C. **Claims over \$50,000 but less than or equal to \$375,000.** The Authority shall respond in writing within 60 calendar days of receipt, or, may request in writing within 30 calendar days of receipt of the claim, any additional documents supporting the claim or relating to defenses or claims the Authority may have against the Authority. If additional information is needed thereafter, it shall be provided pursuant to mutual agreement between the Authority and the Contractor. The Authority response shall be submitted within 30 calendar days after receipt of the further documents, or within the same period of time taken by the Contractor to produce the additional information or documents, whichever is greater. The Contractor shall make these records and documents available at all reasonable times, without any direct charge.
- D. **All Claims.** The Contractor will submit the claim justification in the following format:
 - 1. Summary of claim merit and price, and Contract clause pursuant to which the claim is made.
 - 2. List of documents relating to claim:
 - a. Specifications
 - b. Drawings

- c. Clarifications (Requests for Information)
 - d. Schedules
 - e. Other (All Related Documents)
- 3. Chronology of events and correspondence.
- 4. Analysis of claim merit.
- 5. Analysis of claim cost.
- 6. Analysis of time impact analysis in CPM format.
- 7. Cover letter and certification of validity of the claim.
- E. **All Claims.** If the Contractor disputes the Authority's response, or if the Authority fails to respond within the statutory time period(s), the Contractor may so notify the Authority within 15 calendar days of the receipt of the response or the failure to respond, and demand an informal conference to meet and confer for settlement. Upon such demand, the Authority shall schedule a meet and confer conference within 30 calendar days.
- F. The Contractor must comply with the claims filing procedures set forth in Government Code sections 900 *et seq.* for any claim or any portion thereof that remains in dispute, after the meet and confer conference. For purposes of those provisions, the time within which a claim must be filed shall be tolled from the time the Contractor submits the written claim until the time the claim is denied, including any time utilized for the meet and confer conference. Submission of a claim, properly certified, with all required supporting documentation, and written rejection or denial of all or part of the claim by the Authority, is a condition precedent to any action, proceeding, litigation, suit, general conditions claim, or demand for arbitration by Contractor.
- G. **Government Code Claim.** In addition to any and all contract requirements pertaining to notices of and requests for compensation or payment for extra work, disputed work, construction claims and/or changed conditions, the Contractor must comply with the claim procedures set forth in Government Code sections 900 *et seq.* prior to filing any lawsuit against the Authority. Such Government Code claims and any subsequent lawsuit based upon the Government Code claims shall be limited to those matters that remain unresolved after all procedures pertaining to extra work, disputed work, construction claims, and/or changed conditions have been followed by Contractor. If no such Government Code claim is submitted, or if the prerequisite contractual requirements are not otherwise satisfied as specified herein, Contractor shall be barred from bringing and maintaining a valid lawsuit against the Authority.

ARTICLE 49. AUTHORITY'S RIGHT TO TERMINATE CONTRACT

A. Termination for Cause by the Authority:

- 1. In the sole estimation of the Authority, if the Contractor refuses or fails to prosecute the Work or any separable part thereof with such diligence as will insure its completion within the time specified by the Contract Documents, or any

extension thereof, or fails to complete such Work within such time, or if the Contractor should be adjudged a 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, or the Contractor or any of its subcontractors should violate any of the provisions of this Contract, the Authority may serve written notice upon the Contractor and its Surety of the Authority's intention to terminate this Contract. This notice of intent to terminate shall contain the reasons for such intention to terminate this Contract, and a statement to the effect that the Contractor's right to perform this Contract shall cease and terminate upon the expiration of ten (10) calendar days unless such violations have ceased and arrangements satisfactory to the Authority have been made for correction of said violations.

2. In the event that the Authority serves such written notice of termination upon the Contractor and the Surety, the Surety shall have the right to take over and perform the Contract. If the Surety does not: (1) give the Authority written notice of Surety's intention to take over and commence performance of the Contract within 15 calendar days of the Authority's service of said notice of intent to terminate upon Surety; and (2) actually commence performance of the Contract within 30 calendar days of the Authority's service of said notice upon Surety; then the Authority may take over the Work and prosecute the same to completion by separate contract or by any other method it may deem advisable for the account and at the expense of the Contractor.
3. In the event that the Authority elects to obtain an alternative performance of the Contract as specified above: (1) the Authority may, without liability for so doing, take possession of and utilize in completion of the Work such materials, appliances, plants and other property belonging to the Contractor that are on the site and reasonably necessary for such completion (A special lien to secure the claims of the Authority in the event of such suspension is hereby created against any property of Contractor taken into the possession of the Authority under the terms hereof and such lien may be enforced by sale of such property under the direction of the Board of Directors without notice to Contractor. The proceeds of the sale after deducting all expenses thereof and connected therewith shall be credited to Contractor. If the net credits shall be in excess of the claims of the Authority against Contractor, the balance will be paid to Contractor or Contractor's legal representatives.); and (2) Surety shall be liable to the Authority for any cost or other damage to the Authority necessitated by the Authority securing an alternate performance pursuant to this Article.

B. Termination for Convenience by the Authority:

1. The Authority may terminate performance of the Work called for by the Contract Documents in whole or, from time to time, in part, if the Authority determines that a termination is in the Authority's interest.
2. The Contractor shall terminate all or any part of the Work upon delivery to the Contractor of a Notice of Termination specifying that the termination is for the convenience of the Authority, the extent of termination, and the Effective Date of such termination.

3. After receipt of Notice of Termination, and except as directed by the Authority's Representative, the Contractor shall, regardless of any delay in determining or adjusting any amounts due under this Termination for Convenience clause, immediately proceed with the following obligations:
 - a. Stop Work as specified in the Notice.
 - b. Complete any Work specified in the Notice of Termination in a least cost/shortest time manner while still maintaining the quality called for under the Contract Documents.
 - c. Leave the property upon which the Contractor was working and upon which the facility (or facilities) forming the basis of the Contract Document is situated in a safe and sanitary manner such that it does not pose any threat to the public health or safety.
 - d. Terminate all subcontracts to the extent that they relate to the portions of the Work terminated.
 - e. Place no further subcontracts or orders, except as necessary to complete the continued portion of the Contract.
 - f. Submit to the Authority's Representative, within ten (10) calendar days from the Effective Date of the Notice of Termination, all of the usual documentation called for by the Contract Documents to substantiate all costs incurred by the Contractor for labor, materials and equipment through the Effective Date of the Notice of Termination. Any documentation substantiating costs incurred by the Contractor solely as a result of the Authority's exercise of its right to terminate this Contract pursuant to this clause, which costs the contractor is authorized under the Contract documents to incur, shall: (1) be submitted to and received by the Engineer no later than 30 calendar days after the Effective Date of the Notice of Termination; (2) describe the costs incurred with particularity; and (3) be conspicuously identified as "Termination Costs occasioned by the Authority's Termination for Convenience."
4. Termination of the Contract shall not relieve Surety of its obligation for any just claims arising out of or relating to the Work performed.
5. In the event that the Authority exercises its right to terminate this Contract pursuant to this clause, the Authority shall pay the Contractor, upon the Contractor's submission of the documentation required by this clause and other applicable provisions of the Contract Documents, the following amounts:
 - a. All actual reimbursable costs incurred according to the provisions of this Contract.
 - b. A reasonable allowance for profit on the cost of the Work performed, provided Contractor establishes to the satisfaction of the Authority's Representative that it is reasonably probable that Contractor would have made a profit had the Contract been completed and provided further, that the profit allowed shall in no event exceed fifteen (15%) percent of the costs.

- c. A reasonable allowance for Contractor's administrative costs in determining the amount payable due to termination of the Contract under this Article.
- C. Notwithstanding any other provision of this Article, when immediate action is necessary to protect life and safety or to reduce significant exposure or liability, the Authority may immediately order Contractor to cease Work on the Project until such safety or liability issues are addressed to the satisfaction of the Authority or the Contract is terminated.

ARTICLE 50. WARRANTY AND GUARANTEE OF WORK

- A. Contractor hereby warrants that materials and Work shall be completed in conformance with the Contract Documents and that the materials and Work provided will fulfill the requirements of this Warranty. Contractor hereby agrees to repair or replace, at the discretion of the Authority, any or all Work that may prove to be defective in its workmanship, materials furnished, methods of installation or fail to conform to the Contract Document requirements together with any other Work which may be damaged or displaced by such defect(s) within a period of one (1) year from the date of the Notice of Completion of the Project without any expense whatever to the Authority, ordinary wear and tear and unusual abuse and neglect excepted. Contractor shall be required to promptly repair or replace defective equipment or materials, at Contractor's option. All costs associated with such corrective actions and testing, including the removal, replacement, and reinstitution of equipment and materials necessary to gain access, shall be the sole responsibility of the Contractor.
- B. For any Work so corrected, Contractor's obligation hereunder to correct defective Work shall be reinstated for an additional one (1) year period, commencing with the date of acceptance of such corrected Work. The reinstatement of the one (1) year warranty shall apply only to that portion of work that was corrected. Contractor shall perform such tests as Authority may require to verify that any corrective actions, including, without limitation, redesign, repairs, and replacements comply with the requirements of the Contract. In the event of Contractor's failure to comply with the above-mentioned conditions within ten (10) calendar days after being notified in writing of required repairs, to the reasonable satisfaction of the Authority, the Authority shall have the right to correct and replace any defective or non-conforming Work and any work damaged by such work or the replacement or correction thereof at Contractor's sole expense. Contractor shall be obligated to fully reimburse the Authority for any expenses incurred hereunder immediately upon demand.
- C. In addition to the warranty set forth in this Article, Contractor shall obtain for Authority all warranties that would be given in normal commercial practice and assign to Authority any and all manufacturer's or installer's warranties for equipment or materials not manufactured by Contractor and provided as part of the Work, to the extent that such third-party warranties are assignable and extend beyond the warranty period set forth in this Article. Contractor shall furnish the Authority with all warranty and guarantee documents prior to final Acceptance of the Project by the Authority as required.
- D. When specifically indicated in the Contract Documents or when directed by the Engineer, the Authority may furnish materials or products to the Contractor for installation. In the event any act or failure to act by Contractor shall cause a

warranty applicable to any materials or products purchased by the Authority for installation by the Contractor to be voided or reduced, Contractor shall indemnify Authority from and against any cost, expense, or other liability arising therefrom, and shall be responsible to the Authority for the cost of any repairs, replacement or other costs that would have been covered by the warranty but for such act or failure to act by Contractor.

- E. The Contractor shall remedy at its expense any damage to Authority-owned or controlled real or personal property.
- F. The Authority shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage. The Contractor shall within ten (10) calendar days after being notified commence and perform with due diligence all necessary Work. If the Contractor fails to promptly remedy any defect, or damage; the Authority shall have the right to replace, repair or otherwise remedy the defect, or damage at the Contractor's expense.
- G. In the event of any emergency constituting an immediate hazard to health, safety, property, or licensees, when caused by Work of the Contractor not in accordance with the Contract requirements, the Authority may undertake at Contractor's expense, and without prior notice, all Work necessary to correct such condition.
- H. Acceptance of Defective Work.
 - 1. If, instead of requiring correction or removal and replacement of Defective Work, the Authority prefers to accept it, Authority may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Authority's evaluation of and determination to accept such Defective Work and for the diminished value of the Work.
 - 2. If any acceptance of defective work occurs prior to release of the Project Retention, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Authority shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work and all costs incurred by Authority.
 - 3. If the Project Retention is held in an escrow account as permitted by the Contract Documents, Contractor will promptly alert the escrow holder, in writing, of the amount of Retention to be paid to Authority.
 - 4. If the acceptance of Defective Work occurs after release of the Project Retention, an appropriate amount will be paid by Contractor to Authority.
- I. Authority May Correct Defective Work.
 - 1. If Contractor fails within a reasonable time after written notice from Authority's Representative to correct Defective Work, or to remove and replace rejected Work as required by Authority, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with

any other provision of the Contract Documents, Authority may, after seven (7) Days' written notice to Contractor, correct, or remedy any such deficiency.

2. In connection with such corrective or remedial action, Authority may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Authority has paid Contractor but which are stored elsewhere. Contractor shall allow Authority and Authority's Representative, and the agents, employees, other contractors, and consultants of each of them, access to the Site to enable Authority to exercise the rights and remedies to correct the Defective Work.
 3. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Authority correcting the Defective Work will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions into the Contract Documents with respect to the Work; and Authority shall be entitled to an appropriate decrease in the Contract Price.
 4. Such claims, costs, losses and damages will include, but not be limited to, all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Defective Work.
 5. If the Change Order is executed after all payments under the Contract have been paid by Authority and the Project Retention is held in an escrow account as permitted by the Contract Documents, Contractor will promptly alert the escrow holder, in writing, of the amount of Retention to be paid to Authority.
 6. If the Change Order is executed after release of the Project Retention, an appropriate amount will be paid by Contractor to Authority.
 7. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to Authority correcting Defective work.
- J. Nothing in the Warranty or in the Contract Documents shall be construed to limit the rights and remedies available to Authority at law or in equity, including, but not limited to, Code of Civil Procedure section 337.15.

ARTICLE 51. DOCUMENT RETENTION & EXAMINATION

- A. In accordance with Government Code section 8546.7, records of both the Authority and the Contractor shall be subject to examination and audit by the State Auditor General for a period of three (3) years after final payment.
- B. Contractor shall make available to the Authority any of the Contractor's other documents related to the Project immediately upon request of the Authority.

- C. In addition to the State Auditor rights above, the Authority shall have the right to examine and audit all books, estimates, records, contracts, documents, bid documents, subcontracts, and other data of the Contractor (including computations and projections) related to negotiating, pricing, or performing the modification in order to evaluate the accuracy and completeness of the cost or pricing data at no additional cost to the Authority, for a period of four (4) years after final payment.

ARTICLE 52. SEPARATE CONTRACTS

- A. The Authority reserves the right to let other contracts in connection with this Work or on the Project site. Contractor shall permit other contractors reasonable access and storage of their materials and execution of their work and shall properly connect and coordinate its Work with theirs.
- B. To ensure proper execution of its subsequent Work, Contractor shall immediately inspect work already in place and shall at once report to the Engineer any problems with the Work in place or discrepancies with the Contract Documents.
- C. Contractor shall ascertain to its own satisfaction the scope of the Project and nature of any other contracts that have been or may be awarded by the Authority in prosecution of the Project to the end that Contractor may perform this Contract in the light of such other contracts, if any. Nothing herein contained shall be interpreted as granting to Contractor exclusive occupancy at site of the Project. Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the Project. If simultaneous execution of any contract for the Project is likely to cause interference with performance of some other contract or contracts, the Engineer shall decide which Contractor shall cease Work temporarily and which contractor shall continue or whether work can be coordinated so that contractors may proceed simultaneously. The Authority shall not be responsible for any damages suffered or for extra costs incurred by Contractor resulting directly or indirectly from award, performance, or attempted performance of any other contract or contracts on the Project site.

ARTICLE 53. NOTICE AND SERVICE THEREOF

All notices shall be in writing and either served by personal delivery or mailed to the other party as designated in the Bid Forms. Written notice to the Contractor shall be addressed to Contractor's principal place of business unless Contractor designates another address in writing for service of notice. Notice to Authority shall be addressed to the Authority as designated in the Notice Inviting Bids unless Authority designates another address in writing for service of notice. Notice shall be effective upon receipt or five (5) calendar days after being sent by first class mail, whichever is earlier. Notice given by facsimile shall not be effective unless acknowledged in writing by the receiving party.

ARTICLE 54. NOTICE OF THIRD PARTY CLAIMS

Pursuant to Public Contract Code section 9201, the Authority shall provide the Contractor with timely notification of the receipt of any third-party claims relating to the Contract. The Authority is entitled to recover reasonable costs incurred in providing such notification.

ARTICLE 55. STATE LICENSE BOARD NOTICE

Contractors are required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against contractors if a complaint regarding a patent act or omission is filed within four (4) years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within ten (10) years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, California 95826.

ARTICLE 56. INTEGRATION

- A. **Oral Modifications Ineffective.** No oral order, objection, direction, claim or notice by any party or person shall affect or modify any of the terms or obligations contained in the Contract Documents.
- B. **Contract Documents Represent Entire Contract.** The Contract Documents represent the entire agreement of the Authority and Contractor.

ARTICLE 57. ASSIGNMENT OF CONTRACT

Contractor shall not assign, transfer, convey, sublet or otherwise dispose of the rights or title of interest of any or all of this contract without the prior written consent of the Authority. Any assignment or change of Contractor's name of legal entity without the written consent of the Authority shall be void. Any assignment of money due or to become due under this Contract shall be subject to a prior lien for services rendered or Material supplied for performance of Work called for under the Contract Documents in favor of all persons, firms, or corporations rendering such services or supplying such Materials to the extent that claims are filed pursuant to the Civil Code, the Code of Civil Procedure or the Government Code.

ARTICLE 58. CHANGE IN NAME AND NATURE OF CONTRACTOR'S LEGAL ENTITY

Should a change be contemplated in the name or nature of the Contractor's legal entity, the Contractor shall first notify the Authority in order that proper steps may be taken to have the change reflected on the Contract and all related documents. No change of Contractor's name or nature will affect Authority's rights under the Contract, including but not limited to the bonds.

ARTICLE 59. ASSIGNMENT OF ANTITRUST ACTIONS

Pursuant to Public Contract Code section 7103.5, in entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, Contractor or subcontractor offers and agrees to assign to the Authority all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 USC, Section 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from the purchase of goods, services, or materials pursuant to this contract or any subcontract. This assignment shall be made and become effective at the time the Authority tenders final payment to the Contractor, without further acknowledgment by the parties.

ARTICLE 60. PROHIBITED INTERESTS

No Authority official or representative who is authorized in such capacity and on behalf of the Authority to negotiate, supervise, make, accept, or approve, or to take part in negotiating, supervising, making, accepting or approving any engineering, inspection, construction or material supply contract or any subcontract in connection with construction of the project, shall be or become directly or indirectly interested financially in the Contract.

ARTICLE 61. CONTROLLING LAW

Notwithstanding any subcontract or other contract with any subcontractor, supplier, or other person or organization performing any part of the Work, this Contract shall be governed by the law of the State of California excluding any choice of law provisions.

ARTICLE 62. JURISDICTION; VENUE

Contractor and any subcontractor, supplier, or other person or organization performing any part of the Work agrees that any action or suits at law or in equity arising out of or related to the bidding, award, or performance of the Work shall be maintained in the Superior Court of San Luis Obispo County, California, and expressly consent to the jurisdiction of said court, regardless of residence or domicile, and agree that said court shall be a proper venue for any such action.

ARTICLE 63. LAWS AND REGULATIONS

- A. Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on conduct of work as indicated and specified. If Contractor observes that drawings and specifications are at variance therewith, it shall promptly notify the Engineer in writing and any necessary changes shall be adjusted as provided for in this Contract for changes in work. If Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Engineer, it shall bear all costs arising therefrom.
- B. Contractor shall be responsible for familiarity with the Americans with Disabilities Act ("ADA") (42 U.S.C. § 12101 et seq.). The Work will be performed in compliance with ADA regulations.

ARTICLE 64. PATENTS

Contractor shall hold and save the Authority, officials, officers, employees, and authorized volunteers harmless from liability of any nature or kind of claim therefrom including costs and expenses for or on account of any patented or unpatented invention, article or appliance manufactured, furnished or used by Contractor in the performance of this contract.

ARTICLE 65. OWNERSHIP OF CONTRACT DOCUMENTS

All Contract Documents furnished by the Authority are Authority property. They are not to be used by Contractor or any subcontractor on other work nor shall Contractor claim any right to such documents. With exception of one complete set of Contract Documents, all documents shall be returned to the Authority on request at completion of the Work.

ARTICLE 66. NOTICE OF TAXABLE POSSESSORY INTEREST

In accordance with Revenue and Taxation Code section 107.6, the Contract Documents may create a possessory interest subject to personal property taxation for which Contractor will be responsible.

ARTICLE 67. SURVIVAL OF OBLIGATIONS

All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

00 73 13 – SPECIAL CONDITIONS

1.1 Engineer of Record.

- A. For purposes of this Project, the Engineer of Record or Engineer shall be: Anil Dean, Stantec Consulting Services.

1.2 Location of the Project.

- A. The Project is located at the Henderson Reservoir in Amador County, California, approximately 4 miles west of the City of Sutter Creek, California.
- B. The general location of the Project is shown on Authority Drawing No. 175578307.

1.3 Shared Cost Savings for Reductions in Contract Price; Value Engineering. Should the cost of construction be less than the agreed upon Contract Price, then the savings shall be shared between the Contractor and the Authority. The Contractor shall receive twenty-five percent (25%) of any reductions realized in the Contract Price, and the Authority shall receive the remaining seventy-five percent (75%) of the savings.

1.4 Status of the Project Area and Rights-of-Way.

- A. Authority, at its expense, will provide all rights-of-way or permits, or both, covering the crossing of private property and public and private rights-of-way necessary for the permanent Work; provided, however, Contractor shall, at its expense, obtain any bonds or insurance policies or pay any fees and enter into any agreements required by a controlling authority, e.g., Caltrans or railroad companies with jurisdiction, before Contractor enters upon any property or right-of-way under the jurisdiction of any such controlling authority for the purpose of performing Work.
- B. Authority has acquired or is negotiating to acquire any rights-of-way, or both, necessary for the permanent Work.
- C. If such permits are required, all operations of Contractor shall conform to the restrictions, regulations, and requirements set forth in said permits, copies of which will be included in the Contract Documents.
- D. Contractor may be required, as a condition for receiving final payment, to obtain, and provide Authority's Representative with copies of, executed damage releases from the owners of public and private property whose property has been damaged by the Work. The damage releases will be on a form provided by Authority.
- E. Contractor shall, also, as a condition for receiving final payment, obtain, and provide Authority's Representative with copies of, executed damage releases from the owners of certain public and private property or areas which have been crossed by the Work or otherwise affected by the Work. The damage releases will be on a form provided by Authority.

1.5 Site Data.

- A. The data provided herein is for the information of Contractor and is subject to all limitations and conditions set forth in the Contract Documents.

Copies of these reports, drawings and other materials may be examined at Authority's office during regular business hours.

1.6 Pre-Purchased or Pre-Negotiated Material.

[NOT USED.]

1.7 Designation of Authority's Representative.

- A. Unless otherwise modified by Authority, Authority's Representative shall be Steven Whittlesey.

1.8 Modification of Hours of Work.

[NOT USED.]

1.9 Project Retention

In accordance with Public Contract Code § 7201, Authority will withhold 5% of each progress payment as retention on the Project.

1.10 Reverse Liquidated Damages Due to Unreasonable Authority Delay.

- A. In compliance with the provisions of California Public Contract Code § 7102, the Contractor will be compensated for damages incurred due to delays in completing the Work due solely to the fault of the Authority, where such delay is unreasonable under the circumstances and not contemplated by the parties and such delay is not the result of Additional Work. The Contractor and Authority agree that determining actual damages is impracticable and extremely difficult. As such, the Contractor shall be entitled to the appropriate time extension and to payment of liquidated damages in the sum of **\$2,500** per Day of delay in excess of the time specified for the Completion of the Work. Such amount shall constitute the only payment allowed and shall necessarily include all overhead (direct or indirect), all profit, all administrative costs, all bond costs, all labor, materials, equipment and rental costs, and any other costs, expenses and fees incurred or sustained as a result of such delay. The Contractor expressly agrees to be limited solely to the liquidated damages for all such delays as defined in this subsection.

1.11 Liquidated Damages Due to Contractor Delay.

- A. Time is of the essence. Should Contractor fail to complete all or any part of the Work within the time specified in the Contract Documents, Authority will suffer damage, the amount of which is difficult, if not impossible, to ascertain and, pursuant to the authority of Government Code section 53069.85, Authority shall therefore be entitled to **\$2,500** per Day as liquidated damages for each Day or part thereof that actual completion extends beyond the time specified.

- B. Liquidated damages may be deducted from progress payments due Contractor, Project retention or may be collected directly from Contractor, or from Contractor's surety. These provisions for liquidated damages shall not prevent Authority, in case of Contractor's default, from terminating the Contractor.

1.12 Utility Outages – Notices to Residents.

- A. Should Contractor's operations require interruption of any utility service, Contractor shall notify Authority at least ten (10) Days prior to the scheduled outage. Contractor will notify all impacted residents on a form provided by Authority at least seven (7) Days prior to the scheduled outage.
- B. Contractor shall be responsible for providing, at its cost, any temporary utility or facilities necessitated by the utility outage.

1.13 Schedule Constraints.

All work involving sliplining, backfilling, excavation, and work requiring entry into Henderson Reservoir shall be completed by September 30, 2025.

1.14 Noise Restrictions

- A. Contractor shall use only such equipment on the Work and in such state of repair so that the emission of sound therefrom is within the noise tolerance level of that equipment as established by Cal/OSHA.
- B. Contractor shall comply with the most restrictive of the following: (1) local sound control and noise level rules, regulations and ordinances and (2) the requirements contained in these Contract Documents, including hours of operation requirements.
- C. No internal combustion engine shall be operated on the Project without a muffler of the type recommended by the manufacturer. Should any muffler or other control device sustain damage or be determined to be ineffective or defective, the Contractor shall promptly remove the equipment and shall not return said equipment to the job until the device is repaired or replaced. Said noise and vibration level requirements shall apply to all equipment on the job or related to the job, including but not limited to, trucks, transit mixers or transit equipment that may or may not be owned by the Contractor.

1.15 Safety Programs.

[NOT USED.]

1.16 Coordination with Other Contractors.

- A. In addition to the Contract requirements relating to other work at the Site, Authority anticipates that other contractors will be performing work within the Site. Specifically:

ARSA Public Works Staff: Repair of Existing Sluice Gate

- B. Authority has considered these other contractors when determining the Contract Times and no additional time or compensation will be added to the Contract due to these other contractors.

END OF SPECIAL CONDITIONS

01 00 00 – GENERAL REQUIREMENTS

PART 1 -- GENERAL

1.1 DESCRIPTION

- A. The work generally includes, but is not limited to, furnishing all products, labor, equipment, material, transportation, and incidental services to construct the following:
 - 1. Sliplining of existing 20" concrete outlet pipe using 16" DR17 HDPE, ASTM F714 pipe for approximately 170 LF total and grouting the annulus between the host pipe and the sliplined pipe.
 - 2. Removal and replacement of approximately 95 LF of 20" AC Concrete pipe with 16" DR17 HDPE, ASTM F714 pipe.
 - 3. Removal and replacement of approximately 100 LF of 20" AC Concrete pipe with 24" DR17 HDPE, ASTM F714 pipe.
 - 4. Connection of the sliplined and open-cut sections of the 16" DR17 HDPE Pipe, and connection of the 16" DR17 HDPE pipe to the existing 20" Ductile Iron Pipe at the concrete junction chamber and connection of the 20" DR17 HDPE pipe to the existing 20" Ductile Iron Pipe at the concrete junction box.
 - 5. Completely backfill with cement-grout an existing abandoned-in-place 16-inch diameter outlet pipe which proceeds beneath approximately the middle of the dam.
 - 6. Field verification of post-installation conditions using a rover with a tilt and pan CCTV camera.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 LAYOUT OF WORK AND QUANTITY SURVEYS

- A. General. The Contractor shall utilize a properly licensed surveyor to perform all layout surveys required for the control and completion of the Work, and all necessary surveys to compute quantities of Work performed.

Authority and/or the Engineer of Record has established primary control to be used by the Contractor for establishing lines and grades required for the Work.

Primary control consists of benchmarks and horizontal control points in the vicinity of the Work. A listing and identification of the primary control is provided on the Drawings. Before beginning any layout work or construction activity, the Contractor shall check and verify primary control, and shall advise the Authority Representative of any discrepancies.

- B. Quantity surveys. The Contractor shall perform such surveys and computations as are necessary to determine quantities of Work performed or placed during each progress payment period, and shall perform all surveys necessary for the Authority Representative to determine final quantities of Work in place. The Authority Representative will determine final quantities based upon the survey data provided by the Contractor, and the design lines and grades. If requested by the Authority Representative, the Contractor shall provide an electronic copy of data used for quantity computations.

All surveys performed for measurement of final quantities of Work and material shall be subject to approval of Authority's Representative. Unless waived by Authority's Representative in each specific case, quantity surveys made by the Contractor shall be made in the presence of Authority's Representative.

- C. Surveying

- 1. Accuracy. Degree of accuracy shall be an order high enough to satisfy tolerances specified for the Work and the following:

- (a) Right-of-way and alignment of tangents and curves shall be within 0.1 foot.

- (b) Structure points shall be set within 0.01 foot, except where operational function of the special features or installation of metalwork and equipment require closer tolerances. When formwork has been placed and is ready for concrete, the Contractor shall check the formwork for conformance with the drawings and to ensure that the forms are sufficiently within the tolerance limits for the completed work.

- (c) Cross-section points shall be located within 0.1 foot, horizontally and vertically.

- (d) Aerial Mapping shall meet National Mapping Standards for 2-foot contour intervals.

- D. Records. Survey data shall be recorded in accordance with recognized professional surveying standards. Original field notes, computations, and other surveying data shall be recorded on electronic data collectors or in standard field books and must be of sufficient quality to enable the Contractor to prepare accurate record drawings as required by the Contract Documents.

- E. Cost. Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required for surveys for the layout of work and quantity surveys shall be included in the Schedule of Pay Items for items of work requiring the surveys. No additional compensation shall be made to the Contractor for this Work.

3.2 SCHEDULE

- A. **Estimated Schedule.** Within 14 Days after the issuance of the Notice to Proceed, Contractor shall prepare a Project schedule and shall submit this to the Engineer for Approval. The receipt or Approval of any schedules by the Engineer or the Authority shall not in any way relieve the Contractor of its obligations under the Contract Documents. The Contractor is fully responsible to determine and provide for any and all staffing and resources at levels which allow for good quality and timely completion of the Project. Contractor's failure to incorporate all elements of Work required for the performance of the Contract or any inaccuracy in the schedule shall not excuse the Contractor from performing all Work required for a completed Project within the specified Contract time period. If the required schedule is not received by the time the first payment under the Contract is due, Contractor shall not be paid until the schedule is received, reviewed and accepted by the Engineer.
- B. **Schedule Contents.** The schedule shall indicate the beginning and completion dates of all phases of construction; critical path for all critical, sequential time related activities; and "float time" for all "slack" or "gaps" in the non-critical activities. The schedule shall clearly identify all staffing and other resources which in the Contractor's judgment are needed to complete the Project within the time specified for completion. The overall Project Schedule duration shall be within the Contract time.
- C. **Schedule Updates.** Contractor shall continuously update its construction schedule. Contractor shall submit an updated and accurate construction schedule to the Engineer monthly when requested to do so by Engineer. Contractor shall also submit schedules showing a three week detailed look-ahead at bi-weekly meetings conducted with the Authority. The Engineer may withhold progress payments or other amounts due under the Contract Documents if Contractor fails to submit an updated and accurate construction schedule.

3.3 TEMPORARY FIELD OFFICE

NOT USED.

OR

- A. **Inspector's Field Office.** Contractor shall be responsible for providing the inspector's field office. The office shall be a substantial waterproof construction with adequate natural light and ventilation by means of stock design windows. Door shall have a key type lock or padlock clasp. The office shall have heating and air conditioning and shall be equipped with a telephone, a telephone answering machine, high-speed internet connection, and a fax machine at Contractor's expense. A table satisfactory for the study of plans and two chairs shall be provided by Contractor. Contractor shall provide and pay for adequate electric lights, local telephone service, and adequate heat and air conditioning for the field office until authorized removal.
- B. **Utility Services.** Contractor, at its expense, shall arrange for, develop and maintain all utilities, including but not limited to water, electric power, sewage disposal and telephone communications, at the Site to meet the requirements of the Work.

- C. Sanitation. The Contractor shall provide sanitary facilities for all persons working on the project. These facilities shall be kept clean and shall not be unsightly or produce odors.

3.4 PROTECTION OF WORK AND PROPERTY

- A. All traffic detector loops, fences, walls, culverts, property line monuments, or other obstructions (except property line monuments within five (5) feet of the centerline of the mains) which are removed, damaged, or destroyed in the course of the Work, shall be replaced or repaired to the original condition. If Contractor provides the Authority with reasonable notice of the need for such repair or replacement, it shall be performed by the Authority. If the Contractor fails to provide the Authority with reasonable notice, the repair or replacement shall be performed by and at the expense of the Contractor to the satisfaction of the Authority, whether or not those obstructions have been shown on the Plans, unless otherwise stated herein. It is then the Contractor's responsibility to employ at its expense a Licensed Land Surveyor to restore all property line monuments located more than five (5) feet from the centerline of the mains, which are destroyed or obliterated. Property line monuments located within five (5) feet of the centerline of the mains will be replaced by the Authority at no expense to the Contractor, provided the Authority is notified at least 48 hours before the property line monuments are damaged.
- B. Contractor shall provide such heat, covering, and enclosures as are necessary to protect all Work, materials, equipment, appliances, and tools against damage by weather conditions.
- C. Contractor shall take adequate precautions to protect existing sidewalks, curbs, pavements, utilities, and other adjoining property and structures, and to avoid damage thereto, and Contractor shall repair any damage thereto caused by the Work operations. Contractor shall:
 - 1. Enclose the working area with a substantial barricade, and arrange work to cause minimum amount of inconvenience and danger to the public.
 - 2. Provide substantial barricades around any shrubs or trees indicated to be preserved.
 - 3. Deliver materials to the Project site over a route designated by the Engineer.
 - 4. Provide any and all dust control required and follow the Applicable air quality regulations as appropriate. If the Contractor does not comply, the Authority shall have the immediate authority to provide dust control and deduct the cost from payments to the Contractor.
 - 5. Confine Contractor's apparatus, the storage of materials, and the operations of its workers to limits required by law, ordinances, permits, or directions of the Engineer. Contractor shall not unreasonably encumber the Project site with its materials.
 - 6. Take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are

disturbed by accident, they shall be replaced by a civil engineer or land surveyor acceptable to the Authority, at no cost to the Authority.

7. Ensure that existing facilities, fences and other structures are all adequately protected and that, upon completion of all Work, all facilities that may have been damaged are restored to a condition acceptable to the Authority.
 8. Preserve and protect from injury all buildings, pole lines and all direction, warning and mileage signs that have been placed within the right-of-way.
 9. At the completion of work each day, leave the Project site in a clean, safe condition.
 10. Comply with any stage construction and traffic control plans. Access to residences and businesses shall be maintained at all times, unless otherwise permitted in writing by the Authority.
- D. These precautionary measures will apply continuously and not be limited to normal working hours. Full compensation for the Work involved in the preservation of life, safety and property as above specified shall be considered as included in the prices paid for the various contract items of Work, and no additional allowance will be made therefore.
- E. Should damage to persons or property occur as a result of the Work, Contractor shall be responsible for proper investigation, documentation, including video or photography, to adequately memorialize and make a record of what transpired. The Authority shall be entitled to inspect and copy any such documentation, video, or photographs.

3.5 SITE CONDITIONS SURVEYS

A. Work Included.

Contractor shall conduct thorough pre-construction and post-construction site condition surveys of the entire project area. Site Conditions surveys shall include written documentation of the conditions found, as well as photographs and video recordings of the area within at least 80 feet of any construction area and staging area. The written notes, photographs, and video shall be suitable for forensic purposes to resolve any damage claims that may arise as a result of construction.

B. Submittals.

1. Written documentation of site condition survey at pre-construction and post-construction.
2. Photographs as described herein of pre-construction and post-construction conditions.
3. Video recordings as described herein of pre-construction and post-construction conditions.

4. Submittals shall be made within three days of the surveys. All post-construction data shall be submitted prior to the final project inspection.

C. Site Condition Written Documentation.

Written documentation shall include the time, date, and conditions under which the site survey was made. The documentation shall note the condition of structures, pavement, sidewalks, utilities, fences, and etc. within the work areas.

D. Photographs.

1. General – Contractor shall take enough photographs during each site survey to provide a record of conditions existing prior to construction and conditions after construction. Pre-construction photographs shall be taken prior to any construction or mobilization of equipment, but not more than one week prior to actual start of work. The pre-construction photographs may be staged at different times to match the progression of the Work.
2. The photographs shall document existing damage to public and private facilities, both prior to and after construction. Conditions to be documented include, but are not limited to: sidewalk cracks, broken curbs, separated property walls, improvements within public right-of-ways, access roads used, utility covers and markings, signs, pavement striping, pavement, unique or unusual conditions, adjacent driveways, landscaping, survey markers, and any feature directed by the Engineer. Private property that is adjacent to the public right-of-way shall be documented to the extent visible from the public right-of-way.
3. Photographs shall include items to indicate scale, as needed. In particular, scales or other items shall be laid next to close ups of structural cracks and other damaged areas being recorded. Scaling shall also be used to document elevation differences, as needed.
4. One set of color prints shall be submitted. Additional sets shall be available for reviewing in settling any construction disputes. A set of photos shall also be furnished in electronic format. The resolution shall be at least equal to 7 megapixels. All photos shall be documented as to time and date taken, photographer, project number, location, and orientation. Documentation shall include a brief description of objects photographed.

E. Video Recording.

1. Video recordings shall document the conditions of the entire area affected by construction, as well as nearby structures and facilities. The general documentation requirements for videos are the same as for photographs. Video recorders shall accurately and continuously record the time and date.
2. Video recordings shall include an audio portion made simultaneously during the videoing. The audio recording shall describe the location, time, orientation, and objects being recorded. Special commentary shall be provided for unusual conditions or damage noted.

3. Video equipment shall be capable of producing high resolution images and shall have zoom capabilities.
4. Video recordings shall provide an overall picture of the sites and shall provide detailed images of damaged areas. Video shall extend to the maximum height of structures.
5. The Engineer shall have the right to reject any audio video recordings submitted with unintelligible audio, uncontrolled pan or zoom, or of poor quality. Video recordings shall be repeated when rejected.
6. Video recordings shall be submitted with labels indicating the project, date, recorder, and other pertinent information. Recordings shall be submitted on standard DVDs in a standard format.

F. Timing.

Contractor shall provide written notice of the time scheduled for the site conditions survey and the place it is to begin. Contractor shall obtain the Engineer's concurrence prior to beginning the condition survey. The Engineer reserves the right to cancel the survey due to weather conditions or other problems. Videoing shall be done during times of good visibility and no videoing or photography shall be done during periods of visible precipitation or when standing water obscures pavement. Contractor shall provide the Engineer with an opportunity to have a representative present when taking the photos and provide guidance during photographing.

G. Site Surveyor.

The site condition surveyor(s) shall be experienced in construction and potential damage concerns. The site condition surveyor(s) shall be familiar with the photography and video equipment being used.

H. Field Quality Control.

Prior to submitting videos and photographs, the Contractor shall spot check the photos and videos in the field to insure they accurately reflect the actual conditions and to insure they are correctly labeled.

I. Soils Compaction Testing.

1. All soils compaction testing will be done by a licensed geotechnical engineer furnished by the Authority. Soils compaction testing will be done for all footings and foundations prior to placement of rebar or concrete.
2. For pipeline construction, soil compaction testing will be done at 100-foot intervals at the bottom of the trench prior to placement of pipe bedding; at the top of the pipe bedding above the pipe; every two vertical feet of trench backfill; at the top of the trench backfill, which could be the bottom of the pavement section; and at the top of the aggregate base prior to pavement construction.

3.6 SUBMITTAL REQUIREMENTS FOR MANUALS AND RECORD DRAWINGS

A. General. The Contractor shall furnish all materials and perform all Work required for furnishing submittals to Authority in accordance with Contract Documents.

B. Technical Manuals.

1. The Contractor shall submit technical operation and maintenance information for each item of mechanical, electrical and instrumentation equipment in an organized manner in the Technical Manual. It shall be written so that it can be used and understood by Authority's operation and maintenance staff.
2. The Technical Manual shall be subdivided first by specification section number; second, by equipment item; and last, by "Category." "Categories" shall conform to the following (as applicable):

(a) Category 1 - Equipment Summary:

- (1) Summary: A summary table shall indicate the equipment name, equipment number, and process area in which the equipment is installed.

(b) Category 2 - Operational Procedures:

- (1) Procedures: Manufacturer-recommended procedures on the following shall be included in Part 2:
 - a. Installation
 - b. Adjustment
 - c. Startup
 - d. Location of controls, special tools, equipment required, or related instrumentation needed for operation
 - e. Operation procedures
 - f. Load changes
 - g. Calibration
 - h. Shutdown
 - i. Troubleshooting
 - j. Disassembly
 - k. Reassembly
 - l. Realignment
 - m. Testing to determine performance efficiency

- n. Tabulation of proper settings for all pressure relief valves, low and high pressure switches, and other protection devices
- o. List of all electrical relay settings including alarm and contact settings

(c) Category 3 - Preventive Maintenance Procedures:

- (1) Procedures: Preventive maintenance procedures shall include all manufacturer-recommended procedures to be performed on a periodic basis, both by removing and replacing the equipment or component, and by leaving the equipment in place.
- (2) Schedules: Recommended frequency of preventive maintenance procedures shall be included. Lubrication schedules, including lubricant SAE grade, type, and temperature ranges, shall be covered.

(d) Category 4 - Parts List:

- (1) Parts List: A complete parts list shall be furnished, including a generic description and manufacturer's identification number for each part. Addresses and telephone numbers of the nearest supplier and parts warehouse shall be included.
- (2) Drawings: Cross-sectional or exploded view drawings shall accompany the parts list.

(e) Category 5 - Wiring Diagrams:

- (1) Diagrams: Part 5 shall include complete internal and connection wiring diagrams for electrical equipment items.

(f) Category 6 - Shop Drawings:

- (1) Drawings: This part shall include approved shop or fabrication drawings, complete with dimensions.

(g) Category 7 - Safety:

- (1) Procedures: This part describes the safety precautions to be taken when operating and maintaining the equipment or working near it.

(h) Category 8 - Documentation:

- (1) All equipment warranties, affidavits, and certifications required by the Technical Specifications shall be placed in this part.

- 3. The Contractor shall furnish to Authority six (6) identical Technical Manuals. Each set shall consist of one or more volumes, each of which shall be bound in a standard binder.

- C. Spare Parts List - The Contractor shall furnish to Authority six (6) identical sets of spare parts information for all mechanical, electrical, and instrumentation equipment.

The spare parts list shall include the current list price of each spare part. The spare parts list shall include those spare parts which each manufacturer recommends be maintained by Authority in inventory. Each manufacturer or supplier shall indicate the name, address, and telephone number of its nearest outlet of spare parts to assist Authority in ordering. The Contractor shall cross-reference all spare parts lists to the equipment numbers designated in the Contract Documents. The spare parts lists shall be bound in standard size, 3-ring binder.

D. Record Drawings

1. The Contractor shall maintain one record set of Drawings at the Site. On these, it shall mark all Project conditions, locations, configurations, and any other changes or deviations which may vary from the information represented in the original Contract Documents, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the Contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to fully indicate the Work as actually constructed. These master record drawings of the as-built conditions, including all revisions made necessary by Addenda and Change Orders shall be maintained up-to-date during the progress of the Project. Red ink shall be used for alterations and notes. Notes shall identify relevant Change Orders by number and date.
2. For all Projects involving the installation of any pipeline, Contractor shall survey and record the top of the pipe at a minimum of every 100 linear feet, and at each bend, recording both the horizontal and vertical locations.
3. Record drawings shall be accessible to Authority's Representative at all times during the construction period. Failure on the Contractor's part to keep record drawings current could result in withholding partial payment.
4. Upon Completion of the Project and as a condition of final acceptance, the Contractor shall finalize and deliver a complete set of Record Drawings to Authority's Representative. The information submitted by the Contractor will be assumed to be correct, and the Contractor shall be responsible for, and liable to Authority, for the accuracy of such information, and for any errors or omissions which may or may not appear on the Record Drawings.

- E. Cost. Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to complete the Manuals and Record Drawings shall be included in Contractor's bid and distributed in the Schedule of Pay. No additional compensation shall be made to the Contractor for this Work.

3.7 MATERIALS

A. Materials to be Furnished by the Contractor

1. Inspection of Materials. Materials furnished by the Contractor which will become a part of the Project shall be subject to inspection at any one or more of the following locations, as determined by Authority's Representative: at the place of

production or manufacture, at the shipping point, or at the site of the Work. To allow sufficient time to provide for inspection, the Contractor shall submit to Authority's Representative, at the time of issuance, copies of purchase orders or other written instrument confirming procurement of the materials, including drawings and other pertinent information, covering materials on which inspection will be made.

2. No later than fourteen (14) Days prior to manufacture of material, Contractor shall inform Authority's Representative, in writing, the date the material is to be manufactured.
3. Contractors Obligations. The inspection of materials at any of the locations specified above or the waiving of the inspection thereof shall not impact whether the materials and equipment conform to the Contract Documents. Contractor will not be relieved from furnishing materials meeting the requirements of the Contract Documents due to Authority's inspection or lack of inspection of the equipment or materials. Acceptance of any materials will be made only after materials are installed in the Project.
4. Cost. Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to accommodate Authority's testing efforts, including any travel required by Contractor's forces, shall be included in Contractor's bid and distributed in the Schedule of Pay Items related to the materials requiring testing. No additional compensation shall be made to the Contractor for this Work.

3.8 LOCAL CONDITIONS AND REQUIREMENTS

A. Access to Work and Haul Routes

1. General. All work on the rights-of-way necessary for access to the Site shall be performed by the Contractor.
2. Access, Damage, Restoration. The Contractor shall make his own investigation of the condition of available public or private roads and of clearances, restrictions, bridge-load limits, permit or bond requirements, and other limitations that affect or may affect transportation and ingress or egress at the Site. Claims for changes in Contract Price or Contract Times arising out of the unavailability of transportation facilities or limitations thereon shall not be considered by Authority.
3. The Contractor shall maintain and repair any damage arising out of Contractor's operations to all roads used during construction of the Project, and upon completion of all Work, but prior to final acceptance, the roads shall be restored to their original condition. Prior to using any road for access to the Site, the Contractor shall conduct a photograph and/or video survey of the roadway with a copy submitted to Authority's Representative.
4. Cost. Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to complete this Work, shall be included in

Contractor's bid and distributed in the Schedule of Pay Items. No additional compensation shall be made to the Contractor for this Work.

- B. Power. Contractor shall provide at its own expense all necessary power required for operations under the contract. The Contractor shall provide and maintain in good order such modern equipment and installations as shall be adequate in the opinion of the Engineer to perform in a safe and satisfactory manner the Work required by the contract.
- C. Construction Water.
 - 1. Construction water shall not be used for purposes other than those required to satisfactorily complete the contract.
 - 2. All connections to the Authority's water system used for the purposes of obtaining construction water shall utilize a temporary construction meter and backflow prevention device supplied by the Authority. The Authority-furnished backflow prevention device shall be tested immediately after installation and the construction meter and backflow prevention device shall not be placed into service until the backflow prevention device passes such tests. Test results shall be provided to the Engineer. If the temporary construction meter and backflow prevention device are moved to alternate location(s) during construction, the backflow prevention device shall again be tested as described above immediately after re-installation.
 - 3. For each temporary construction meter requested by the Contractor for the performance of work under this contract, an amount equivalent to the deposit requirement for temporary construction meters listed in the current approved version of the Authority's Policies and Procedures Manual shall be withheld from the final contract payment until the temporary construction meters are returned.
- D. Operation of Existing Water Facilities
 - 1. The Contractor shall not operate any of the existing water systems, including pumps, motors, and hydrants, but shall contact the Authority two (2) working days in advance with a list and location of the water system facilities that will require operating, opening, stopping, or closure by the Authority.
 - 2. At the option of the Engineer, the Contractor may be permitted to operate valves for the purpose of making connections to existing mains. The Authority will perform all notification to existing customers regarding temporary loss of service.
 - 3. Contractor shall submit a request on Authority's standard form for any shut-down of existing water facilities.
- E. Construction at Existing Utilities
 - 1. General. Where the Work to be performed crosses or otherwise interferes with water, sewer, gas, or oil pipelines; buried cable; or other public or private utilities, the Contractor shall perform construction in such a manner so that no damage will result to either public or private utilities. It shall be the responsibility of the

Contractor to determine the actual locations of, and make accommodations to maintain, all utilities.

2. **Permission, Notice and Liability.** Before any utility is taken out of service, permission shall be obtained by the Contractor from the owner. The owner, any impacted resident or business owner and the Authority Representative will be advised of the nature and duration of the utility outage as well as the Contractor's plan for providing temporary utilities if required by the owner. The Contractor shall be liable for all damage which may result from its failure to maintain utilities during the progress of the Work, and the Contractor shall indemnify Authority as required by the Contract Documents from all claims arising out of or connected with damage to utilities encountered during construction; damages resulting from disruption of service; and injury to persons or damage to property resulting from the negligent, accidental, or intentional breaching of utilities.
3. **Cost.** Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to complete this Work, shall be included in Contractor's bid and distributed in the Schedule of Pay Items. No additional compensation shall be made to the Contractor for this Work.

F. Traffic Control

1. **General.** Contractor shall abide by traffic control plans approved by the appropriate jurisdiction.
2. **Protections.** Roads subject to interference by the Work shall be kept open or suitable temporary passages through the Work shall be provided and maintained by the Contractor. The Contractor shall provide, erect, and maintain all necessary barricades, suitable and sufficient flasher lights, flag persons, danger signals, and signs, and shall take all necessary precautions for the protection of the Work and the safety of the public. No construction work along public or private roads may proceed until the Contractor has proper barricades, flasher lights, flag persons, signals, and signs in place at the construction site.
3. **Cost.** Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to complete this Work, shall be included in Contractor's bid and distributed in the Schedule of Pay Items. No additional compensation shall be made to the Contractor for this Work.

G. Cleaning Up

1. Contractor at all times shall keep premises free from debris such as waste, rubbish, and excess materials and equipment. Contractor shall not store debris under, in, or about the premises. Contractor shall also clean all asphalt and concrete areas to the degree necessary to remove oil, grease, fuel, or other stains caused by Contractor operations or equipment. The use of water, resulting in mud on streets, will not be permitted as substitute for sweeping or other methods. Dust control may require having a water truck onsite for the duration of the project, and/or use of temporary hoses and pipelines to convey water.

2. Contractor shall fully clean up the site at the completion of the Work. If the Contractor fails to immediately clean up at the completion of the Work, the Authority may do so and the cost of such clean up shall be charged back to the Contractor.

3.9 ENVIRONMENTAL QUALITY PROTECTION

A. Environmental Conditions

1. Contractor must comply with all applicable environmental laws, Project conditions, and constraints.
2. Authority has considered these Environmental Conditions when determining the Contract Times and no additional time or compensation will be added to the Contract due to these Conditions.

B. Landscape and Vegetation Preservation

1. General. The Contractor shall exercise care to preserve the natural landscape and vegetation, and shall conduct operations so as to prevent unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the Work.
2. Damage and Restoration. Movement of crews and equipment within the rights-of-way and over routes provided for access to the Work shall be performed in a manner to prevent damage to property. When no longer required, construction roads shall be restored to original contours.
3. Upon completion of the Work, and following removal of construction facilities and required cleanup, land used for construction purposes and not required for the completed installation shall be scarified and regraded, as required, so that all surfaces are left in a condition that will facilitate natural revegetation, provide for proper drainage, and prevent erosion.
4. Cost. Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to complete this Work, shall be included in Contractor's bid and distributed in the Schedule of Pay Items. No additional compensation shall be made to the Contractor for this Work.

C. Protected Species

1. General. If, in the performance of the Work, evidence of the possible occurrence of any Federally listed threatened or endangered plant or animal is discovered, the Contractor shall notify the Authority Representative immediately, giving the location and nature of the findings. Written confirmation of the evidence, location and nature of the findings shall be forwarded to Authority within 2 Days.
2. Procedures. The Contractor shall immediately cease all construction activities in the immediate area of the discovery to the extent necessary to protect the endangered plant or animal.

If directed by the Authority Representative, Contractor will refrain from working in the immediate area, suspend the Work in its entirety, or alter its performance to ensure full compliance with all applicable permits, laws and regulations. Any Authority directed changes to the Work as a result of a siting will be pursuant to the Contract Documents.

3. False Siting. Any costs or delays incurred by Authority or the Contractor due to unreasonable or false notification of an endangered plant or animal will be borne by the Contractor.
4. Cost. Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to comply with this paragraph, shall be included in Contractor's bid and distributed in the Schedule of Pay Items. No additional compensation shall be made to the Contractor for this Work.

D. Preservation of Historical and Archeological Resources

1. General. If, in the performance of the Work, Contractor should unearth cultural resources (for example, human remains, animal bones, stone tools, artifacts and/or midden deposits) through excavation, grading, watering or other means, the Contractor notify the Construction/Archeological Monitor and/or the Authority Representative immediately, giving the location and nature of the findings. Written confirmation of the evidence, location and nature of the findings shall be forwarded to the Construction/Archeological Monitor and/or Authority within 2 Days.
2. Procedures. The Contractor shall immediately cease all construction activities in the immediate area of the discovery to the extent necessary to protect the cultural resource.

If directed by the Authority Representative, Contractor will refrain from working in the immediate area, suspend the Work in its entirety, or re-sequence and/or alter its performance to ensure full compliance with all applicable permits, laws and regulations. Should the presence of cultural resources be confirmed, the Contractor will assist the Authority Representative and the Construction/Archeological Monitor in the preparation and implementation of a data recovery plan. The Contractor shall provide such cooperation and assistance as may be necessary to preserve the cultural resources for removal or other disposition. Any Authority directed changes to the Work as a result of the cultural resource will be pursuant to the Contract Documents.

3. Contractor's Liability. Should Contractor, without permission, injure, destroy, excavate, appropriate, or remove any cultural resource on or adjacent to the Site, it will be subject to disciplinary action, arrest and penalty under applicable law. The Contractor shall be principally responsible for all costs of mitigation and/or restoration of cultural resources related to the unauthorized actions identified above. Contractor shall be required to pay for unauthorized damage and mitigation costs to cultural resources (historical and archeological resources) as a result of unauthorized activities that damage cultural resources and shall indemnify Authority pursuant to the Contract Documents.

4. Cost. Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to comply with this paragraph, shall be included in Contractor's bid and distributed in the Schedule of Pay Items. No additional compensation shall be made to the Contractor for this Work.

E. Dust and Pollution Control

1. Contractor shall provide all necessary material, equipment and labor to prevent and control the emission of dust and any other potential pollutant on site.
2. Contractor shall not discharge into the atmosphere from any source smoke, dust or other air contaminants in violation of the law, rules, and regulations of the governing agency.
3. Cost. Unless otherwise called for by the Contract Documents, the cost of all material, equipment, and labor required to comply with this paragraph, shall be included in Contractor's bid and distributed in the Schedule of Pay Items. No additional compensation shall be made to the Contractor for this Work.

F. Fugitive Dust

NOT USED.

G. Management of Storm, Surface and Other Waters

1. Storm water, surface water, groundwater, and nuisance, or other waters may be encountered at various times during construction of the Project. Federal and State laws require the Authority and its contractors to manage such waters pursuant to the requirements of California State Water Resources Control Board Order Number 2009-0009-DWQ, the Federal Clean Water Act, and the California Porter Cologne Water Quality Control Act. Contractor acknowledges that it has investigated the risk arising from such waters in conjunction with the Project, and assumes any and all risks and liabilities arising therefrom.
2. The Contractor shall perform all construction operations in such a manner as to comply, and ensure all subcontractors to comply, with all applicable Federal, State, and local laws, orders, and regulations concerning the control and abatement of water pollution; and all terms and conditions of any applicable permits issued for the Project. In the event there is a conflict between Federal, State, and local laws, regulations, and requirements, the most stringent shall apply.
3. Contractor violations. If noncompliance should occur, the Contractor shall report this to the Authority Representative immediately, with the specific information submitted in writing within 2 Days. Consistent violations of applicable Federal, State, or local laws, orders, regulations, or Water Quality Standards may result in Authority stopping all site activity until compliance is ensured. The Contractor shall not be entitled to any change in Contract Price or Contract Times, claim for damage, or additional compensation by reason of such a work stoppage. Corrective measures required to bring activities into compliance shall be at the Contractor's expense.

4. Compliance with Construction General Storm Water Permit. Contractor shall be required to comply with all aspects of the State Water Resources Control Board (State Board) Water Quality Order No. 2009-0009-DWQ, National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity (Permit) for all projects that involve construction on or disturbance of one acre or more of land or which are part of a larger common area of development.
 - (a) Contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the Project site based on the appropriate Risk Level requirements, and draft and coordinate submittal of all Permit related documents with Authority's Legally Responsible Person and/or Authorized Signatory as those terms are defined in the Permit. The Contractor shall submit the SWPPP to the Authority Representative for review not less than fifteen (15) Days prior to the start of on- site construction work. Authority will file the Notice of Intent and pay the filing fee.
 - (b) The SWPPP shall be developed by a Qualified SWPPP Developer and implemented by a Qualified SWPPP Practitioner as those terms are defined in the Permit and shall include industry standard requirements for water quality control including but not be limited to the following:
 - (1) Sediment and erosion control measures to manage sediment and erosion including vegetative practices, structural control, silt fences, straw dikes, sediment controls or operator controls as appropriate. Storm water management measures shall be instituted as required, including velocity dissipaters, and solid waste controls shall address controls for building materials and offsite tracking of sediment.
 - (2) Wastewater and storm water management controls to divert offsite surface flows around the Project site and to divert surface flows within the Project area away from areas of open earth or stockpiles of building and other materials. Wastewater from general construction activities, such as drain water collection, aggregate processing, concrete batching, drilling, grouting, or other construction operations, shall not enter flowing or dry watercourses without having met the authorized non-storm water discharge requirements listed in State Board Water Quality Order No. 2009-0009-DWQ, Section III.C., including proper notification to the Regional Water Board.
 - (3) Pollution prevention measures including methods of dewatering, unwatering, excavating, or stockpiling earth and rock materials which include prevention measures to control silting and erosion, and which will intercept and settle any runoff of sediment-laden waters.
 - (4) Turbidity prevention measures for prevention of excess turbidity including, but are not restricted to, intercepting ditches, settling ponds, gravel filter entrapment dikes, flocculating processes, recirculation, combinations thereof, or other approved methods that are not harmful to aquatic life. All such wastewaters discharged into surface waters, shall contain the least concentration of settleable material possible, and shall meet all conditions of section 402, the National Pollutant Discharge Elimination System (NPDES) permit.

- (5) Overall construction site management measures to address changes at the Project site as the Project moves through different phases and changes that account for rainy and dry season management practices.
 - (6) Pollution control measures and construction activity methods that will prevent entrance, or accidental spillage, of solid matter, contaminants, debris, or other pollutants or wastes, into streams, flowing or dry watercourses, lakes, wetlands, reservoirs, or underground water sources. Such pollutants and wastes include, but are not restricted to: refuse, garbage, cement, sanitary waste, industrial waste, hazardous materials, radioactive substances, oil and other petroleum products, aggregate processing, tailings, mineral salts, and thermal pollution.
 - (7) Control measures for stockpiled or deposited materials prohibiting the stockpile or deposit of excavated materials, or other construction materials, near or on stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff, or can, in any way, encroach upon the watercourse.
 - (8) Develop and implement a Rain Event Action Plan (REAP), if required, that must be designed and implemented to protect all exposed portions of the site 48 hours prior to any likely precipitation event.
 - (9) Monitoring, reporting and record keeping, as necessary to achieve compliance with applicable Permit requirements, including but not limited to annual reports and rain event reports.
- (c) Before any Permit related documents, including the SWPPP, rain event reports, or annual reports may be submitted to the State Board or implemented on the Project site, they must first be reviewed and approved by Authority.
- (d) Authority retains the right to procure and maintain coverage under the Permit for the Project site if the Contractor fails to draft a SWPPP or other Permit related document, or fails to proceed in a manner that is satisfactory to Authority. Authority reserves the right to implement its own SWPPP at the Project site, and hire additional contractors to maintain compliance. Whether Contractor has adequately maintained compliance with the Permit shall be Authority's sole determination. In the event that Contractor has failed or is unable to maintain compliance with the Permit, any costs or fines incurred by Authority in implementing a SWPPP, or otherwise maintaining compliance with the Construction General Permit shall be paid by the Contractor.
- (e) Failure to implement the SWPPP or otherwise comply with the Permit is a violation of federal and state law. Contractor hereby agrees to indemnify Authority as required by the Contract Documents for any noncompliance or alleged noncompliance with the Permit arising out of or in connection with the Project, except for liability resulting from the sole established negligence, willful misconduct or active negligence of Authority. Authority may seek damages from Contractor for delay in completing the Contract in accordance with the Contract Documents, caused by Contractor's failure to comply with the Permit.

5. In addition to compliance with the Permit, Contractor shall comply with the lawful requirements of any applicable municipality, district, drainage district, flood control district, and other local agencies regarding discharges of storm water, surface water, groundwater or other nuisance waters off of the Project site.
6. Oil storage tanks management.
 - (a) Storage tank placement. All oil or other petroleum product (hereinafter referred to collectively as oil) storage tanks shall be placed at least 20 feet from streams, flowing or dry watercourses, lakes, wetlands, reservoirs, and any other water source.
 - (b) Storage area dikes. Storage areas shall be diked at least 12 inches high or graded and sloped to permit safe containment of leaks and spills equal to the capacity of all tanks and/or containers located within each area, plus a sufficient amount of freeboard to contain the 25-year rainstorm.
 - (c) Diked area barriers. Diked areas shall have an impermeable barrier at least 10 mils thick. Areas used for refueling operations shall have an impermeable liner at least 10 mils thick buried under 2 to 4 inches of soil.
 - (d) Spill Prevention Control and Countermeasure Plan (SPCC). Where the location of a construction site is such that oil from an accidental spillage could reasonably be expected to enter into or upon the navigable waters of the United States or adjoining shorelines, and the aggregate storage of oil at the site is over 1,320 gallons or a single container has a capacity in excess of 660 gallons, the Contractor shall prepare an SPCC Plan. The Contractor shall submit the SPCC Plan to the Engineer at least 30 days prior to delivery or storage of oil at the site. The Plan must have been reviewed and certified by a registered professional engineer in accordance with 40 C.F.R., part 112
7. Underground tank prohibition. The Contractor shall not use underground storage tanks.
8. Construction safety standards. The Contractor shall comply with the sanitation and potable water requirements of Section 7 of United States Bureau of Reclamation's publication "Reclamation Safety And Health Standards."
9. Other Permits.
 - (a) Other permits applicable to the Project are listed in the Special Conditions. The Contractor shall obtain all other necessary licenses and permits.
 - (b) Monitoring. The Contractor is required to conduct monitoring in order to meet the requirements of the permits, which may include sampling, testing and inspections.
 - (c) Recordkeeping. The Contractor shall retain all records and data required by the permits for the time specified in the contract.
10. Cost. Except as specified herein, the cost of complying with this section shall be included in the Schedule of Pay Items for work which necessitate the water pollution prevention measures required by this paragraph.

END OF GENERAL REQUIREMENT

TECHNICAL SPECIFICATIONS

AMADOR REGIONAL SANITATION AUTHORITY
HENDERSON DAM UNDER DRAIN REPAIR
100% SUBMITTAL
LICENSEE RESPONSIBLE FOR SPECIFICATIONS

Contract Documents prepared by or under the direction of the following registered persons:



Gabriel Aronow, PE (Project Manager)
Stantec Consulting Services Inc.
101 Providence Mine Road, Suite 202
Nevada City, CA 95959
(530) 913-9197



03/10/2026

**AMADOR COUNTY SANITATION AUTHORITY
HENDERSON DAM UNDER DRAIN REPAIR
175578307**

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Not used.

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Not used.

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Not used.

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Not used.

Division 9: Finishes

Not used.

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Not used.

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Not used.

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Not used.

Attachments

A – Existing Sluice Gate Detail

B – Henderson Reservoir Water Quality Testing Data, September, 2011

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK OF THIS SECTION

The work to be performed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles, and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents, no additional compensation shall be allowed. This includes the cost of work not specifically listed in the Bid Schedule or Schedule of Values, but is necessary to complete the project as described and shown in the Contract Documents. The anticipated completion date for this project is October 2023.

Note that in the following sections there are 195 feet of 20" AC pipe to be removed and replaced. Contractor shall take appropriate safety precautions and adhere to all Local, State and Federal standards and laws in the removal, handling, cutting, disturbance and disposal of AC pipe and AC containing materials.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

The work generally includes, but is not limited to, furnishing all products, labor, equipment, material, transportation, and incidental services to construct the following:

- A. Sliplining of existing 20" concrete outlet pipe using 16" DR17 HDPE, ASTM F714 pipe for approximately 170 LF total and grouting the annulus between the host pipe and the sliplined pipe.
- B. Removal and replacement of approximately 95 LF of 20" AC Concrete pipe with 16" DR17 HDPE, ASTM F714 pipe.
- C. Removal and replacement of approximately 100 LF of 20" AC Concrete pipe with 24" DR17 HDPE, ASTM F714 pipe.
- D. Connection of the sliplined and open-cut sections of the 16" DR17 HDPE Pipe, and connection of the 16" DR17 HDPE pipe to the existing 20" Ductile Iron Pipe at the concrete junction chamber and connection of the 20" DR17 HDPE pipe to the existing 20" Ductile Iron Pipe at the concrete junction box.

- E. Completely backfill with cement-grout an existing abandoned-in-place 16-inch diameter outlet pipe which proceeds beneath approximately the middle of the dam.
- F. Field verification of post-installation conditions using a rover with a tilt and pan CCTV camera.
- G. Contractor use of site
 - 1. Contractor shall confine its operations to the work areas indicated on the drawings.
 - 2. Contractor use of the site shall be limited to its construction operations, including on site storage of materials, equipment, parking of construction employee's vehicles, and on-site fabrication facilities.
- H. Line and Grade
 - 1. Work shall be done to the lines, grades and elevations indicated on the plans.

1.3 PROJECT LOCATION

- A. The existing outlet pipe is located at the Henderson Reservoir in Amador County, California, approximately 4 miles west of the City of Sutter Creek, California. The existing outlet pipe is an approximately 265-foot long, 20-inch diameter concrete pipe, which includes a 95-ft section of asbestos cement pipe to the discharge end. From the intake structure in the reservoir portion at the sluice gate, the pipe runs for approximately 170-feet to a 22.5-degree bend in the pipe, and then additional approximately 95-feet to the downstream side of the dam to a junction box. The pipe runs further west after the junction box for approximately 100-ft where it meets an existing flume. The scope of work for this project also includes complete backfilling of an abandoned-in-place 16-inch diameter outlet pipe that proceeds beneath the dam.
- B. The existing 20-inch outlet pipe is located at the western bank of the reservoir. The outlet pipe is a critical part of the reservoir infrastructure and provides a means of releasing impounded water to downstream facilities as well as serve a critical safety function in case a rapid draw down of the water level is required.
- C. Drawings are enclosed with these specifications depicting the work at each location.

1.4 SITE PREPARATION

- A. The site of all trenches shall be cleared of all vegetation, stumps, roots, sod, and debris prior to excavating. Any other structures stipulated on the drawings to be removed, or otherwise authorized by the Engineer to be removed, shall be removed and later replaced in a manner acceptable to the Engineer and equivalent to its original undisturbed conditions.

B. Stockpiling of Excavated Materials, Pipe, Etc.

1. In accordance with and in addition to the requirements of the General Contract Conditions, no excavated materials, pipe, equipment, or any other items shall be stockpiled or stored on private property without the express written approval of the property owner of record. Duplicate copies of any written approval or authorization given to the Contractor shall be submitted to the Engineer and ARSA and shall be so worded as to hold harmless the project owner of any responsibility whatsoever to the stockpiling and storage of material and equipment. All costs incurred shall be borne by the Contractor.

1.5 EXISTING FACILITIES

- A. General: the Contractor shall at all times take extreme and proper precautions for the protection of utilities, the presence of which are known or can be determined by the examination of appropriate utility maps, use of electronic locating, exploratory excavations, etc. The Contractor shall be responsible for all costs associated with the repair of any service and/or utility damaged by construction.
- B. The Contractor shall notify all appropriate utility companies, as well as property owners and all other interested parties, prior to commencement of work in order to ensure that there will not be service interruptions during construction. Existing utility lines and utility poles, trees, shrubbery, fences, water main, gas mains, sewers, cables, conduits, curb, gutter, Wales, and other structures in the vicinity of work not authorized to be removed, shall be supported and protected from damage by the Contractor until all construction and related work is complete. The Contractor shall be liable for all damages to existing facilities, structures, and property.
- C. Utilities
 1. It shall be the responsibility of the Contractor to verify the existence and location (vertically and horizontally) of all underground utilities along the route of the work, to ensure construction as shown in the Contract Documents.
- D. Exploratory Excavations:
 1. In additions to those areas as may be designated on the Contract Documents, it shall be the responsibly of the contractor to excavate and locate all utilities and appurtenances which may affect construction or require protection during construction of the project scope. All exploratory excavation shall occur far enough in advance of the construction to permit any necessary relocations.

PART 2 MATERIALS

2.1 GENERAL

The Contractor shall provide all labor, material, equipment, and incidentals for the work described within these specifications and construction drawings. Payment for each bid item shall be included in the contract unit price or lump sum price shown on the bidder's proposal. Measurement for payment of lump sum items will be based on the component parts listed in the Bid Items, as required in this specification. Payment for component parts will be based on the Schedule of Values approved by the Engineer. The cost breakdown shall include quantities and items aggregating the Bid Item in payments during construction. Payment for each bid item shall include full compensation for all labor, materials, tools, and equipment necessary to complete the work as shown on the construction drawings and within these specifications and no additional compensation shall be allowed. This included the cost of work not specifically listed in the Bid Schedule or Schedule of Values, but is necessary to complete the project as described and shown in the Contract Documents. Work for which no separate payment has been provided will be considered a subsidiary obligation of the Contractor, and the cost therefore shall be included in the applicable contract price for the item to which the work applies. All measurement of work done will be made by the Owner or its representative.

2.2 BID ITEM 1 – MOBILIZATION, BONDS, PERMITS AND DEMOBILIZATION

Payment for mobilization, bonds, permits and demobilization shall be made at the contract lump sum, complete and in accordance with the Contract Documents, and as directed by the Owner. The Contract Price shall include, but is not limited to the following principal items: obtaining all permits, insurance, and bonds; preparing schedule and schedule of values; mobilizing labor force, equipment and construction facilities onto site; providing field office and storage yard (if Contractor deems necessary); securing construction water supply; providing power necessary for construction, providing all temporary construction fencing; installing, maintaining and removing project signs; providing on-site sanitary facilities; posting OSHA and CAL/OSHA requirements for establishing safety programs; performing all work and documentation necessary for the mobilization, bonding, and permitting for construction of the project as described within the Contract Documents. This work also includes the cost for maintaining and submitting the project record drawings at the end of the project. These record drawings must be reviewed monthly with the Engineer and Owner to receive payment for any work. The amount for this bid item shall be limited to 10% of the total contract amount: The first half of the amount of Bid Item 1 shall be payable at the project outset for mobilization, and the second half of the amount of Bid Item 1 shall be payable at the conclusion of the project for demobilization.

2.3 BID ITEM 2 – SLIPLINING FOR HENDERSON DAM OUTLET PIPE

Payment for sliplining the 16" DR17 HDPE pipe within the existing 20" concrete outlet pipe at the Henderson Reservoir will be made at the contract unit price to include 16" DR17 HDPE, ASTM F714 pipe along the alignment accordingly, complete and in accordance with the Contract Documents. The Contract price for work under this bid item shall include all sliplining rehabilitation equipment, and labor necessary to complete the work, including a final videotape and installation report of the sliplined pipe segment to be submitted two weeks following completion of the sliplined work, and restoring site to pre-construction conditions for areas where excavation/grading was necessary to complete the work, including hydroseeding all vegetated areas downstream of the dam crest. The work includes preparation and development of the sliplining access pit, which will include installation of shoring, excavation, and access to and provision of

entry and exit points for sliplining. Bulkheads shall be installed by the Contractor at both the upstream and downstream ends of the pipe after sliplining insertion.

This bid item will also include continuous bypass pumping of the reservoir to facilitate site work on the dam side, and all required cleaning of the existing host pipe, and grouting of the annulus, per these Contract Documents in order to successfully perform the sliplining. This item will also include preparing a CCTV inspection video after cleaning the existing pipe in preparation for the sliplining operation, and a CCTV report at the conclusion of the sliplining installation. A final CCTV inspection video will also be conducted after all necessary connections have been made and the project has been completed.

Additionally, Bid Item 2 will cover labor, equipment, and materials necessary to backfill the sliplining access pit in accordance with the Contract Documents, hydroseeding all areas where disturbance or excavation/grading was necessary to complete the work, removal of temporary facilities such as shoring required for the sliplining access pit, modifications to the existing sluice gate at the upstream end of the outlet pipeline, and restoration of any modified facilities such as those at the upstream face of the dam and any other restoration required.

2.4 BID ITEM 3 – OPEN-CUT INSTALLATION FROM SLIPLINE SECTION TO CONCRETE JUNCTION CHAMBER

Payment for open-cut installation will be made at the contract unit price complete, in accordance with the Contract Documents. The contract price for work under this item shall include but is not limited to furnishing all labor, material, tools, and equipment and performing all work required for removal and replacement of the 95-ft section of existing 20" AC Concrete outlet pipe with 16" DR17 HDPE, ASTM F714 Pipe. This bid item will also include connection to the sliplined pipe section, connection to the existing 20" ductile iron pipe section at the concrete junction chamber, modifications upstream of the existing 20-inch wye within the existing junction chamber, offsite disposal of the existing pipeline removed from the trench, and all other materials derived from or relating to construction of the work in accordance with all applicable regulations, backfilling and compaction of the trenches and placement of reinforcement and reinforced concrete, a concrete mud slab, native soil, and top soil in accordance with the Contract Documents, CCTV reports post-installation, restoring site to pre-construction conditions, and hydroseeding all areas where disturbance or excavation/grading was necessary to complete the work.

2.5 BID ITEM 4 - OPEN-CUT INSTALLATION FROM CONCRETE JUNCTION CHAMBER TO FLUME

Payment for open-cut installation will be made at the contract unit price complete, in accordance with the Contract Documents. The contract price for work under this item shall include but is not limited to furnishing all labor, material, tools, and equipment and performing all work required for removal and replacement of the 100-ft section of existing 20" AC Concrete outlet pipe with 24" DR17 HDPE, ASTM F714 Pipe. This bid item will also include connection to the existing 20" ductile iron pipe section at the concrete junction chamber, modifications downstream of the existing 20-inch wye within the existing junction chamber, offsite disposal of the existing pipe removed from the trench, and all other materials derived from or relating to construction of the work in accordance with all applicable regulations, backfilling and compaction of the trenches and work with flowable fill and native soil in accordance with the Contract Documents, CCTV reports post-installation, and restoring site to pre-construction conditions and hydroseeding all areas where disturbance or excavation/grading was necessary to complete the work.

2.6 BID ITEM 5 – BACKFILLING OF EXISTING ABANDONED-IN-PLACE CONCRETE OUTLET PIPE

Payment for backfilling the existing abandoned-in-place outlet pipe will be made at the contract unit price, in accordance with the Contract Documents. The Contract price for work under this item shall include but is not limited to furnishing all labor, material, tools, and equipment and performing all work required to locate and expose both ends of the pipe, backfilling the pipe with grout, and restoring site to pre-construction conditions for areas where disturbance or excavation/grading is necessary to complete the work, and hydroseeding areas disturbed downstream of the dam crest. This item also includes performing CCTV inspection of the existing abandoned concrete pipe and all related handling and disposal of construction derived waste, excess material, and all other materials as needed to restore the site to pre-construction conditions.

2.7 BID ITEM 6 (PROVISIONAL) – GPR OF EXISTING ABANDONED-IN-PLACE CONCRETE PIPE

Payment for ground penetrating radar (GPR) of the existing abandoned-in-place outlet pipe will be made at the contract unit price, in accordance with the Contract Documents. This item is provisional and shall only be provided if CCTV performed under bid item 5 is not possible and upon the written direction of ARSA. The Contract price work under this item shall include but is not limited to furnishing all labor, material, tools, and equipment and performing all work required for GPR of the existing abandoned concrete pipe, and restoring site to pre-construction conditions.

PART 3 EXECUTION

3.1 CLEANING

- A. Exterior Cleaning: Sweep paved surfaces; rake other surfaces or grounds.
- B. Final Cleaning: Remove all tools, equipment, surplus materials, and rubbish. Refinish surfaces of existing facilities that are marred, scratched, or damaged to match original

condition. Remove grease, dirt, stains, foreign materials, and labels from interior and exterior finished surfaces. Do any required waxing and polishing. Restore existing drive over dam to pre-project conditions. At time of final inspection, project shall be thoroughly clean and ready for use.

3.2 WORK SEQUENCE

- A. The Contractor is responsible for developing a plan for both cleaning and inspection to be reviewed and approved by the Engineer.
- B. The Contractor shall obtain all necessary permits required to complete the Work.
- C. Submit shop drawings and other submittals required by the plans or Contract Documents.
- D. The Contractor shall arrange Contractor's Milestone and work and shall submit such schedule to the Engineer for approval. The detailed Time & Work Schedule shall be settled prior to any construction activities taking place.
- E. Milestones or specific dates listed in these Contract Documents represent only the major items of construction/erection work or interface dates. The milestone dates indicated are considered essential to the satisfactory performance of this Contract and to the coordination of work on the project. The Milestone Dates are not intended to be a complete listing of all work under this Contract.
- F. The Milestone Dates listed represent the latest allowable completion dates. Earlier completion dates may be established as agreed by the Contractor and the Engineer.
- G. If the Contractor should desire or intend to complete the Work earlier than any required milestone or completion date, the Owner or the Engineer shall not be liable to the Contractor for any costs or other damages should the Contractor be unable to complete the Work before such milestone or completion date. The duties, obligations, and warranties of the Owner to the Contractor shall be consistent with and applicable only to the completion of the Work on the milestone and completion dates required in the Owner-Contractor Agreement, unless the Owner, the Engineer, and the Contractor otherwise agree in writing.
- H. Complete the work according to approved project schedule.
- I. Delivery of as-built drawings.
- J. Complete Punch List Items.
- K. Finalize clean up and restore construction areas.

3.3 CONTRACTOR'S USE OF WORK SITE

- A. The Contractor's use of the project site shall be limited to its construction operations. On-site storage of materials, on site fabrication of pipe, and field offices (if deemed necessary by the Contractor) are permitted on site. The fence delineating the property line to the west may be cut for proper staging of the pipe string during sliplining, if necessary, open cut construction, and other activities if needed, provided Owner approval is obtained before construction begins and the fence is restored to pre-construction conditions. The maximum amount of time the fence may be temporarily removed is four weeks total during the course of this contract.
- B. The Contractor shall install signs, barricades, and lights necessary to ensure safety of the public, Contractor's operators and personnel, and Owner and Engineer's operators and personnel.

3.4 OWNER USE OF THE PROJECT SITE

The Owner may utilize all or part of the existing facilities during the entire period of construction for the conduct of the Owner's normal operations. The Contractor shall cooperate and coordinate with the Owner to facilitate the Owner's operations and to minimize interference with the Contractor's operations at the same time. In any event, the Owner shall be allowed to access the project site during the period of construction. The Contractor shall provide free access to the site and the work to the Owner and Owner's representatives at all times during construction as well as representatives from the State of California.

Representatives from DSOD will periodically inspect the work in progress during construction, including the materials being incorporated into the works, as well as the test results and documentation associated with the project. The contractor must allow DSOD representatives access to all locations within the project boundaries. All communications with DSOD pertaining to the project must be coordinated through the Owner's Engineer or their designated representative. DSOD approval of foundation conditions, steel reinforcement, pipe installation, and grouting setup is required prior to placing backfill or concrete associated with the new outlet, grouting the annulus between the old and new outlet pipe, and grouting for the abandonment of the 16-inch outlet.

A 72-hour notice from the Owner's representative is required to schedule a DSOD inspection. Therefore, the contractor must cooperate with the Owner's representative by giving at least 72-hour notice of any inspection requiring DSOD involvement to ensure the Owner has sufficient time to coordinate with DSOD. The 72-hour notification does not include weekends or holidays

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 CONSTRUCTION SITE LOCATION

A. General

1. Shop Drawings and engineering data (submittals) covering all equipment and all fabricated components and building materials which will become a permanent part of the Work under this Contract shall be submitted to Engineer for review, as required. Submittals shall verify compliance with the Contract Documents and shall include drawings and descriptive information in sufficient detail to show the kind, size, arrangement, and the operation of component materials and devices; the external connections, anchorages, and supports required; the performance characteristics; and dimensions needed for installation and correlation with other materials and equipment.
2. Each submittal shall cover items from only one section of the specification unless the item consists of components from several sources. Contractor shall submit a complete initial submittal including all components. When an item consists of components from several sources, Contractor's initial submittal shall be complete including all components.
3. Contractor shall be solely responsible for the completeness of each submittal. Contractor's stamp or affixed approval statement of a submittal, is a representation to Owner and Engineer that Contractor accepts sole responsibility for determining and verifying all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, and that Contractor has reviewed and coordinated each submittal with the requirements of the Work and the Contract Documents.
4. All deviations from the Contract Documents shall be identified as deviations on each submittal and shall be tabulated in Contractor's letter of transmittal. If there are no deviations, the Contractor shall state "NO DEVIATIONS" on their transmittal. Such submittals shall, as pertinent to the deviation, indicate essential details of all changes proposed by Contractor (including modifications to other facilities that may be a result of the deviation) and all required piping and wiring diagrams.
5. The Contractor shall submit submittals, shop drawings and as-builts in both hard copy and electronically.

6. For hard copy portion of the submittals three (3) copies of each drawing and the necessary data shall be submitted to ARSA. ARSA will then submit to ENGINEER for review and will return one (1) marked copy to the Contractor if necessary.
7. For the electronic portion of the submittals, drawings and the necessary data shall be submitted electronically to ARSA as specified below. Submittal documents shall be in black and white unless color is required for the review of the submittal. All electronic files shall be in Portable Document Format (PDF) as generated by Adobe Acrobat Professional Version 7.0 or higher. The PDF file(s) shall be searchable with thumbnails generated. PDF images must be at a readable resolution. For most documents, they should be scanned or generated at 300 dots per inch (dpi). Optical Character Recognition (OCR) capture must be performed on these images so that text can be searched, selected and copied from the generated PDF file. Thumbnails shall be generated for each page or graphic in the PDF file.
8. PDF document properties shall include the submittal number for the document title.
9. Electronic submittal file sizes shall be limited to 10 MB. When multiple files are required for a submittal the least number of files possible shall be created.
10. The Contractor shall email submittals to the Engineer and the Engineer will email submittal review comments back to the Contractor. If necessary, a hard copy will also be marked-up with one (1) copy returned to the Contractor.
11. Facsimiles (fax) will not be acceptable. Engineer will not accept submittals from anyone but Contractor. Submittals shall be consecutively numbered in direct sequence of submittal and without division by subcontracts or trades.
12. The Contractor will submit draft and final As-Builts for review by the Engineer. The final as-built drawings will be signed and stamped by an Engineer hired by the Contractor and Registered in the State of California.

B. Engineer's Review of Submittals

1. Engineer's review of submittals covers only general conformity to the Drawings and Specifications, external connections, and dimensions that affect the layout; it does not indicate thorough review of all dimensions, quantities, and details of the material, equipment, device, or item covered. Engineer's review shall not relieve Contractor of sole responsibility for errors, omissions, or deviations in the drawings and data, nor of Contractor's sole responsibility for compliance with the Contract Documents.
2. Engineer's submittal review period shall be 28 consecutive calendar days and shall commence on the first calendar day following receipt of the submittal or re-submittal in Engineer's office. The time required to mail the submittal or re-submittal back to Contractor shall not be considered a part of the submittal review period.
3. When the drawings and data are returned with review status "NOT ACCEPTABLE" or "RETURNED FOR CORRECTION", the corrections shall be made as instructed by the Engineer. Three (3) hard-copy corrected copies shall be resubmitted as well as the corrected electronic file. The corrected electronic drawings and data shall be resubmitted to the Engineer. Re-submittals by facsimile will not be accepted. When

the drawings and data are returned with review status "EXCEPTIONS NOTED", "NO EXCEPTIONS NOTED", or "RECORD COPY", no additional copies need be furnished unless specifically requested by ARSA or the Engineer.

4. Engineer's review of submittals in no way implies any additional compensation or extension of time to Contractor.

C. Re-Submittal of Drawings and Data

1. Contractor shall accept full responsibility for the completeness of each re-submittal. Contractor shall verify that all corrected data and additional information previously requested by the Engineer are provided on the re-submittal.
2. When corrected copies are resubmitted, Contractor shall direct specific attention to all revisions in writing and shall list separately any revisions made other than those called for by the Engineer on previous submittals. Requirements specified for initial submittals shall also apply to re-submittals. Re-submittals shall bear the number of the first submittal followed by a letter (A, B, etc.) or a unique identification that indicates the initial submittal and correct sequence of each re-submittal.
- 3.
4. When re-submittals are needed, re-submittals shall be made within 30 calendar days of the date of the letter returning the material to be modified or corrected.
5. The need for more than one re-submittal, or any other delay in obtaining Engineer's review of submittals, will not entitle Contractor to extension of the Contract Times unless delay of the Work is the direct result of a change in the Work authorized by a Change Order or failure of Engineer to review and return any submittal to Contractor within the specified review period.

D. Shop Drawings.

1. Shop drawings shall designate the complete installation and shall be suitable for coordinating work of the various trades.
- 2.
3. Mark each copy to identify applicable products, models, options and other data. Supplement manufacturers' standard data to provide information specific to this Project.
4. After review distribute in accordance with the Submittal Procedures article above.

E. As-Built Drawings:

1. Upon completion of the project, the Contractor shall submit to the Engineer one set of mylar as-built drawings depicting all constructed details of the project.
2. Format and General Requirements:
 - a. Size shall be 24in X 36in.

- b. All information shall be drawn in ink.
 - c. The use of posche (shading) is prohibited.
 - d. The Contractor will submit draft and final As-Builts for review by the Engineer. The final as-built drawings will be signed and stamped by an Engineer hired by the Contractor and Registered in the State of California.
 - e. The draft submittal may be on paper. The final submittal shall be both electronic in pdf format and on mylar.
3. Quality of As-Builts
- a. Appearance: As-builts shall be prepared in a professional manner consistent with common engineering standards for layout, lettering and line-work.
 - b. “Understandability”: As-built information shall be portrayed in a manner that is readily understandable by someone not familiar with the specific job.
 - c. Clarity: The Contractor shall endeavor to present as-built information clearly without “cluttering” the drawing.

1.2 CERTIFICATES

- A. When specified in individual Specification Sections, submit certification by the manufacturer, installation/application subcontractor, or Contractor to Engineer, in quantities specified for Shop Drawings.
- B. Indicate material or equipment conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or equipment but must be acceptable to Engineer.

1.3 MANUFACTURER’S INSTRUCTIONS

- A. Keep one copy of manufacturer’s printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing on Site.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

PART 2 MATERIALS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 02100

CONTROLLED DENSITY BACKFILL

PART 1 GENERAL

1.1 SUMMARY

A. Sections Includes

1. The Contractor shall furnish all labor, equipment, and materials to provide controlled density backfill (CDF) in accordance with the provisions of this Section and shall mix, place, finish, and do all other work to produce a cementitious, excavatable mixture of aggregate, cement, pozzolan, water, and admixtures used as initial backfill, structure backfill, trench dams, and abandonment grout, in accordance with the Contract Documents.

1.2 RELATED SECTIONS

A. Section 01300 - Submittals

B. Section 02200 – Excavation, Backfilling and Compaction

1.3 REFERENCES

A. Commercial Standards

1. ACI 229: Controlled Low Strength Materials.
2. ACI 232: Fly Ash/Other Pozzolans in Concrete.
3. ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field.
4. ATSM C33: Standard Specification for Concrete Aggregates.
5. ASTM C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
6. ASTM C42: Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
7. ASTM C94: Standard Specification for Ready-Mixed Concrete.
8. ASTM C150: Standard Specification for Portland Cement.
9. ASTM C260: Standard Specification for Air-Entraining Admixtures for Concrete.
10. ASTM C494: Standard Specification for Chemical Admixtures for Concrete.

11. ASTM C618: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
12. ASTM D4832: Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
13. ASTM D6024: Standard Test Method for Ball Drop on Controlled Low Strength Material (CLSM) to Determine Stability for Load Application.

1.4 SUBMITTALS

- A. Submittals shall be made in accordance with Section 01300 - Submittals.
- B. Quality Control Submittals
 1. Design Data
 - a. Mix Design: Before designing the Work, the Contractor shall submit to the Engineer, CDF mix designs that show the proportions and gradations of all materials proposed for each class and type of CDF specified herein. An independent testing laboratory shall test the mix designs for properties specified herein and results shall be submitted to the Engineer. All costs related to such testing shall be borne by the Contractor.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping
 1. CDF shall be delivered to the Work in standard transit mix trucks.
- B. Acceptance at Site
 1. CDF shall be batched by a ready-mix batching plant acceptable to the Engineer. Batching by the Contractor's own mixing plant will be allowed only after the Contractor provides proof of material suitability through acceptable test batches of the CDF and with the written acceptance by the Engineer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. The material supplied shall be CDF supplied by Pozzolan International, Flowable Compacting Fill by RMC Lonestar, or approved equal.

2.2 MATERIALS

- A. Cement: Cement shall be Type II in accordance with the requirements of ASTM C150 and shall be from a single source.
- B. Pozzolan: Pozzolan shall be added to improve the flowability and shall be Type F in accordance with the requirements of ASTM C618.

- C. Fine Aggregate: Fine aggregates shall consist of clean, sharp, natural sand, Size 7 and shall conform to ASTM C33. All fine aggregates shall be furnished from one (1) source.
- D. Coarse Aggregate: Coarse aggregate shall consist of natural gravels, combinations of gravels and crushed gravels, crushed stone, or a combination of these materials with a maximum size aggregate of one (1) inch. One hundred percent shall pass the one inch sieve. Not more than 50 percent shall be retained by the 3/8-inch sieve and not more than 20 percent shall pass the No. 200 sieve. All material shall be free from organic matter and not contain more alkali, sulfates, or salts than the native materials at the site of the Work.
- E. Admixtures
 - 1. Air entraining admixtures shall be added to improve the workability and shall be in accordance with the requirements of ASTM C260.
 - 2. Water reducing agent shall be added to improve the workability and shall be in accordance with the requirements of ASTM C494.
 - 3. Any accelerating agents to be added shall be free of calcium chloride and any other materials that may be corrosive to the pipe or anything in the surrounding area. All accelerators shall be in accordance with the requirements of ASTM C494.
 - 4. Admixtures shall be submitted as part of the mix design.
- F. Water: Water shall be clean and potable containing less than 50 ppm of chlorides.
- G. CDF Compressive Strength: The minimum 28-day compressive strength shall be 50 psi, and the maximum 28-day compressive strength shall be 300 psi.

2.3 SOURCE QUALITY CONTROL

- A. Tests
 - 1. CDF quality testing will be performed by the Contractor as follows:
 - a. Frequency of sampling: Cast a minimum of five (5) cylinders from each 50 cubic yards, or fraction thereof, of CDF placed in any one (1) day. Sampling and curing shall conform to ASTM D4832.
 - b. CDF shall be tested for compressive strength per ASTM C39.
 - c. CDF materials with test results for strength that are not within the specified range shall be removed and replaced with material conforming to the specifications. All work associated with the removal and replacement of defective materials including any other impacts to the work shall be the sole responsibility of the Contractor at no additional cost to the Owner.

PART 3 EXECUTION

3.1 EXAMINATION

- A. The subgrade and compacted fill and/or trenches/pits to receive CDF shall be complete and acceptable in accordance with SECTION 02200 – Excavation, Backfilling and Compaction.

3.2 ERECTION INSTALLATION APPLICATION

A. Special Techniques

1. Placing CDF

- a. CDF shall be delivered in place by means of tailgate discharge, conveyor belts, pumped in place tremie pipes, or other means acceptable to the Engineer. Placement shall not cause the material to fall and separate/segregate. A vertical drop of no more than five (5) feet will be allowed.
- b. CDF shall be directed in place by means of a vibrator to ensure that all voids, crevices, and pockets are filled with CDF. Care shall be taken to avoid over-consolidation of the material. The CDF shall be thoroughly settled and compacted through the entire depth of the layer that is being consolidated into a dense, homogeneous mass. When used as pipe bedding, CDF placement shall not disjoint or shift pipelines.
- c. CDF shall be continuously placed against fresh material, unless otherwise approved by the Engineer. Where new CDF must be placed against existing CDF, the placement area shall be clean of all loose and foreign material. The surface of existing CDF shall be soaked a minimum of one (1) hour before placement of fresh CDF. No standing water will be allowed before starting placement of fresh CDF.

2. Finishing CDF

- a. The finished surface of CDF shall be relatively smooth, free from undulations, and to the grade shown or directed by the Engineer. Finishing by wood float, steel trowel, or other similar method is not required.

3.3 PROTECTION

A. Protecting CDF

- 1. CDF shall be protected from running water, rain, freezing, and all other conditions that could damage the material before final curing and until the material has been accepted for backfill placement.

B. Shoring Systems

1. Any void left by removal of shoring systems shall be filled with CDF as approved by the Engineer to provide soil support between the backfill zone and the native soil.

END OF SECTION

SECTION 02200

EXCAVATION, BACKFILL AND COMPACTION

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. Excavating, backfilling, compacting, and disposing of earth materials as shown, specified, and required for the purpose of replacing the existing 20-inch diameter concrete outlet pipe as specified in the contract documents.
- B. This Work of this section includes, excavation, backfilling, compaction, grading, and disposal of earth materials required to accomplish the Work.

1.2 RELATED SECTIONS

- A. Section 01300 – SUBMITTALS
- B. Section 02100 – CONTROLLED-DENSITY BACKFILL
- C. Section 02720 – SLIPLINING
- D. Section 02721 – BACKFILL GROUTING FOR SLIPLINED CULVERTS

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. The specifications in this Section are subject to the administrative and procedural requirements specified in Division 1, as well as the broader requirements of the General Conditions.
- B. Standards that are referenced below are the latest known edition of the Standard. The Contractor shall follow the most current industry Standard.
- C. Reference Standards:
 - 1. ASTM C136 - Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D75 - Standard Practice for Sampling Aggregates.

3. ASTM D1140 - Standard Test Methods for Amount of Material in Soils Finer Than the No. 200 (75- μ m) Sieve.
4. ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
5. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
6. ASTM D2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
7. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
8. ASTM D2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
9. ASTM D2974 – Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.
10. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
11. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
12. ASTM D6024 - Ball Drop on Controlled Low Strength Material (CLSM) to Determine Suitability for Load Application.
13. CALTRANS Standard Specifications.
14. CALTRANS Trenching and Shoring Manual.

1.4 SUBMITTALS

A. Permits:

1. The Contractor shall submit a copy of all approved excavation and land use permits to the Engineer prior to site access and the start of construction.

B. Shop Drawings: Comply with Section 01300 and provide the following:

1. Excavation Plan, Detailing:
 - a. Excavation layouts in plan and profile for all excavations.
 - b. Methods and sequence of excavation of sliplining insertion pit, including sloping and shoring as necessary.
 - c. Methods and sequence of excavation for open-cut trenches, including sloping, shoring, and benching as necessary.

- d. Numbers, types, and sizes of equipment proposed to perform excavations.
 - e. Proposed locations of stockpiled excavated material. Stockpiles shall isolate materials from different locations as identified in the special easement conditions.
 - f. Proposed spoil disposal sites with written authorization from the property owner or facility manager accepting the spoil material.
 - g. Contingency plans if signs of instability are observed within excavation or toe of dam.
2. Backfill Compaction Plan, Detailing:
- a. Proposed backfill material including origin, description and method of transportation.
 - b. Proposed methods and sequencing of placement including spreading, moisture conditioning, lift thickness and compaction.
 - c. Proposed compaction equipment including catalog and manufacturer's data sheet
- C. Quality Control Submittals:
- 1. The Contractor shall submit samples of all imported materials proposed to be used in the work not less than 30 days prior to delivery on site. Sample sizes shall be as determined by the Engineer.
 - 2. Certified Gradation Analysis (ASTM C136): Submit not less than 30 days prior to delivery for all imported materials. Sampling shall be in accordance with ASTM D75.
 - 3. Quality Control Testing Plan, including Contractor's internal quality control procedures.
 - 4. Qualifications of material testing laboratory.
 - 5. Results of Contractor's quality control testing, including test locations and method of testing.
 - 6. Manufacturer's product literature, design certifications and calculations signed and sealed by a Professional Engineer currently registered in the State of California for the following items:
 - a. Excavation, shoring, sheeting and/or bracing or other support, where required or needed;
 - b. Trench boxes and shields, where required or needed.
- D. The Contractor shall include in his bid the services of a qualified testing laboratory acceptable to the Engineer to perform compaction testing:
- 1. Test reports on borrow material.
 - 2. Verification of suitability of trench bottom subgrade material, in accordance with specified requirements.

3. Gradation analysis for sub-base and base materials.
4. Field reports; in-place soil density tests will be performed by testing firm retained by the Contractor and approved by the Engineer.

1.5 QUALITY CONTROL

- A. All testing necessary to satisfy Contractor's internal Quality Control (QC) procedures, including but not limited to, tests required to identify materials, to determine suitability of natural and imported materials, to determine compaction characteristics (ASTM D1557), to determine moisture content (ASTM D2216 and D3017), and to determine density of fill in place (ASTM D1556) shall be the sole responsibility of Contractor and shall be performed at no additional cost to the Owner. Contractor shall submit test results to the Engineer.
- B. All testing performed by the Contractor's materials testing laboratory shall be in accordance with the reference standards listed in this Section.
- C. Contractor shall repeat QC tests that fail to meet specifications at no additional cost to the Owner.
- D. References to this Section to soil classification types and standards shall have the meanings and definitions of the Unified Soil Classification System (USCS) indicated in ASTM D2487. Contractor shall be bound by all applicable provisions of said ASTM D2487 in the interpretation of soil classifications.

1.6 QUALITY ASSURANCE

- A. Owner will provide field and laboratory Quality Assurance (QA) testing under the contract, except as in the paragraph below. The materials testing laboratory will work under the direction of the Engineer.
- B. The Owner's materials testing laboratory will perform such periodic tests as are required to identify materials, to determine compaction characteristics, to determine moisture content, and to determine density of fill in place. These tests will be used to verify that backfill conforms to the requirements of these specifications. Such tests are not considered to be part of the Contractor's QC procedure and are not intended to provide the Contractor with information required for the proper execution of the work.
- C. Contractor shall provide free and safe access to the excavation for the Owner's soil compaction testing technician or inspector at all times. This shall include providing all safety equipment and temporary shoring to enable compaction testing at multiple levels in the excavation as directed by the Engineer. Should the Contractor have backfilled to an elevation above that required to be tested, the Contractor shall excavate the backfill down to the necessary level for testing and provide shoring at the Contractor's cost. Subsequent backfilling shall also be at the Contractor's cost.

- D. At each tested location, in case the first QA test of the fill or backfill shows noncompliance with the required specification, the Contractor shall accomplish such remedy as may be required to ensure compliance. After the first test at each location, subsequent QA testing to verify compliance shall be by the Owner's material testing laboratory and shall be at the Contractor's expense.

1.7 DEFINITIONS

- A. Lift: Loose layer of material spread but not compacted.
- B. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D1557. Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Engineer.
- C. Well-Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes producing a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids. Coefficient of uniformity, coefficient of curvature, and other specific grain size distribution parameters are as defined by ASTM D2487.
- D. Optimum Moisture Content: The optimum moisture content of a specified material is determined by ASTM D1557 to obtain the maximum dry density of that material when compacted. Field moisture content shall be determined on the basis of the fraction passing the 3/4-inch sieve.

1.8 WEATHER LIMITATIONS

Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently or has been blended with suitable material to achieve the proper moisture content that allows for proper compaction.

PART 2 MATERIALS

2.1 SUITABLE FILL AND BACKFILL MATERIAL REQUIREMENTS

- A. Only materials defined in these specifications as suitable materials may be used as fill or backfill subject to the indicated limitations. Materials listed as unsuitable shall not be used for the Work. In addition, when acceptable to the Engineer, some of the material listed as unsuitable may be used when thoroughly mixed with suitable material to form a composite suitable material.

- B. Fill and backfill materials shall be selected or processed clean, fine earth, rock, or sand, free from organic matter (grass, roots, brush, or other vegetation).
- C. Suitable materials may be obtained from on-site excavations, may be processed on-site materials, or may be imported. If imported materials are required by this Section to meet the quality and/or quantity requirements of the project, the Contractor shall provide the imported materials as part of the work for that bid item at no additional cost to the Owner.

1. The following types of suitable materials are defined:

a. Controlled-Density Fill, in accordance with specification section 02100.

b. Native Soil:

- 1) Native Soil material shall be soil, loam, or other excavated material with a liquid limit less than 40, and a plasticity index less than 25 when measured in accordance with ASTM D4318. Native Soil material shall be free from rocks or unbroken clods having a maximum dimension of larger than 3 inches.
- 2) The Contractor may choose to import material for use as Native Soil at no additional cost to the Owner. Imported Native Soil material shall meet the requirements of this Section and shall meet the following gradation:

U.S. Standard Sieve Size	Percent by Weight Passing
1 inch	100
3/4 inch	70-100
No. 4	50-100
No. 50	30-100
No. 200	10-70

- 3) Native Soil material shall be free from roots or organic matter, refuse, or other deleterious materials. Native Soil, both local and imported, shall not be unsuitable material, as defined below.
- 4) Soils that require conditioning to meet the requirements of Native Soils material shall be processed by the Contractor in approved lay down areas at no additional cost to the Owner.

2.2 UNSUITABLE MATERIAL

A. Unsuitable materials include:

1. Soils which, when classified under ASTM D 2487 fall in the classifications of PT, OH, CH, MH, or OL.

2. Materials that contain hazardous or designated waste materials including petroleum hydrocarbons, pesticides, heavy metals, and any material which may be classified as hazardous or toxic according to applicable regulations.
3. Soils that are considered to be corrosive or deleterious to the pipe, fittings or concrete.
4. Topsoil, except if required for site restoration.
5. Soil with an organic content of greater than 1 when tested per ASTM D2974

2.3 USE OF FILL AND BACKFILL MATERIAL TYPES

- A. Where these Specifications conflict with the requirements of any local agency having jurisdiction or with the requirements of a pipe material manufacturer, the Engineer shall be immediately notified. In case of conflict between types of trench or final backfill types, the Contractor shall use the agency-specified backfill material if that material provides the greater in-place density after compaction

2.4 WATER FOR MOISTURE CONDITIONING

- A. All foundation and backfill material shall be moisture conditioned.
- B. Use water free of hazardous or toxic contaminants or contaminants deleterious to proper compaction.

PART 3 EXECUTION

3.1 GENERAL

- A. During construction, the Contractor shall provide and maintain adequate equipment to properly remove and dispose of all water entering the trenches, sliplining pit, or other parts of the work. Pipe trenches shall be kept free from water during excavation, pipe laying and jointing. The Contractor shall be responsible for damage resulting from the dewatering operations.
- B. Perform clearing and grubbing as required to perform the Work. Erosion control and Best Management Practices (BMPs) must be established to reduce soil erosion from Work and contain surface water runoff. A SWPPP is not required for this project.
- C. Excavation support: Install and maintain excavation support in the sliplining pit and pipe trench as necessary to support sides of excavations and prevent detrimental and lateral movement of existing facilities and completed Work. As with all work, all applicable CAL/OSHA, State, and County regulations must be followed.

- D. Restrict all excavation to outside of the dam embankment buffer, as outlined on the Contract Drawings.
- E. Do not over excavate without written authorization of the Engineer.
- F. Contractor will coordinate with Division of Safety of Dams (DSOD) no less than fourteen (14) calendar days prior to the start of construction. Coordination with DSOD will be facilitated through the Engineer.

3.2 PROTECTION OF OPEN EXCAVATIONS

Open excavations shall be fenced to protect the public.

3.3 BACKFILL WITHIN TRENCHES

- A. Backfill shall not be dropped directly upon any structure or pipe.
- B. If a section of the concrete junction box requires removal for the HDPE pipe to DIP pipe connection at the junction, no backfill material shall be deposited against the replaced concrete section until the concrete has developed a compressive strength of 3,000 psi, or the concrete has been in place for 7 days, whichever comes later.
- C. Where shown on the drawings, backfill in the trench shall consist of controlled density fill (CDF), placed up approximately 1 to 2 feet below existing grade within the excavation, in accordance with Specification Section 02100 – Controlled Density Backfill. Upon setting, native soil and topsoil shall be placed to restore the site to pre-existing conditions.
- D. For founding the pipe, a 6-inch thick compacted layer of bedding at the bottom of the trench/excavation, and compacted to minimum 95% modified proctor as determined by ASTM D1557 shall be used.
- E. Any over-excavation to get to suitable material shall be backfilled with lean concrete.
- F. For earth fill sections, backfill materials shall be placed and spread evenly in layers. The backfill layers shall be evenly spread so that each layer shall not exceed 4 to 6 inches in loose uncompacted thickness.
- G. During spreading each lift shall be thoroughly mixed at the stockpile as necessary to promote uniformity of materials in the lift.
- H. Fill materials shall be moisture conditioned as required to achieve specified compaction densities. In general, field moisture shall be maintained between 1% below optimum moisture content to 3% above optimum moisture content to achieve compaction requirements. Where the backfill material moisture content is below the specified range,

water shall be added before spreading until the proper moisture content for compaction is achieved. Where the backfill material moisture content is too high to permit the specified degree of compaction, the material shall be worked and/or mixed with drier material until the moisture content is satisfactory.

- I. All moisture conditioning shall be done within the stockpile area and not within the excavation itself.
- J. The excavation at the insertion pit shall be backfilled to an elevation to match conditions prior to start of the Work. Backfill around the pipe in the insertion pit shall be the same as specified for the open-trench.
- K. If shoring systems are used to support the insertion pit or pipe trenches, any voids left by removal of the shoring system shall be filled with Controlled Density Fill (CDF), as approved by the Engineer, to provide soil support between the backfill zone and the native soil.

3.4 FILL

- A. The area where a fill is to be constructed shall be cleared of all vegetation, roots and foreign material. Following this, the surface shall be moistened, scarified to a depth of 6 inches, and rolled or otherwise mechanically compacted. Fill material shall be placed and spread evenly in approximately horizontal layers. Each layer shall be moistened or aerated, as necessary. Unless otherwise approved by the Engineer, each layer shall not exceed 6 inches of compacted thickness.
- B. When a fill is to be made and compacted against an existing slope steeper than 4:1, the slope shall be scarified before loose lift is placed and compacted. A minimum of 12-inches normal to the slope shall be removed and recompacted as fill is brought up in layers. Material thus cut shall be recompacted along with the new material. Backfill shall not be keyed or benched into slopes.

3.5 COMPACTION

- A. Each lift of backfill or fill material shall be compacted.
- B. Flooding, ponding, or jetting shall not be used.
- C. Compaction of native backfill material under the pipe as well as backfill material above the CDF shall be completed using a Jumping Jack Rammer Compactor, Mikasa MTX70HD or equivalent. Compaction equipment other than jumping jacks must be approved by the Engineer at least thirty (30) days prior to the start of Work. Care should be taken not to damage structures during backfilling. This backfill must be compacted to a minimum of 95% modified proctor.

- D. Compaction requirements shall be as shown in the following table in accordance with ASTM D1557. Where agency, utility company or encroachment permit requirements govern, the highest compaction standards shall apply. No more than 1 test out of every 5 performed shall result in a compaction less than 95% modified proctor with no test less than 93%.

Compaction Requirements

Location	Required Percentage of Maximum Dry Unit Weight (D 1557)
Backfill in unpaved areas	95%
Backfill in open trench	95%
Dam Embankment Fill	95%
Backfill beneath structures	95%

3.6 FIELD QUALITY CONTROL

The Contractor shall perform a minimum of one test per 20 cubic yards of backfill or fraction thereof placed. The in-place density of compacted fill shall be determined using ASTM D1556. Nuclear Density Gauge tests are acceptable for the small fill placement provided calibration is performed based on an ASTM D1556 sand cone test. For the development of soil compaction curves, the Contractor shall collect and process a sample for every soil type to be placed during construction. The Contractor shall provide for sieve analysis every soil type used as backfill to determine the percentage of material passing the No. 200 sieve for backfill materials (ASTM D1140).

3.7 SETTLEMENT OF BACKFILL

Settlement of pipe backfill, structure backfill or of fill constructed over trench or structure backfill, will be considered a result of defective compaction of backfill and will be corrected at no cost to the Owner regardless of the compaction test results performed during construction. It is the Contractor's responsibility to repair settlement within the warranty period.

3.8 STOCKPILING EXCAVATED MATERIAL

- A. Stockpile Topsoil in separate topsoil stockpiles so that the topsoil is replaced on the same parcel from where it was removed. Install erosion control measures and BMPs as required by Amador County.
- B. Stockpile native excavated material that is suitable for use as fill or backfill until material is needed.

- C. Confine stockpiles to within easements and approved work and lay down areas. Do not obstruct pathways.
- D. Do not stockpile excavated material adjacent to excavations unless excavation support systems are designed, constructed, and maintained for stockpile loads.
- E. Do not stockpile excavated materials near or over existing facilities, adjacent property, or completed Work.

3.9 DISPOSAL OF SPOIL

- A. Dispose of excavated materials, which are unsuitable or exceed quantity needed for fill or backfill, offsite. Contractor shall make arrangements for and pay all costs and/or retain all profits. Contractor shall provide the Engineer with the location of disposal sites, copies of approved grading plan, copy of grading permit, and written approval by the landowner to dispose of the material.
- B. Dispose of debris resulting from removal of underground facilities in accordance with State and local regulations.

3.10 HYDROSEEDING

- A. Contractor shall hydroseed all areas where construction disturbance occurred upon completion of backfilling and all other site work necessary to complete the project. Hydroseeding shall be performed in accordance with the California Department of Transportation Standard Specifications edition in place at the time of bidding.

3.11 MONITORING AND FIELD REPORTS

- A. Monitor site conditions related to excavation at a toe of a dam and perform daily walkthrough of site at the beginning and end of each shift to observe for tension cracks or other observations that would indicate instability.
- B. Notify Engineer immediately if signs of instability are observed.
- C. Monitor trench for water conditions.
- D. Sand to filter seepage exit shall be stockpiled onsite to address seepage if observed.
- E. All daily observations shall be recorded in a daily observation log and submitted to the Engineer within 24 hours of each shift completion.

END OF SECTION

SECTION 02720

SLIPLINING AND OPEN-CUT PIPE

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. This section specifies the requirements for rehabilitating the existing 20-inch diameter concrete outlet pipe at Henderson Dam using sliplining of 16-inch diameter DR17 smooth-wall high density polyethylene (HDPE) pipe. The new HDPE outlet pipe will be inserted by a winch cable, or other approved method, through the host pipe. The winch cable, or other approved method, will be attached to the front of the new HDPE outlet pipe which is then pulled and/or pushed through the host pipe. The voids or annulus between the host pipe shall be filled with cementitious grout.
- B. This section also covers requirements for the 16-inch diameter DR 17 and 24-inch diameter DR 17 smooth wall high density polyethylene (HDPE) pipe to be installed by open-cut.
- C. This Work of this section cover for the general requirements for the specifications, manufacturer and installer qualifications, submittal and warranty guidelines, materials, pre-installation and installation procedures, and testing.

1.2 RELATED SECTIONS

- A. Section 01010 – SUMMARY OF WORK
- B. Section 01300 - SUBMITTALS
- C. Section 02200 – EXCAVATION, BACKFILLING AND COMPACTION
- D. Section 02721 – BACKFILL GROUTING FOR SLIPLINED CULVERTS

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. This section references American Society for Testing and Materials (ASTM) standards, which are part of this specification. All standards shall be the latest edition and revision at time of Tender submission. The materials, manufacturing, operations, testing, inspection, and production of pipe shall conform to the following standards

1. ASTM D1693 - Standard Test Method for Environmental Stress Cracking of Ethylene Plastics.
2. ASTM D2122 - Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.
3. ASTM D2290 - Standard Test Method for Apparent Hoop Tensile Strength of Plastic or Reinforced Plastic Pipe.
4. ASTM D2412 Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
5. ASTM D2657 Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings.
6. ASTM D2837 Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.
7. ASTM D3212 Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
8. ASTM D3261 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
9. ASTM F477 Standard Specification for Elastomeric Seals (Gaskets) For Joining Plastic Pipe.
10. ASTM F585 Standard Guide for Insertion of Flexible Polyethylene Pipe Into Existing Sewers.
11. ASTM F679 Standard Specification for Polyvinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
12. ASTM F714 Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter.
13. ASTM F1473 Standard Test Method for Notch Tensile Test to Measure the Resistance to Slow Crack Growth of Polyethylene Pipes and Resins.
14. ASTM F2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings.

B. Regulations:

1. All rules, regulations, bylaws and standards referred to shall be the most current, amended and updated versions at the time of Tender submission.

1.4 SUBMITTALS

- A. The Contractor shall submit the following to the Engineer for review at thirty (30) working days in advance of commencing the Work. Submittals shall be done in accordance with Section 01300 – SUBMITTALS.
1. Design Calculations.
 2. Detailed work plan and installation procedures and specific procedures for rehabilitation of the 20" concrete outlet pipe and for open-cut installation work.
 3. Complete details about sliplining system design for the underdrain including all assumptions, component materials and properties, and installation requirements.
 4. A detailed discussion of the proposed quality controls to be performed by the Contractor, including required laboratory testing and on-site testing of liner or other materials.
 5. Shop Drawings.
 6. Manufacturer's product data with complete information on pipeline materials, physical properties, dimensions, maximum recorded external grout pressure, and minimum bending radius or maximum joint angular deflection. Include a manufacturer's certificate of compliance with specifications for proposed materials.
 7. Material safety data sheets (MSDS) for all chemicals to be used.
 8. Third party test results for physical properties shall be submitted for all Polyethylene pipe products and associated technologies to be furnished.
 9. Certified copies that the Contractor is trained and certified to use the Manufacturer's material.
 10. Video tapes showing the completed installation.
 11. Construction QA/QC Procedure.
 12. Work schedule.
 13. Work site footprint and work space requirements.
 14. Workplan for CCTV inspection of existing pipe prior to sliplining and CCTV inspection of new HDPE sliplined pipe upon completion.
 15. Submit proposed spacers including spacer manufacture, model, drawings shown spacer arrangement, and spacing.
 16. Details of mandrel to be used prior to sliplining including material, length and outside diameter.
- B. The Contractor shall submit resumes of the work crew indicating the Contractor and crew meet the experience requirements for this project:

1. Contractor must have minimum five (5) years experience in sliplining projects of similar size and complexity to this project.
 2. Fusing technician must have minimum three (3) years in fusion of HDPE joints per ASTM D3261.
- C. The Contractor shall submit, engineering design calculations, for the required thickness of the proposed new HDPE outlet pipe proposed for the project, using the most severe line condition, (sliplining and open cut sections) and apply that design to all of the line sections. These calculations shall be performed and certified by a qualified, licensed Professional Engineer currently registered in the State of California. All calculations shall include data that conforms to the requirements of these specifications. In the event the calculated thickness by the contractor is thinner than those shown in the bid tabulation, the Contractor will install the specified thickness shown in the bid tabulation.

PART 2 MATERIALS

2.1 NEW HIGH DENSITY POLYETHYLENE OUTLET PIPE

- A. Pipe shall be manufactured to meet the requirements of ASTM F714. Fusing of pipe joints shall meet the requirements of ASTM D2657. Installation practices shall follow the standard practices as set forth in ASTM F585.
- B. The standard dimension ratio (SDR), defined as the specified outside diameter (OD) divided by the minimum wall thickness, shall be demonstrated by calculation to be sufficient to support the worst combination of internal and external installation and operating loads. The wall thickness tolerance shall be within plus 10%. A minimum thickness of 0.94-inches is required.
- C. Fusion of joints shall be performed as per ASTM D3261 by a technician with a minimum of three years of experience. The roll over bead at the point of fusion shall be removed from the interior and exterior of pipe before inserting into the host pipe. Neither the outside diameter of the pipe shall be increased nor the internal diameter of the pipe decreased at each joint.
- D. New HDPE outlet pipe shall be homogeneous and without defects. Cause for rejection includes physical defects of the pipe, such as concentrated ridges, discoloration, excessive spot roughness, pitting, visible cracks, foreign inclusions, varying wall thickness, and diameter variations greater than 5 percent due to temperature induced flattening.

2.2 CEMENTITIOUS GROUT FOR ANNULAR SPACE

Materials, properties, and mix designs for non-shrink grouting of the annular space between the sliplined pipe and the host pipe shall be in accordance with specification Section 02721 – Backfill Grouting For Sliplined Culverts.

2.3 TELEVISION EQUIPMENT

A. Pipe Inspection Camera:

1. Camera system shall be installed on rover sized appropriately for navigating the length of the sliplined and open-cut installations. The camera system shall be pan and tilt type and capable of 180-degree viewpoint.

B. Video of the cleaned existing concrete pipe prior to sliplining, and video sliplined and open-cut pipe shall be recorded upon completion of the installation and all necessary backfilling, annular grouting, and connections. Video shall be recorded at standard play at the necessary resolution to identify any interior imperfection in the pipe. Video shall be submitted to the Engineer and to ARSA upon completion as an electronic file in standard video format that may be viewed using any standard Microsoft Windows operating system on any computer.

2.4 PIPE SUPPORT (SPACERS)

A. Slipline pipe support shall meet the following requirements:

1. Spacers shall be constructed of circular stainless steel bands, which bolt together forming a shell around the carrier pipes. The spacers shall be designed with risers and runners to support within the carrier pipe within the casing and maintain a clearance as shown on the drawings. The design shall maintain pipeline integrity in the event the pipeline floats during installation of backfill grouting.
2. The band shall be manufactured of 8" wide 14-gauge T-304 stainless steel. The risers and runners shall be constructed of high molded polymer or approved equal determined by manufacturer's recommendation. The number of runners and risers is to be determined by the manufacturer's recommendation.
3. Interior surfaces of the circular stainless steel band shall be lined with PVC, having a minimum thickness of .090" with a hardness of Durometer "A" 85
4. Position spacers 1 every 6-ft to 8-ft or more often as recommended by manufacturer.

B. Manufacturers:

1. PSI Products, Inc. (Vancouver, BC)
2. Advance Product & System, Inc. (Lafayette, LA)
3. Engineer Approved Equal

2.5 Mandrel

- A. Furnish a solid wall cylindrical mandrel with maximum length of two times the host pipe inside diameter and a minimum length of 75% of the host pipe inside diameter. Outer diameter of mandrel shall be equal to 1-inch less than the inside diameter of the host pipe. Rigid mandrel shall be constructed of metal or rigid plastic material that can withstand 200 psi without being deformed. Rigid mandrel shall not have adjustable or collapsible legs which would allow reduction in mandrel diameter during testing.
- B. Proving Ring. Furnish "proving ring" with each mandrel. Fabricate ring of 1/2-inch-thick, 3-inch-wide bar steel to diameter 0.02 inches larger than approved mandrel diameter.

PART 3 EXECUTION

3.1 GENERAL

- A. Upon approval by the Engineer, allow three weeks for DSOD to review slip-lining installation plan, including means of cleaning existing pipe interior, pulling head and connection details for winching of HDPE pipe, pulling method, and actual installation procedure.
- B. The Contractor shall notify the Engineer a minimum of fourteen (14) calendar days prior to the start of slip lining operations to coordinate with the Division of Safety of Dams (DSOD).
- C. DSOD inspection and approval of pipe placement, grouting setup, headwall construction, and venting ports is required prior to grouting. 72-hours-notice is required to schedule any DSOD inspection.
- D. Contractor to provide continuous bypass pumping at the upstream sluice gate to dewater the work area and facilitate sliplining work.

3.2 SAFETY

- A. The Contractor shall strictly observe the California Occupational Safety and Health guidelines for this work, with special emphasis on work near excavations.

- B. Provide material safety data sheets (MSDS) for all chemicals to be used to the Engineer for approval, per paragraph 1.4. A.7.

3.3 CLEANING AND PREPARATION

- A. The floor and interior walls of the existing pipe shall be thoroughly cleaned and made free of all foreign materials including dirt, grit, roots, grease, sludge and all debris or material that may be attached to the wall or bottom of the pipe.
- B. Contractor to select appropriate means and methods to completely clean interior of existing concrete outlet pipe without causing additional damage to the pipe, and submit means and methods to the Engineer for review. Means and methods shall effectively remove all debris and corrosive buildup that may obstruct the diameter of the sliplining pipe inclusive of the grout collar brackets. Consideration should be given to the highly degraded condition of the pipe when selecting means and methods for cleaning. Contractor will verify with CCTV video upon completion of interior cleaning that all debris has been cleared and that sliplining can proceed without obstruction.
- C. When grease and oil are present within the pipe an approved detergent may be added to the water or a dilute solution of muriatic acid may be used integrally with the high pressure cleaning water.
- D. All materials resulting from the cleaning of the pipe shall be removed and properly disposed of prior to application of the lining material.
- E. All waste material and cleaning liquids used in the process shall be disposed of properly and shall not be allowed to flow downstream.

3.4 DELIVERY, STORAGE AND HANDLING

- A. Prevent injury or abrasion to pipe during loading, transportation, and unloading. Do not drop pipe from cars or trucks, nor allow pipe to roll down skids without proper restraining ropes. Use suitable, pads, strips, or blocks for each pipe during transportations and while awaiting installation in the field.
- B. Pipes with cuts, gashes, nicks, abrasions, or any such physical damage which are deeper than 10-percent of the wall thickness shall be removed from the Site and be replaced with undamaged pipe at no additional cost to the Owner.

3.5 INSERTION OR ACCESS PITS

- A. Locate pits so that the total number is minimized and footage of new HDPE outlet pipe to be installed in a single pull or push is maximized.

- B. Excavate insertion or access pit in accordance with specification Section 02200 – Excavation, Backfilling, and Compaction.
- C. The insertion pit(s) should be long enough to avoid imposing a bending radius of less than 35 times the outside diameter of the pipe liner during insertion in the case of HDPE.
- D. The insertion pit(s) should be sufficient to allow the entry of the workmen. Shoring and bracing requirements will depend on depth and ground conditions and the Contractor shall determine the necessity for such sheathing and bracing. All temporary supports shall be designed and stamped by a professional engineer currently licensed in the State of California. The top of the existing underdrain shall be exposed to the springline and the crown of the pipe shall be removed as necessary for insertion of the liner. All locations for insertion pits shall be approved by the Engineer and ARSA prior to any work being done.
- E. Sections of liner shall be field connected above the insertion pit using butt-fused joints (in strict accordance with the manufacturer's recommendations and in accordance with applicable specifications of ASTM D-2657). Maximum allowable lateral deflection shall be one inch. Contractor shall take precautions to prevent scoring of slip liner as it is being pushed/pulled into existing underdrain. Fencing on site may be temporarily removed to facilitate string pipe and related requirements for up to 4 weeks as indicated in Specification 01010. All sections of liner must be joined before sliplining activities commence.
- F. All locations for insertion pits must be approved by the ARSA Engineer, and DSOD prior to any work being done.
- G. Pull mandrel through the entire length of pipe to be sliplined. If the mandrel will not pass the entire length, note the location and pull the mandrel from the other end to define the entire length of the undersize pipe or obstruction. Contractor shall notify the Engineer and DSOD immediately if mandrel is unable to pass through host pipe.

3.6 INSTALLATION OF SLIPLINING

- A. Connect a power winch cable to the end of the liner by use of a suitable pulling head. Secure pulling head to liner and attach to power winch cable so that liner can be satisfactorily fed and pulled through the host underdrain. Provide proper protection in insertion pit to prevent ragged edges of existing pipe from scarring new HDPE outlet pipe. Refer to insertion procedure given in ASTM F 585. Do not allow sand or other debris to enter the liner.
- B. Joints:
 - 1. Assemble section of HDPE new HDPE outlet pipe above ground. Fusion joining shall be performed with equipment designed for butt-fusion of pipe by trained personnel. Tensile strength at yield of the butt-fusion joints shall not be less than the pipe.
 - 2. Form joints with a smooth, uniform double rolled back bead made while applying the proper melt, pressure, and alignment. Fabricate a sample joint from each machine

before proceeding with the pipe joints. The Contractor shall visually evaluate each sample joint for bond continuity and test for impact resistance.

3. Prevent machine damage to liner or breakage of butt-fused joints. Allow sufficient time for liner to return to its normal length.
4. Fusion jointing shall be used to join sliplined section of pipe to open-cut section of pipe at the insertion pit.

C. Installation of HDPE pipeline:

1. New HDPE pipe will be installed by pulling.
2. Limit pulling force exerted on the liner to that recommended by the manufacture for the outside diameter and SDR of the liner.
3. Use suitable pipe and pulling head arrangement so that pulling tension will not exceed the manufacturer's recommended value.
4. The pipe shall be inserted with a power winch and steel cable connected to the end of the pipe using an appropriate pulling head. Where necessary a second pulling head may be attached to the other end of the liner for attachment of a tag line to pull the liner back out of the pipe. Alternative pipe pulling methods shall be subject to the approval of the Engineer.
5. Pulling of each liner section shall be continuous from start to completion without interruption, and precautions shall be taken during insertion to protect the new HDPE outlet pipe so that any ragged edges of the host pipe will not score the outside of the liner.
6. A final CCTV inspection of the completed slip-lined HDPE pipe shall be completed and submitted ARSA who shall provide a copy to DSOD.

D. Spacers:

1. Ensure that each pipe section is firmly secured by providing spacers that conform to the specified product requirements. Casing spacers shall be designed to prevent flotation, settlement, and lateral/axial movement of the pipe during placement of backfill grout around pipe.
2. Spacers will be those specified in the Drawings and/or the Specifications. Wood skids or concrete "donuts" are not acceptable.
3. Allowable forces applied to the spacer assembly shall be assessed in advance of insertion into casing. Allowable forces shall not exceed those recommended by the manufacturers of the casing spacer assemblies.
4. The Contractor shall install the casing spacers in accordance with the manufacturer's recommendations. Special care is needed to ensure that sub-components are correctly assembled and evenly tightened, and that no damage is inflicted upon the slipline pipe

3.7 FIELD TESTING

After pipe installation, perform a low-pressure air test before annular grouting and before pipe is sealed in place at existing gate valves. Check integrity of joints that have been fused and verify that liner has not been damaged by inserting it into the host underdrain pipe. Also perform low-pressure air test for open-cut pipe. Should any leaks be observed, they shall be repaired using pipe manufacturer's recommended procedures and retest for leaks. All leakage testing shall be performed in the presence of the Engineer. Repair procedures shall be submitted to the Engineer for review and DSOD for approval prior to commencement of repairs.

3.8 ANNULAR GROUTING

- A. Place bulkheads at upstream and downstream locations immediately following installation of sliplining and prior to grouting.
- B. Commence annular grouting immediately following installation of liner and air test as per paragraph 3.7. The annular space between the liner and the existing underdrain shall be grouted in accordance with specification Section 02721 – Backfill Grouting of Sliplined Culverts.
- C. Precautions shall be taken to prevent collapse of the liner owing to excessive grouting pressure. Limit grouting pressure to 10 psi at the injection point.

3.9 CLEANUP

- A. Upon completion of the Work, cleanup and restore any disturbed areas to a conditions at least equal to that existing prior to commencing the Work, in accordance with other applicable sections of the Contract Document and to the satisfaction of the Engineer.
- B. Restoration of fencing required within 4 weeks of temporary fence removal.
- C. Remove and haul debris, cut-off flush grout pipe and valving to an approved disposal site.

END OF SECTION

SECTION 02721

BACKFILL GROUTING FOR SLIPLINED CULVERTS AND ABANDONED OUTLET PIPE

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. This Section covers backfill grouting of the annular space between the 16-inch DR17 HDPE sliplined pipe and the existing 20-inch diameter host concrete outlet pipe, as detailed on the Contract Drawings. This section also includes location of the existing abandoned 16-inch pipe and backfilling the pipe per the Contract Documents.
- B. The Contractor's work under this Section shall include: all work necessary to perform grouting operations including furnishing, handling, transporting, and storing of all materials and equipment for grouting; mixing and injecting grouts; capping, patching, and plugging the finished grout holes; cleanup of work areas; and all other operations incidental to grouting.

1.2 RELATED SECTIONS

- A. Section 01300 - SUBMITTALS
- B. Section 02720 - SLIPLINING

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM C31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field
 - 2. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - 3. ASTM C109 – Standard test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch or 50-mm Cube Specimens)
 - 4. ASTM C144 – Standard Specification of Masonry Mortar

5. ASTM C150 – Standard Specification for Portland Cement
6. ASTM C311 – Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
7. ASTM C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
8. ASTM C937 – Standard Specification for Grout Fluidifier for Preplaced-Aggregate Concrete

B. ENVIRONMENTAL PROTECTION AGENCY (EPA):

1. EPA Test Method 9045D – Soil and Waste pH

1.4 SUBMITTALS

- A. Provide all submittals at least 30 days in advance of start of backfill grouting operations, with the exception of daily reports, which are to be submitted per the schedule specified below.
- B. Experience Submittals:
 1. Backfill grouting for sliplining projects is specialty contractor work and Contractor shall have a minimum of 5 years of experience working on similar projects. The Contractor or subcontractor supplying and placing backfill grout shall be capable of developing a mix design; batching, mixing, handling and placing grout for sliplining projects; have furnished and placed grout on at least three sliplining projects of the general type and the size specified herein that have been in successful operation; and have a record of experience and quality of work using grout that meets the specifications in the contract documents. Submit evidence of required experience of Contractor and supervisory staff as described elsewhere in this Section. Provide references to substantiate all experience.
 2. Submit qualifications for all Professional Engineers retained by the Contractor for the work, including evidence of required experience as described elsewhere in this Section.
 3. Submit qualifications of Supervisors, including the Contractor's backfill grouting superintendent and foreman, shall be fully qualified to perform the work. The grouting superintendent shall have had previous experience in backfill grouting for sliplining projects under similar project conditions.
 4. As an alternative to the above qualification requirements, the Contractor may employ a manufacturer's representative to supervise supplying and placing of grout. The manufacturer's representative shall be capable of complying with the qualifications specified for the Contractor and shall be acceptable to the Engineer. The manufacturer's representative shall supervise all backfill grouting operations including training the contractor's personnel, mixing designs, and placement of grout in the tunnel.

5. Proposed approved AASHTO and ASTM certified testing laboratory, including qualifications to perform sampling and testing requirements as outlined in the contract documents.
 6. Proposed grout manufacturer, to be approved by the Engineer.
- C. Submit workplan for locating existing 16-inch outlet pipe. Workplan shall identify the following:
1. Workplan for using CCTV to locate the existing pipe.
 2. Workplan for using GPR to locate the existing pipe at the upstream end.
 3. Workplan for exposing the existing pipe from the upstream end.
 4. Submit findings from the investigation and grout plan.
- D. Shop drawings showing backfilling arrangement including breather pipes, bulkheads, backfill pipes, grout mixing and pumping operation.
- E. Mix Design and Product Data: Submit mix designs for backfill grout proposed. Each mix design shall show the ingredients of the mix and shall include:
1. Type, brand, source, and amounts of cement, fly ash, other pozzolans, admixtures, and all other additives.
 2. Source and amount of water.
 3. Specific gravity of all materials.
 4. Test results of proposed grout that will be used on this project.
 5. A certificate of compliance signed by the supplier identifying the type of fly ash and stating that the fly ash is Class F, in accordance with ASTM C 618. Supporting test data shall be furnished. All sampling and testing procedures shall be in accordance with ASTM C 311 and ASTM C 618.
 6. Admixtures: Material specifications and instructions for use.
 7. Air content, unit weight, and compressive strength test results for proposed mix design.
- F. Equipment: Manufacturer's specifications and operation instructions for grouting equipment, including pumps, and ancillary equipment.
- G. Work plan for placing backfill grout: The work plan shall be designed to prevent flotation of carrier pipe, deformation of carrier pipe, and opening of carrier pipe joints. The work plan shall be fully compatible with the work plan submitted for carrier pipe placement and blocking. Potential effects of admixtures on set time shall be addressed in the work plan. Calculations and details of backfill grout placement sequence and procedures shall be prepared by the Contractor's Professional Engineer. The work plan shall also include:
1. Type(s) of equipment.

2. Pumping pressures and rates.
 3. Volumes to be placed per day.
 4. Pipe and injection point locations.
 5. Placing procedures including bulkhead details, batching, mixing, and pumping procedures, conveyance provisions, slickline arrangement (including moving and breaking), arrangement of valves, communications provisions, methods for monitoring mix, testing procedures, and cleanup procedures.
- H. Procedures for backfilling the abandoned 16-inch concrete pipe, including methodology for locating extent of existing sand backfill within pipe, grouting setup, headwall construction, grout mix design, pumping rates and pressures, pumping location, and grout mix design.
- I. Following location of the existing 16-inch concrete pipe, submit the pipe length, diameter, and corresponding pipe volume and submit the corresponding anticipated volume of grout. If CCTV entry and recording was possible, submit the amount of voids or perforations in the pipe and potential additional grout leakage from the pipe into the surrounding backfill that may be experienced.
- J. Test Reports and Certifications:
1. Mill test reports for cement and fly ash.
 2. Certificates of compliance for cement and fly ash.
 3. Certificates of compliance for all admixtures.
 4. A printout of the actual scale weights for all loads batched (submitted at the end of each working day).
 5. Results of compressive strength tests from an approved AASHTO and ASTM certified testing laboratory.
- K. Daily reports and records of backfill grout placement, including but not limited to volumes of materials delivered, volumes placed, stationing of placement, injection locations, pressures, unit weight and air content testing results, time of placement, and designation of test samples prepared that day. Submit daily reports within one day of activities recorded.

PART 2 MATERIALS

2.1 GROUT DESIGN

Grout shall be pumpable through a 0.75-inch diameter steel pipe for a distance of up to 175 feet with a maximum pressure of 10 psi at the point of placement. The grout mix shall provide non-shrink grout concrete with 12-hour minimum initial set up time for grouting process and sequence to be performed in a 24-hour maximum grouting period.

2.2 MATERIALS

A. Bulkheads for Sliplining

1. Hydrophilic Grout: DE NEEF Sealfoam PRe closed cell foam grout; or approved equal.
2. Hydrophobic Grout: Avanti AV-275 Soilgrout; or approved equal.
3. Mortar: Euclid Chemical Speed Crete Blue Line repair mortar; Euclid Chemical Speed Plug hydraulic cement; Cook Brand Rapid Cure Vertical Grade mortar; or approved equal.
4. Carrier to hold grout in place: Avanti AV-219 Fibrotite (Oakum); or approved equal.

B. Cementitious Grout for Backfill

1. Cement: Portland cement, ASTM C 150, Type I or II.
2. Fly ash: Type F, ASTM C618.
3. Sand: If used, shall conform to ASTM C144, except as modified below:

U.S. Standard Sieve Size	Percent Passing by Weight
No. 16	100
No. 30	60-85
No. 50	10-35
No. 100	5-25
No. 200	0-10

4. Water: Use potable water free from deleterious amounts of alkali, acid, and organic materials which would adversely affect the setting time or strength of the backfill grout.
5. Admixtures: Admixtures may only be used when specifically approved by supplier in writing. Admixtures shall be selected by the manufacturer of the sliplining grout to meet the performance requirements, to improve pumpability, to control set time, and to reduce segregation.
6. Limiting Requirements: Unless otherwise specified, each grout mix shall be designed and controlled within the following limits:
7. Portland cement based grout with minimum compressive strength at 28 days shall be 2000 psi, in accordance with ASTM C39. The grout mix shall have less than 1 percent shrinkage by volume

8. The application system shall have sufficient gages, monitoring devices, and tests to determine the efficiency and effectiveness of the grouting work and provide means of accurately determining the amount of grout injected. The Contractor shall be prepared to modify or change his operation should the grouting not perform as proposed. Such modifications and changes shall be done in a timely manner to avoid unnecessary delay to the completion of the Project.

2.3 EQUIPMENT

A. General:

1. Use equipment for mixing and injecting grout that is designed for underground backfill grouting service. Maintain equipment in good operating condition capable of satisfactorily mixing, agitating, and forcing backfill grout through piping at a uniform flow rate under the required constant pressure.
2. Batching, mixing and pumping equipment shall be compatible and of sufficient size and capacity to place grout to distances and volumes required. A constant pressure pump must be used. Use Moyno constant pressure pump or approved equal.
3. An adequate inventory of spare parts or backup equipment shall be provided to ensure that operable backfill grouting equipment is available at all times during the work. Maintain sufficient quantities of spare pressure gauges, stop valves, and other parts on site.
4. Use hose of proper type and diameter to withstand maximum injection pressures used. Limit maximum injection pressures to those described herein.
5. Backfill grouting equipment shall be configured so flushing can be accomplished with grout intake valves closed, with water supply valve open, and with grout pump running at full speed.
6. A back-up pump must be available on-site during the grouting operation. Backup pump shall be a piston pump.
7. The grout system shall be equipped with a re-circulating system so that grout does not harden in the grout lines when switching between grout ports and/or during unexpected breaks in the work.

PART 3 EXECUTION

3.1 GENERAL

- A. Upon approval of the grouting plan by Engineer, allow three weeks for DSOD to review and approve grout mix design and grouting plan, including bulkhead design, mix design, types of equipment, pumping rates and pressures, pumping procedures, and injection locations.

- B. Engineer to coordinate with Division of Safety of Dams (DSOD) as required a minimum of fourteen (14) calendar days prior to the start of construction operation.

3.2 LOCATING EXISTING 16-INCH PIPE

- A. The pipe shall be located as accurately as possible with the following approach:
 - 1. Place a robotic CCTV camera with live video recording capacity and with tracking sonde locator into the exposed downstream outlet.
 - 2. Operate the CCTV camera along the pipe toward the upstream inlet to the furthest extent accessible, and track and mark the sonde location from the surface.
 - 3. Mark the approximate inlet location if this can be determined. Note, the sonde shall be selected so that it emits at a frequency appropriate for the site conditions, pipe and ground material, and depth to allow maximum alignment verification.
- B. If CCTV camera cannot reach the entire length of the sewer or the inlet is not clear, the Contractor shall use a ground penetrating radar (GPR) in the estimated vicinity of the inlet to estimate the location of the 16" pipe or pipe trench/excavation, starting with the location shown on drawings. It is anticipated that an area of minimum 50' by 50' may need to be scanned. The inlet and pipe shall be marked on the ground surface.
- C. Upon location of the upstream end of the pipe, the pipe shall be exposed by excavating. Excavation shall be sloped or shored in accordance with OSHA requirements.
- D. The findings from the investigation and grout plan need to be submitted to DSOD for review and approval prior to the start of grouting. Allow three weeks for DSOD review and approval.
- E. If the upstream end of the pipe cannot be located in the field through any of the methods noted above, an alternative methodology for grouting the 16" pipe from the downstream end only has been included in section 3.7 below. This is only to be applicable after all other efforts to locate and expose the upstream end of the pipe have been exhausted.

3.3 BATCHING AND MIXING

- A. All grout shall be mechanically mixed to produce a uniform distribution of the materials with a suitable consistency and the specified requirements. Excessive mixing shall be avoided in order to reduce the possibility of changes in unit weight and consistency.
- B. In batch mixing operations, follow the manufacturer's recommendations concerning the order of charging the mixer with the various ingredients. The as-cast unit weight shall be monitored at the point of placement. Allowance should be made for any additional mixing that may result from the method of placement, such as mechanical or pneumatic pumping, and for any unit weight changes that may result from these methods.

- C. For continuous mixing operations, provision shall be made for reasonably uniform and continuous rate of addition of all mix components at appropriate positions in the mixing machine, and in the correct ratio, to assure uniformity and the specified limiting requirements at the point of placement.
- D. Alternative methods for batching and mixing grout may be considered on a case-by-case basis and may or may not be acceptable at the sole discretion of the Engineer.

3.4 PLACEMENT OF GROUT IN ANNULAR SPACE BETWEEN SLIPLINED PIPE AND HOST PIPE

- A. Grout shall be placed in the annular space between the sliplined pipe and the host outlet pipe. The annular space shall be completely filled without exceeding the manufacturers recommended pipe deflection or exceeding the grout pressure recommended by the pipe manufacturer, or a maximum grouting pressure at the injection point of 10 psi, whichever is less.
- B. A bulkhead shall be constructed at the open end of each reach of pipe to be backfilled so the annular space will be completely backfilled in accordance with the Contractor's submittal as reviewed by the Engineer and approved by DSOD. Bulkheads shall not be removed until after the grout has set and cured for a 7-day minimum period. Bulkhead shall be designed by the Contractor to withstand grouting pressure loads without leakage and to seal the annular space from water flow.
- C. Take all necessary precautions to protect and preserve the slipliner pipe from damage. Spills shall be minimized and shall be cleaned up immediately. Any damage to the pipe caused by or occurring during the backfilling operations shall be repaired by a method approved by the Engineer, at no additional cost to ARSA.
- D. Standing or running water in the annular space shall be removed or controlled to maintain the correct water ratio of the grout mixture. The annular space shall be grouted by injecting grout from one end of the pipeline segment, allowing it to flow toward the other end. The annular space shall be vented to assure uniform filling of the void space.
- E. All void space outside of the carrier pipe shall be completely filled with backfill grout. Place backfill grout from the downstream to upstream locations, and from the top of the pipe downwards, in accordance with the Contract Documents.

- F. Backfilling of the annular space between the sliplined pipe and the host outlet pipe shall be accomplished by placing backfill in stages, starting from the downstream and working to the upstream locations, and from the bottom of the pipe upward. Contractor shall grout in six stages through $\frac{3}{4}$ -inch nominal diameter schedule 40 steel grout piping fixed to the HDPE liner pipe with stainless steel collar brackets, as detailed in the contract documents. Placement of grout in fewer stages may be acceptable, provided the contractor can demonstrate that the placement techniques will not induce movement of the pipe, pipe overstressing or excessive deformation to the satisfaction of the Engineer, who should have sole discretion in this regard. Pipe flotation shall not be allowed under any scenario.
- G. Provide positive venting to ensure complete grouting around the carrier pipe, particularly in the invert and crown locations. Equip each bulkhead with vent pipes with risers and drain pipes. Begin grouting at a previously completed segment or a bulkhead located at the downstream end of the existing host outlet pipe and proceed upstream. Provide means to allow water and thinned or contaminated grout at the leading edge of the lift to escape. Provide positive venting of air to ensure complete grouting around the carrier pipe, particularly along the existing host outlet pipe crown.
- H. Grouting flow valving and pressure gauges of appropriate range for monitoring the backfill concrete injection pressures shall be located in the line transporting the backfill grout at the point of injection. The maximum grouting pressure at the injection point is 10 psi, but shall not exceed the rated pressure of the pipe joint of values required to prevent carrier pipe movement or damage. Regardless of the pressure, the Contractor shall be solely responsible for any damage or distortion to the slipliner pipe due to grouting. An open ended, high point tap or equivalent vent must be provided and monitored at the bulkhead opposite to the point of grouting.
- I. Volume of backfill grout injected shall be measured, recorded and compared with the anticipated volume per foot of pipe backfill grout. Contractor shall attempt to fill to 100% of theoretical grout volume, however, if 100% is not achievable, and the grout placed is 80% of the estimate, the pipe should be considered successfully grouted and abandoned. If less than 80% is achieved, the Contractor and Engineer shall meet to discuss reasons for lower grout take. The Engineer in their sole discretion will then determine if the lower grout take is acceptable or if additional measures are required. If grout volume exceeds 110% of the theoretical volume for backfilling between the new slip lined pipe and the existing 20-inch pipe, Contractor shall contact the Engineer and DSOD immediately.
- J. Observe the inlet and outlet throughout the operation for any grout release through the air vent ports or ground, and stop grouting immediately if grout is observed in the vicinity of the inlet and outlet as this indicates the grout has largely filled the pipe in this area.
- K. Do not permit grout to enter the existing watercourse or reservoir, and implement immediate containment and removal if this occurs. The slip lined carrier pipe shall be sealed and filled with water to add pressure protection to the operation and additional weight for flotation mitigation. Spacer design including spacing shall account for additional water weight and shall be reviewed and confirmed with manufacturer.

- L. The drilling of access holes from the surface to facilitate backfilling shall not be allowed.

3.5 INSPECTION

- A. DSOD inspection is required prior to grouting operation to approve the pipe placement, grouting setup, headwall construction, and venting ports. ARSA Engineer shall notify DSOD and the Engineer of his/her readiness to proceed at least 72 hours prior to each backfill grouting operation. No grout shall be placed without prior approval by the ARSA Engineer and DSOD.

3.6 BACKFILLING OF ABANDONED 16-INCH CONCRETE PIPE

- A. Prior to grouting, Contractor will be required to locate and delineate the section of pipe that is reported to be currently backfilled with sand by use of CCTV. The grouting operation should proceed in such a way that preserves the existing sand backfill within the pipe. Grouting shall be performed from the upstream end of the pipe. Install grout by tremie pipe from the upstream end of the 16-inch pipe to the downstream end where grout placement will begin. From the downstream end of the pipe to the upstream end, a minimum of 6 tremie pipes shall be placed into the pipe with their ends (grout injection points) spaced equally along the length of the pipe. Grouting shall start through the longest grout pipe first and proceed until an equivalent theoretical volume is placed to reach the end of the next longest grout pipe, or until excessive grouting pressures are observed. At this point, grout shall be injected through the next longest grout pipe. This process shall be repeated until all grout pipes have been used and filled and grout is observed coming through the vent pipe at the obvert of the bulkhead.
- B. If the upstream end of the pipe cannot be located using the methods specified, an alternative grouting approach from the downstream end only would be necessary. In this case, at least two vent pipes shall be inserted from the downstream end of the 16-inch pipe and installed as far into the 16-inch pipe as possible. The downstream ends of the vent pipes shall penetrate through the obvert of the bulkhead so they are visible and accessible. Next at least six (6) grout pipes shall be installed with their end points evenly spaced along the accessible length of the 16-inch pipe, as determined by CCTV and placement of the vent pipes. Grouting shall start through the shortest grout pipe first and proceed until an equivalent theoretical volume is placed to reach the end of the next grout pipe, or until excessive grouting pressures are observed. At that point, grout shall be injected through the next shortest grout pipe. This process shall be repeated until all grout pipes have been used and grout is observed coming through the vent pipe at the obvert of the bulkhead.
- C. If the upstream end of the pipe is located and accessible but the pipe is found to be collapsed in sections, a combination of the two previous methodologies shall be used in order to fill as much of the void inside the existing pipe as possible. In this case grout shall be injected from both ends of the pipe, in which case a minimum of 6 tremie pipes shall also be inserted from the downstream end with grout injection points spaced equally along the length of accessible length of pipe. In the case of grouting from both downstream and upstream ends of the pipe, grouting shall progress sequentially from the downstream to upstream.

- D. Contractor to construct brick and mortar bulkheads at each end of the pipe sufficiently designed to withstand the grout pressures anticipated. Contractor may propose alternate bulkheads at each end of the pipe for review by the Engineer and approval from DSOD. Vent pipes and drain pipe shall be installed on the bulkheads to verify satisfactory completion of the backfilling operation. Bulkheads shall remain in place after grouting completion.
- E. Pumping pressures should be limited to the pressures stated within this specification and so as not to displace the existing sand backfill within the pipe.
- F. Contractor shall attempt to fill to 100% of theoretical grout volume, however, if 100% is not achievable, and the grout placed is 80% of the estimate, the pipe should be considered successfully grouted and abandoned. If less than 80% is achieved, the Contractor and Engineer shall meet to discuss reasons for lower grout take. The Engineer in their sole discretion will then determine if the lower grout take is acceptable or if additional measures are required. If grout volume exceeds 110% of the theoretical volume for backfilling, Contractor shall notify the Engineer and DSOD immediately. Grout volumes shall only exceed 110% of theoretical for the existing abandoned 16-inch pipe if leakage is expected based on perforations or voids in the existing pipe with review from the Engineer and approval from DSOD.
- G. The Contractor shall confirm their proposed methodology and submit in writing for DSOD review prior to initiating the work if their work plan differs from the those specified. The Contractor will be wholly responsible for the means and methods used during construction.

3.7 FIELD AND LABORATORY QUALITY CONTROL

- A. Field control tests, including compression tests shall be performed by an approved AASHTO and ASTM certified testing laboratory and paid for by the Contractor. The results shall be submitted to the Engineer for review and approval by DSOD.
- B. The frequency of testing is specified herein. A greater or lesser number of tests may be made, as required by the Engineer. Assist the Engineer in obtaining additional test cylinders for the Engineer to test in the same quantities as that required for Contractor testing. Supply all materials necessary for fabricating the test cylinders for both Contractor and Engineer collection of samples.
- C. Test specimens shall be collected within the host outlet pipe at or near the connection where the backfill grout is being injected.
- D. Provide at or very near the point of injection, a system of valves in the line transporting the grout, which will allow easy access for collection of test specimens without disconnecting the line from the outlet.

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 SCOPE

- A. Provide all labor, equipment, materials and services necessary for the manufacture, transportation and placement of all concrete work for the open cut trench backfill, as shown on the Drawings or as ordered by the Engineer.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01300 – SUBMITTALS
- B. Section 02200 – EXCAVATION, BACKFILL AND COMPACTION

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Without limiting the generality of the Specifications, all work herein shall conform to or exceed the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.
 - 1. ACI 214 – Guide to Evaluation of Strength Test Results of Concrete
 - 2. ACI 301 – Specifications for Structural Concrete
 - 3. ACI 304 – Guide for Measuring, Mixing, Transporting, and Placing Concrete
 - 4. ACI 305.1 – Specification for Hot Weather Concreting
 - 5. ACI 306.1 – Standard Specification for Cold Weather Concreting
 - 6. ACI 309 – Guide for Consolidation of Concrete
 - 7. ACI 318 – Building Code Requirements for Structural Concrete and Commentary
 - 8. ACI 350 – Code Requirements for Environmental Engineering Concrete Structures
 - 9. ASTM C 31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field
 - 10. ASTM C 33 – Standard Specification for Concrete Aggregates

11. ASTM C 39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
12. ASTM C 136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
13. ASTM C 138 – Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
14. ASTM C 150 – Standard Specification for Portland Cement
15. ASTM C 172 – Standard Practice for Sampling Freshly Mixed Concrete
16. ASTM C 192 – Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
17. ASTM C 494 – Standard Specification for Chemical Admixtures for Concrete

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01300 – Submittals.
 1. Sources of all materials and certifications of compliance with specifications for all materials.
 2. Manufacturer's data on all admixtures stating compliance with required standards.
 3. Concrete mix design for the concrete specified herein.

1.05 QUALITY ASSURANCE

- A. Tests on materials used in the production of concrete shall be required as specified in Part 2 – Materials. These tests shall be performed by an independent testing laboratory approved by the Engineer at no additional cost to the Owner.
- B. Trial concrete mixes shall be tested when required in accordance with Article 3.01 at no additional cost to the Owner.
- C. Field quality control tests, as specified in Article 3.07, unless otherwise stated, will be performed by a materials testing consultant employed by the Owner. However, the Contractor shall be charged for the cost of any additional tests and investigation on work performed which does not meet the Specifications. Any individual who samples and tests concrete to determine if the concrete is being produced in accordance with this Specification shall be certified as a Concrete Field Testing Technician, Grade I, in accordance with ACI CP-2. Testing laboratory

shall conform to requirements of ASTM C- 1077.

PART 2 – MATERIALS

2.01 CEMENT

A. Portland Cement

1. Portland Cement shall be Type II conforming to ASTM C 150..

2.02 FLY ASH

- #### **A.**
- Fly ash shall meet the requirements of ASTM C 618 for Class F, except that the loss on ignition shall not exceed 4%. Fly ash shall also meet the optional physical requirements for uniformity as shown in Table 3 of ASTM C 618.

2.03 WATER

- #### **A.**
- Water used for mixing concrete shall be clear, potable and free from deleterious substances such as objectionable quantities of silty organic matter, alkali, salts and other impurities.
- #### **B.**
- Water shall not contain more than 100 PPM chloride.
- #### **C.**
- Water shall not contain more than 500 PPM dissolved solids.
- #### **D.**
- Water shall have a pH in the range of 4.5 to 8.5.
- #### **E.**
- Water shall meet requirements of ASTM C 1602.

2.04 AGGREGATES

- #### **A.**
- All aggregates used in normal weight concrete shall conform to ASTM C 33.
- #### **B.**
- Fine Aggregate (Sand) in the various concrete mixes shall consist of natural or manufactured siliceous sand, clean and free from deleterious substances, and graded within the limits of ASTM C 33.
- #### **C.**
- Coarse aggregates shall consist of hard, clean, durable gravel, crushed gravel or crushed rock. Coarse aggregate shall be size #57 or #67 as graded within the limits given in ASTM C 33 unless otherwise specified.

a.

D. .

2.05 ADMIXTURES

- A. Admixtures containing intentionally added chlorides shall not be used.
- B. The following admixtures are required or used for water reduction, slump increase, and/or adjustment of initial set, and enhancing durability. Admixtures permitted shall confirm to the requirements of ASTM C 494. Admixtures shall be non-toxic after 30 days and shall be compatible with and made by the same manufacturer as the air-entraining admixtures.
 - 1. Water reducing admixture shall conform to ASTM C 494, Type A and shall contain no more than 0.05% chloride ions. Acceptable products are “Eucon Series” by the Euclid Chemical Company, “Master Pozzolith Series or Master Polyheed Series” by BASF Corporation, and “Plastocrete Series” by Sika Corporation.
 - 2. High range water reducer shall conform to ASTM C 494, Type F or G. The high range water reducer shall be added to the concrete at either the batch plant or at the job site and may be used in conjunction with a water reducing admixture. The high range water reducer shall be accurately measured and pressure injected into the mixer as a single dose by an experienced technician. A standby system shall be provided and tested prior to each day’s operation of the job site system. Concrete shall be mixed at mixing speed for a minimum of 100 mixer revolutions after the addition of the high range water reducer. Acceptable products are “Eucon 37” or Plastol 5000 by the Euclid Chemical Company, “Master Rheobuild 1000 or Master Glenium Series” by BASF Corporation, and “Daracem 100 or Advaflo Series” by W.R. Grace.
 - 3. Workability Retaining Admixture shall conform to ASTM C 494, Type S. The admixture shall retain concrete workability without affecting time of setting or early- age strength development. Acceptable products are “MasterSure Z 60” by BASF Corporation, or equal.
- C. Admixtures containing calcium chloride, thiocyanate or more than 0.05 percent chloride ions are not permitted. The addition of admixtures to prevent freezing is not permitted.

2.06 CONCRETE MIX DESIGN

- A. The proportions of cement, aggregates, admixtures and water used in the concrete mixes shall be based on the results of field experience or preferably laboratory trial mixes in conformance with "Proportioning on the Basis of Field Experience and/or Trial Mixtures" of ACI 318 and ACI 350. When trial mixes are used, they shall also conform to Article 3.01 of this Section of the Specifications. If field experience records are used, concrete strength results shall be from concrete mixed with all of the ingredients proposed for use on job used in similar proportions

to mix proposed for use on job. Contractor shall submit verification confirming this stipulation has been followed. Field experience records and/or trial mix data used as the basis for the proposed concrete mix design shall be submitted to the Engineer along with the proposed mix.

- B. The concrete used in the trench backfill shall conform to the following requirements. Cementitious materials refer to the total combined weight of all cement and fly ash contained in the mix.
1. Compressive Strength (28-Day): 4,000 psi (minimum)
 2. Water/cementitious materials ratio, by weight: 0.5 (maximum) and 0.39 (minimum)
 3. Slump range
 - a. 4" nominal unless high range water reducing admixture is used
 - b. 8" max if high range water reducing admixture is used.
 4. Air Content: 3% Max. (non air-entrained)

PART 3 – EXECUTION

3.01 TRIAL MIXES

- A. When trial mixes are used to confirm the quality of a proposed concrete mix in accordance with , "Proportioning on the Basis of Field Experience and/or Trial Mixtures" of ACI 318 and ACI 350, an independent qualified testing laboratory designated and retained by the Contractor shall test a trial batch of each of the preliminary concrete mixes submitted by the Contractor. The trial batches shall be prepared using the aggregates, cement, supplementary cementitious materials, and admixtures proposed for the project. The trial batch materials shall be of a quantity such that the testing laboratory can obtain enough samples to satisfy requirements stated below. Tests on individual materials stated in MATERIALS should already be performed before any trial mix is done. The cost of laboratory trial batch tests for each specified concrete mix will be borne by the Contractor and the Contractor shall furnish and deliver the materials to the testing laboratory at no cost to the Owner.
- B. The independent testing laboratory shall prepare a minimum of fifteen (15) standard test cylinders in accordance with ASTM C 31 in addition to conducting slump (ASTM C 143), air content (C 231) and density (C 138) tests. Compressive strength test on the cylinders shall subsequently be performed by the same laboratory in accordance with ASTM C 39 as follows: Test 3 cylinders at age 7 days; test 3 cylinders at age 21 days; test 3 cylinders at age 28 days and test 3 cylinders at 56 days. The cylinders shall be carefully identified as "Trial Mix, Contract No. , Product ." If the average 28-day compressive strength of the trial mix is less than that specified, or if any single cylinder falls below the required strength by more than 500 psi, the mix shall be corrected, another trial batch prepared, test cylinders taken, and new tests performed as before. Any such additional trial batch testing required shall be performed at no

additional cost to the Owner. Adjustments to the mix shall be considered refinements to the mix design and shall not be the basis for extra compensation to the Contractor.

3.02 PRODUCTION OF CONCRETE

- A. All concrete shall be machine mixed. Hand mixing of concrete will not be permitted. The Contractor may supply concrete from a ready mix plant or from a site mixed plant. In selecting the source for concrete production, the Contractor shall carefully consider its capability for providing quality concrete at a rate commensurate with the requirements of the placements so that well bonded, homogenous concrete, free of cold joints, is assured.
- B. Ready-Mixed Concrete
 - 1. At the Contractor's option, ready-mixed concrete may be used meeting the requirements for materials, batching, mixing, transporting, and placing as specified herein and in accordance with ASTM C 94.
 - 2. Truck mixers shall be equipped with electrically-actuated counters by which the number of revolutions of the drum or blades may be readily verified. The counter shall be of the resettable, recording type, and shall be mounted in the driver's cab. The counters shall be actuated at the time of starting mixers at mixing speeds.
 - 3. Each batch of concrete shall be mixed in a truck mixer for not less than 100 revolutions of the drum or blades at the rate of rotation designated by the manufacturer of equipment. Additional mixing, if any, shall be at the speed designated by the manufacturer of the equipment as agitating speed. All materials including mixing water shall be in the mixer drum before actuating the revolution counter for determining the number of revolutions of mixing.
 - 4. Each and every concrete delivery shall be accompanied by a delivery ticket containing at least the following information:
 - a. Date and truck number
 - b. Ticket number
 - c. Mix designation of concrete
 - d. Cubic yards of concrete
 - e. Cement brand, type and weight in pounds
 - f. Weight in pounds of fine aggregate (sand)
 - g. Weight in pounds of coarse aggregate (stone)

- h. Air entraining agent, brand, and weight in pounds and ounces
 - i. Other admixtures, brand, and weight in pounds and ounces
 - j. Water, in gallons, stored in attached tank
 - k. Water, in gallons, maximum that can be added without exceeding design water/cementitious materials ratio
 - l. Water, in gallons, actually used (by truck driver)
 - m. Time of loading
 - n. Time of delivery to job (by truck driver)
5. Any truck delivering concrete to the job site, which is not accompanied by a delivery ticket showing the above information will be rejected and such truck shall immediately depart from the job site.

C. Site Mixed Concrete

1. Scales for weighing concrete ingredients shall be accurate when in use within ± 0.4 percent of their total capacities. Standard test weights shall be available to permit checking scale accuracy.
2. Operation of batching equipment shall be such that the concrete ingredients are consistently measured within the following tolerances:
 - a. Cement, fly ash, or slag cement ± 1 percent
 - b. Water ± 1 percent
 - c. Aggregates ± 2 percent
 - d. Admixtures ± 3 percent
3. Each batch shall be so charged into the mixer that some water will enter in advance of the cement and aggregates. Water shall continue for a period which may extend to the end of the first 25 percent of the specified mixing time. Controls shall be provided to prevent batched ingredients from entering the mixer before the previous batch has been completely discharged.
4. The concrete shall be mixed in a batch mixer capable of thoroughly combining the aggregates, cement, and water into a uniform mass within the specified mixing time,

and of discharging the concrete without harmful segregation. The mixer shall bear a manufacturer's rating plate indicating the rate capacity and the recommended revolutions per minute and shall be operated in accordance therewith.

5. Mixers with a rate capacity of 1 cubic yard or larger shall conform to the requirements of the Plant Mixer Manufacturers' Division of the Concrete Plant Manufacturers' Bureau.
6. Except as provided below, batches of 1 cubic yard or less shall be mixed for not less than 1 minute. The mixing time shall be increased 15 seconds for each cubic yard or fraction thereof of additional capacity.
7. Shorter mixing time may be permitted provided performance tests made in accordance with of ASTM C 94 indicate that the time is sufficient to produce uniform concrete.
8. Controls shall be provided to ensure that the batch cannot be discharged until the required mixing time has elapsed. At least three-quarters of the required mixing time shall take place after the last of the mixing water has been added.
9. The interior of the mixer shall be free of accumulations that will interfere with mixing action. Mixer blades shall be replaced when they have lost 10 percent of their original height.
10. Chemical admixtures shall be charged into the mixer as solutions and shall be measured by means of an approved mechanical dispensing device. The liquid shall be considered a part of the mixing water. Admixtures that cannot be added in solution may be weighed or may be measured by volume if so recommended by the manufacturer.
11. If two or more admixtures are used in the concrete, they shall be added separately to avoid possible interaction that might interfere with the efficiency of either admixture or adversely affect the concrete.
12. Addition of retarding admixtures shall be completed within 1 minute after addition of water to the cement has been completed, or prior to the beginning of the last three-quarters of the required mixing, whichever occurs first. Retarding admixtures shall not be used unless approved by the Engineer.
13. Concrete shall be mixed only in quantities for immediate use and within the time and mixing requirements of ASTM C 94.

3.03 CONCRETE PLACEMENT

- A. No concrete shall be placed prior to approval of the concrete mix design. Concrete placement shall conform to the recommendations of ACI 304.

- B. Prior to concrete placement, all reinforcement shall be securely and properly fastened in its correct position. Formwork shall be clean, oiled and form ties at construction joints shall be retightened. Construction joints shall be cleaned and roughened to ¼-inch amplitude. All bucks, sleeves, castings, hangers, pipe, conduits, bolts, anchors, wire, and any other fixtures required to be embedded therein shall be in place. Forms for openings to be left in the concrete shall be in place and anchored by the Contractor. All loose debris in bottoms of forms or in keyways shall be removed and all debris, water, snow, ice and foreign matter shall be removed from the space to be occupied by the concrete. The Contractor shall notify the Engineer in advance of placement, allowing sufficient time for a concurrent inspection and for any corrective measures which are subsequently required. DSOD approval of foundation conditions and steel reinforcement is required prior to placing concrete associated with the new outlet pipe in the open-cut trench with reinforced concrete backfill.
- C. All concrete shall be placed during the daylight hours except with the consent of the Engineer. If special permission is obtained to carry on work during the night, adequate lighting must be provided.
- D. When concrete arrives at the project with slump below that suitable for placing, as indicated by the Specifications, water may be added to bring the concrete within the specified slump range provided that the design water-cementitious materials ratio is not exceeded. The water shall be incorporated by additional mixing equal to at least half of the total mixing required. Water may be added only to full trucks. On-site tempering shall not relieve the Contractor from furnishing a concrete mix that meets all specified requirements.
- E. Placing of concrete shall be so regulated that the pressure caused by the wet concrete shall not exceed that used in the design of the forms.
- F. When placing concrete which is to be exposed, sufficient illumination shall be provided in the interior of the forms so the concrete, at places of deposit, is visible from deck and runways.
- G. Concrete shall be placed so as to thoroughly embed all reinforcement, inserts, and fixtures. For placement of the initial lifts of the concrete encasements, the concrete must be placed on one side of the pipe and vibrated under and to the other side of the pipe to ensure adequate consolidation and the elimination of voids under the pipe.
- H. When forms are removed, surfaces shall be even and dense, free from aggregate pockets or honeycomb. To achieve this, concrete shall be consolidated using mechanical vibration, supplemented by forking and spading by hand in the corners and angle of forms and along form surfaces while the concrete is plastic under the vibratory action. Consolidation shall conform to ACI 309.

- I. Mechanical vibration shall be applied directly to the concrete, unless otherwise approved by the Engineer. Vibration shall be applied at the point of deposit and in the area of freshly placed concrete by a vertical penetration of the vibrator. Vibrators shall not be used to move concrete laterally within the forms.
- J. In placing unformed concrete on slopes, the concrete shall be placed ahead of a non- vibrated slip-form screed extending approximately 2-1/2 feet back from its leading edge. The method of placement shall provide a uniform finished surface with the deviation from the straight line less than 1/8 inch in any concrete placement. Concrete ahead of the slip-form screed shall be consolidated by internal vibrators so as to ensure complete filling under the slip-form. Prior to placement of concrete on sloped walls or slabs, the Contractor shall submit a plan specifically detailing methods and sequence of placements, proposed concrete screed equipment, location of construction joints, and/or any proposed deviations from the aforementioned to the Engineer for review and approval.
- K. Concrete shall not be placed during rains sufficiently heavy or prolonged to wash mortar from coarse aggregate on the forward slopes of the placement. Once placement of concrete has commenced in a block, placement shall not be interrupted by diverting the placing equipment to other uses.

3.04 ORDER OF PLACING CONCRETE

- A. In order to minimize the effects of shrinkage, the concrete shall be placed in units as bounded by construction joints shown on the Drawings and maximum lengths as indicated on Drawings. Where required on the Drawings and wherever else practical, the placing of such units shall be done in a strip pattern in accordance with ACI 302.1. A minimum of 72 hours shall pass prior to placing concrete directly adjacent to previously placed concrete.

3.05 CONCRETE WORK IN COLD WEATHER

- A. Cold weather concreting procedures shall conform to the requirements of ACI 306.1.
- B. The Engineer may prohibit the placing of concrete at any time when air temperature is 40°F. or lower. If concrete work is permitted, the concrete shall have a minimum temperature, as placed, of 55°F. for placements less than 12" thick, 50°F. for placements 12" to 36" thick, and 45°F. for placements greater than 36" thick. The temperature of the concrete as placed shall not exceed the aforementioned minimum values by more than 20°F, unless otherwise approved by the Engineer.
- C. All aggregate and water shall be preheated. Precautions shall be taken to avoid the possibility of flash set when aggregate or water are heated to a temperature in excess of 100°F. in order to meet concrete temperature requirements. The addition of admixtures to the concrete to prevent freezing is not permitted. All reinforcement, forms, and concrete accessories with which the concrete is to come in contact shall be defrosted by an approved method. No concrete shall be

placed on frozen ground.

3.06 CONCRETE WORK IN HOT WEATHER

- A. Hot weather concreting procedures shall conform to the requirements of ACI 305.1.
- B. When air temperatures exceed 85°F., or when extremely dry conditions exist even at lower temperatures, particularly if accompanied by high winds, the Contractor and his concrete supplier shall exercise special and precautionary measures in preparing, delivering, placing, finishing, curing and protecting the concrete mix. The Contractor shall consult with the Engineer regarding such measures prior to each day's placing operation and the Engineer reserves the right to modify the proposed measures consistent with the requirements of this Section of the Specifications. All necessary materials and equipment shall be on hand in position prior to each placing operation.
- C. Preparatory work at the job site shall include thorough wetting of all forms, reinforcing steel and, in the case of slab pours on ground or subgrade, spraying the ground surface on the preceding evening and again just prior to placing. No standing puddles of water shall be permitted in those areas which are to receive the concrete.
- D. The temperature of the concrete mix when placed shall not exceed 95°F.
- E. Temperature of mixing water and aggregates shall be carefully controlled and monitored at the supplier's plant, with haul distance to the job site being taken into account. Stockpiled aggregates shall, if necessary, be shaded from the sun and sprinkled intermittently with water. If ice is used in the mixing water for cooling purposes, it must be entirely melted prior to addition of the water to the dry mix.
- F. Delivery schedules shall be carefully considered in advance to ensure that concrete is placed as soon as practical after mixing. For hot weather concrete work (air temperature greater than 85°F), discharge of the concrete to its point of deposit shall be completed within 60 minutes from the time the concrete is batched, unless workability-retaining admixtures are included and approved by the Engineer.
- G. The Contractor shall arrange for an ample work force to be on hand to accomplish transporting, vibrating, finishing, and covering of the fresh concrete as rapidly as possible.

3.07 QUALITY CONTROL

- A. Field Testing of Concrete
 - 1. The Contractor shall coordinate with the Engineer's project representative the on- site

scheduling of the materials testing consultant personnel as required for concrete testing.

2. Concrete for testing shall be supplied by the Contractor at no additional cost to the Owner, and the Contractor shall provide assistance to the materials testing consultant in obtaining samples. The Contractor shall dispose of and clean up all excess material.

B. Consistency

1. The consistency of the concrete will be checked by the materials testing consultant by standard slump cone tests. The Contractor shall make any necessary adjustments in the mix as the Engineer and/or the materials testing consultant may direct and shall upon written order suspend all placing operations in the event the consistency does not meet the intent of the specifications. No payment shall be made for any delays, material or labor costs due to such eventualities.
2. Slump tests shall be made in accordance with ASTM C 143. Slump tests will be performed as deemed necessary by the materials testing consultant and each time compressive strength samples are taken.
3. Concrete with a specified nominal slump shall be placed having a slump within 1” (higher or lower) of the specified slump. Concrete with a specified maximum slump shall be placed having a slump less than the specified slump.

C. Unit Weight

1. Samples of freshly mixed concrete shall be tested for unit weight by the materials testing consultant in accordance with ASTM C 138.
2. Unit weight tests will be performed as deemed necessary by the Engineer and each time compressive strength samples are taken.

D. Air Content

1. Samples of freshly mixed concrete will be tested for entrained air content by the materials testing consultant in accordance with ASTM C 231.
2. Air content tests will be performed as deemed necessary by the materials testing consultant and each time compressive strength samples are taken.
3. In the event test results are outside the limits specified, additional testing shall occur. Admixture quantity adjustments shall be made immediately upon discovery of incorrect air entrainment.

E. Compressive Strength

1. Samples of freshly mixed concrete will be taken by the materials testing consultant and tested for compressive strength in accordance with ASTM C 172, C 31 and C 39, except as modified herein.
2. In general, one sampling shall be taken for each placement in excess of five (5) cubic yards, with a minimum of one (1) sampling for each day of concrete placement operations, or for each one hundred (100) cubic yards of concrete, or for each 5,000 square feet of surface area for slabs or walls, whichever is greater.
3. Each sampling shall consist of at least five (5) 6x12 cylinders or (8) 4x8 cylinders. Each cylinder shall be identified by a tag, which shall be hooked or wired to the side of the container. The materials testing consultant will fill out the required information on the tag, and the Contractor shall satisfy himself that such information shown is correct.
4. The Contractor shall be required to furnish labor to the Owner for assisting in preparing test cylinders for testing. The Contractor shall provide approved curing boxes for storage of cylinders on site. The insulated curing box shall be of sufficient size and strength to contain all the specimens made in any four consecutive working days and to protect the specimens from falling over, being jarred or otherwise disturbed during the period of initial curing. The box shall be erected, furnished and maintained by the Contractor. Such box shall be equipped to provide the moisture and to regulate the temperature necessary to maintain the proper curing conditions required by ASTM C 31. Such box shall be located in an area free from vibration such as pile driving and traffic of all kinds and such that all specimen are shielded from direct sunlight and/or radiant heating sources. No concrete requiring inspection shall be delivered to the site until such storage curing box has been provided. Specimens shall remain undisturbed in the curing box until ready for delivery to the testing laboratory but not less than sixteen hours.
5. The Contractor shall be responsible for maintaining the temperatures of the curing box during the initial curing of test specimens with the temperature preserved between 60°F and 80°F as measured by a maximum-minimum thermometer. The Contractor shall maintain a written record of curing box temperatures for each day curing box contains test specimens. Temperature shall be recorded a minimum of three times a day with one recording at the start of the work day and one recording at the end of the work day.
6. When transported, the cylinders shall not be thrown, dropped, allowed to roll, or be damaged in any way.
7. Compression tests shall be performed in accordance with ASTM C 39. For 6x12 cylinders, two test cylinders will be tested at seven days and two at 28 days. For 4x8 cylinders, three test cylinders will be tested at seven days, three at 28 days. The remaining cylinders will be held to verify test results, if needed.

F. Evaluation and Acceptance of Concrete

1. Evaluation and acceptance of the compressive strength of concrete shall be according to the requirements of ACI 214, ACI 318, and ACI 350.
 2. The strength level of concrete will be considered satisfactory if all of the following conditions are satisfied.
 - a. Every arithmetic average of any three consecutive strength tests equals or exceeds the minimum specified 28-day compressive strength for the mix.
 - b. No individual compressive strength test results falls below the minimum specified strength by more than 500 psi.
 3. In the event any of the conditions listed above are not met, the mix proportions shall be corrected for the next concrete placing operation.
 4. In the event that condition 2B is not met, additional tests in accordance with Article 3.07, Paragraph H shall be performed.
 5. When a ratio between 7-day and 28-day strengths has been established by these tests, the 7-day strengths shall subsequently be taken as a preliminary indication of the 28-day strengths. Should the 7-day test strength from any sampling be more than 10% below the established minimum strength, the Contractor shall:
 - a. Immediately provide additional periods of curing in the affected area from which the deficient test cylinders were taken.
 - b. Maintain or add temporary structural support as required.
 - c. Correct the mix for the next concrete placement operation, if required to remedy the situation.
 6. All concrete which fails to meet the ACI requirements and these specifications is subject to removal and replacement at no additional cost to the Owner.
- G. When non-compliant concrete is identified, test reports shall be sent immediately to the Engineer for review.

3.08 CARE AND REPAIR OF CONCRETE

- A. The Contractor shall protect all concrete against injury or damage from excessive heat, lack of moisture, overstress, or any other cause until final acceptance by the Owner. Particular care shall be taken to prevent the drying of concrete and to avoid roughening or otherwise damaging the surface. Care shall be exercised to avoid jarring forms or placing any strain on the ends of projecting reinforcing bars. Any concrete found to be damaged, or which may have been originally defective, or which becomes defective at any time prior to the final acceptance

of the completed work, or which departs from the established line or grade, or which, for any other reason, does not conform to the requirements of the Contract Documents, shall be satisfactorily repaired or removed and replaced with acceptable concrete at no additional cost to the Owner.

- B. Areas of honeycomb shall be chipped back to sound concrete and repaired as directed.
- C. Areas of concrete in which cracking, spalling, or other signs of deterioration develop prior to final acceptance shall be removed and replaced or repaired as directed. This stipulation includes concrete that has experienced cracking due to drying or thermal shrinkage of the concrete. Structural cracks shall be repaired using an approved epoxy injection system. Non-structural cracks shall be repaired using an approved hydrophilic resin pressure injected grout system, unless other means of repair are deemed necessary and approved. All repair work shall be performed at no additional cost to the Owner.
- D. Concrete which fails to meet the strength requirements as outlined in Article 3.07, Paragraph F, will be analyzed as to its adequacy based upon loading conditions, resultant stresses and exposure conditions for the particular area of concrete in question. If the concrete in question is found unacceptable based upon this analysis, that portion of the structure shall be strengthened or replaced by the Contractor at no additional cost to the Owner. The method of strengthening or extent of replacement shall be as directed by the Engineer.

**END OF
SECTION**



Prepared by:
Stantec Consulting Services Inc.
3875 Atherton Road
Rocklin, CA 95765
916.773.8100
www.stantec.com