

INVITATION FOR BIDS

SOLICITATION INFORMATION AND SCHEDULE

Solicitation Number: **PW17-010**

Project Number: **WA1372**

Solicitation Title: **Rancho Santa Fe Reservoir Modifications and Coating**

Release Date: **September 14, 2016**

MANDATORY
Prospective Bidders' Conference: **September 21, 2016**
9:00 a.m. (local-time, Phoenix, Arizona)
Sonoran Conference Room
11465 West Civic Center Drive
Avondale, Arizona 85323

A site visit will immediately follow the conference.

Final Date for Inquiries: **September 22, 2016**

Bid Deadline: **October 5, 2016**
3:00 p.m. (local-time, Phoenix, Arizona)

Bid Opening: **October 5, 2016**
3:00 p.m. (local-time, Phoenix, Arizona)

Department Representative: Mike Smith msmith@avondale.org
623-333-4450

Procurement Administrator: Tiffany Copp tcopp@avondale.org
623-333-4213

In accordance with the City of Avondale Procurement Code, competitive sealed Bids for the services specified herein will be received by the City Clerk at the City Clerk's Office at the above-referenced location until the date and time referenced above (the "Bid Deadline"). Bids received by the Bid Deadline shall be publicly opened and the Bid Price read. Bids shall be in the actual possession of the City Clerk on, or prior to, the Bid Deadline date. Late Bids shall not be considered except as provided in the City Procurement Code. Bids shall be submitted in a sealed envelope with the Solicitation Number and the Bidder's name and address clearly indicated on the front of the envelope.

There is no charge for the first set of Plans and Specifications.
Each additional set may be obtained in accordance with the City's Fee Schedule.
Plans and Specifications may be picked up at the City of Avondale.

*** The City of Avondale reserves the right to amend the solicitation schedule as necessary.**

OFFER

The undersigned (the "Bidder") hereby offers this Bid as an offer to contract with the City under the terms and conditions set forth below and certifies that Bidder has read, understands and agrees to fully comply with, and be contractually bound by, all terms and conditions as set forth in this Invitation For Bids ("IFB"), the Contract formed hereby (as defined below) and any amendments thereto, together with all Exhibits, Specifications, Plans and other documents included as part of this Contract (the "Contract Documents").

Arizona Transaction (Sales) Privilege Tax License Number: _____ Federal Employer Identification Number: _____ <div style="text-align: center;">Contractor Name</div> _____ <div style="text-align: center;">Address</div> _____ <div style="display: flex; justify-content: space-between;"> City State Zip Code </div>	For Clarification of this Bid contact: Name: _____ Telephone: _____ Facsimile: _____ Email: _____ _____ <div style="text-align: center;">Authorized Signature for Contractor</div> _____ <div style="text-align: center;">Printed Name</div> _____ <div style="text-align: center;">Title</div>
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ACCEPTANCE OF OFFER AND NOTICE OF AWARD (FOR CITY OF AVONDALE USE ONLY)

Effective Date: _____ Contract No. _____ Official File: _____

CITY OF AVONDALE, an Arizona municipal corporation

 David W. Fitzhugh, City Manager

ATTEST:

 Carmen Martinez, City Clerk

APPROVED AS TO FORM:

 Andrew J. McGuire, City Attorney

ARTICLE I - DEFINITIONS

For purposes of this Invitation for Bids, the following definitions shall apply:

- 1.1 “Bid” or “Offer” means a responsive bid or quotation submitted by a Bidder in response to this Invitation for Bids.
- 1.2 “Bid Deadline” means the date and time set forth on the cover of this IFB for the City Clerk to be in actual possession of the sealed Bids.
- 1.3 “Bid Opening” means the date and time set forth on the cover of this Invitation for Bids for opening of sealed Bids.
- 1.4 “Bidder” means any person or firm submitting a competitive Bid in response to this IFB.
- 1.5 “City” means the City of Avondale, an Arizona municipal corporation.
- 1.6 “City Representative” means the City employee who has specifically been designated to act as a contact person to the City’s Procurement Administrator, and who is responsible for monitoring and overseeing the Contractor’s performance under this Contract and for providing information regarding details pertaining to the Work.
- 1.7 “Confidential Information” means that portion of a Bid, proposal, Offer, Specification or protest that contains information that the person submitting the information believes should be withheld, provided (i) such person submits a written statement advising the City of this fact at the time of the submission and (ii) the information is so identified wherever it appears.
- 1.8 “Contract” means, collectively, the (i) Offer/Bid, (ii) this IFB, including all exhibits, (iii) the Notice of Award, (iv) the Notice to Proceed or Purchase Order(s), (v) any approved Addendum, Change Order or Amendment, (vi) the Contractor’s Certificates of Insurance and a copy of the Declarations Page(s) of the insurance policies, (vii) the Certificate of Completion and (viii) any Plans, Specifications or other documents attached, appended or incorporated herein by reference. Alternate or optional bid items will become part of this Contract only if they are accepted by the City in writing on the Price Sheet.
- 1.9 “Contractor” means the individual, partnership, corporation or limited liability company who has submitted a Bid in response to this IFB and who, as a result of the competitive bidding process, is awarded a contract for Materials or Services by the City.
- 1.10 “Contract Time” means the time period during which the Contractor must complete all of the Work related to the Project.
- 1.11 “Day(s)” means calendar day(s) unless otherwise specified.
- 1.12 “Engineer” means the City Engineer or authorized designee.
- 1.13 “Final Completion” shall be defined as set forth in Section 3.18 and shall occur not later than 30 Days from the date of Substantial Completion unless otherwise designated by the Engineer and subject to modification by changes in the Work as provided in Section 3.16 below.
- 1.14 “Invitation for Bids” or “IFB” means this request by the City for participation in the competitive bidding process according to all documents, including those attached or incorporated herein by reference, utilized for soliciting Bids for the Materials and/or Services in compliance with the City’s Procurement Code.

1.15 “MAG Specifications” means, collectively, the “Uniform Standard Specifications for Public Works Construction,” current edition as of the date of Contract award and the “Uniform Standard Details for Public Works Construction,” current edition as of the date of Contract award, which are sponsored and distributed by the Maricopa Association of Governments (“MAG”) and any amendments or supplements adopted by the City.

1.16 “MAG Supplement” means the City of Avondale Supplement to the MAG Uniform Standard Specifications and Details for Public Works Construction, dated April, 2008.

1.17 “Materials” means any personal property, including equipment, materials, replacements and supplies provided by the Contractor in conjunction with this Contract and shall include, in addition to Materials incorporated in the Project, equipment and other material used and/or consumed in the performance of the Work.

1.18 “Multiple Award” means an award of an indefinite quantity contract for one or more similar products, commodities or Services to more than one Bidder.

1.19 “Price” means the total expenditure for the defined Project, inclusive of all Materials, commodities or Services.

1.20 “Procurement Administrator” means a City employee, as designated on the cover of this IFB, who has specifically been designated to act as a contact person to the Bidders and/or Contractor relating to their IFB.

1.21 “Procurement Agent” means the City Manager or authorized designee.

1.22 “Procurement Code” means the City’s Procurement Code, as amended from time to time.

1.23 “Project” means the purpose and Work described as set forth in Section 2.1, in the “Purpose/Scope of Work” of the IFB.

1.24 “Punch List” means that list of items provided by City to Contractor at the time of Substantial Completion indicating items to be completed or corrected, including the time for completion or correction by Contractor after Substantial Completion.

1.25 “Services” means the furnishing of labor, time or effort by a Contractor, not involving the delivery of a specific end product other than reports which are merely incidental to the required performance and as further defined in this Contract. This term does not include “professional and technical services” as defined in the Procurement Code.

1.26 “Specification” means any description of the physical characteristics, functional characteristics, or the nature of a commodity, product, supply or Services. The term may include a description of any requirements for inspecting, testing, or preparing a supply or service item for delivery.

1.27 “Subcontractor” means those persons or groups of persons having a direct contract with the Contractor to perform a portion of the Work and those who furnish Materials according to the plans and/or Specifications required by this Contract.

1.28 “Substantial Completion” shall be defined as set forth in Section 3.17 below and shall occur not later than the date set forth in the Schedule, subject to modification by changes in the Work as provided in Section 3.16 below.

1.29 “Vendor” means any firms, entities or individuals desiring to prepare a responsive Bid in response to this Invitation for Bids.

1.30 “Work” means all labor, Materials and equipment incorporated or to be incorporated in the Project that are necessary to accomplish the construction required by this Contract.

ARTICLE II – BID PROCESS; BID AWARD

2.1 Purpose/Scope of Work. The Work included in this Project consists of the repair and recoating of a 1.75 MG steel reservoir, replacement of a 20 inch gate valve and other miscellaneous work. The recoating Work will include a high solids coating application. The Project is located at 12550 West McDowell Road, Avondale, Arizona. The City is issuing this IFB is to secure a qualified Arizona General Engineering Class A Licensed Contractor to perform the Work and provide Materials as more particularly described in the Specifications attached hereto as Exhibit A, and incorporated herein by reference. Bidders must submit Bids encompassing the entire Project, inclusive of the related Plans and/or Construction Drawings. Failure to do so may result in a determination that the Bid is non-responsive.

2.2 Amendment of IFB. Except as set forth in Section 3.57 below, no alteration may be made to this IFB or the resultant Contract without the express, written approval of the City in the form of an official IFB addendum or Contract amendment. Any attempt to alter this IFB/Contract without such approval is a violation of this IFB/Contract and the City Procurement Code. Any such action is subject to the legal and contractual remedies available to the City including, but not limited to, Contract cancellation and suspension and/or debarment of the Bidder or Contractor.

2.3 Preparation/Submission of Bid. Bidders are invited to participate in the competitive bidding process for the Project specified in this IFB. Bidders shall review their Bid submissions to ensure the following requirements are met.

A. Irregular/Non-responsive Bids. The City will consider as “irregular” or “non-responsive” and shall reject any Bid not prepared and submitted in accordance with the IFB and Specifications, or any Bid lacking sufficient information to enable the City to make a reasonable determination of compliance with the Specifications. Unauthorized or unreasonable exceptions, conditions, limitations, or provisions shall be cause for rejection. Bids may be deemed non-responsive at any time during the evaluation process if, in the sole opinion of the Procurement Agent, any of the following are true:

1. Bidder does not meet the minimum required skill, experience or requirements to perform the Work or provide the Materials.
2. Bidder has a past record of failing to fully perform or fulfill contractual obligations.
3. Bidder cannot demonstrate financial stability.
4. Bid submission contains false, inaccurate or misleading statements that, in the opinion of the Procurement Agent, are intended to mislead the City in its evaluation of the Bid.

B. Specification Minimums. Bidders are reminded that the Specifications in this IFB are the minimum levels required and that Bids submitted must be for products that meet or exceed the minimum level of all features specifically listed in this IFB. Bids offering less than the minimums specified will be deemed not responsive. It shall be the Bidder’s responsibility to carefully examine each item listed in the Specifications.

C. Required Submittal. Bidders shall provide **all of the following** documents to be considered a responsive Bid:

1. Complete, fully executed original of this IFB, with the Offer signed in ink by a person authorized to bind the Bidder.

2. Price Sheet.
3. Bid Bond.
4. Licenses; /DBE & MBE Status.
5. References.
6. Federal Requirements, if applicable.
7. Acknowledgment for each Addendum received, if any.

D. Bidder Responsibilities. All Bidders shall (1) examine the entire Bid package, (2) seek clarification of any item or requirement that may not be clear, (3) check all responses for accuracy before submitting a Bid and (4) submit the entire, completed Bid package by the official Bid Deadline. Late Bids shall not be considered. Bids not submitted with an **original, signed** Offer page by a person authorized to bind the Bidder shall be considered non-responsive. Negligence in preparing a Bid shall not be good cause for withdrawal after the Bid Deadline.

E. Sealed Bids. All Bids shall be sealed and clearly marked with the IFB title and number on the lower left hand corner of the mailing envelope. A return address must also appear on the outside of the sealed Bid.

F. Address. All Bids shall be directed to the following address: City Clerk, 11465 West Civic Center Drive, Suite 200, Avondale, Arizona 85323, or hand-delivered to the City Clerk's office.

G. Bid Forms. All Bids shall be on the forms provided in this IFB. It is permissible to copy these forms if required. Telegraphic (facsimile), electronic (email) or mailgram Bids will not be considered.

H. Modifications. Erasures, interlineations, or other modifications in the Bid shall be initialed in original ink by the authorized person signing the Bid.

I. Withdrawal. At any time prior to the specified Bid Opening, a Bidder (or designated representative) may amend or withdraw its Bid. Facsimile, electronic (email) or mailgram Bid amendments or withdrawals will not be considered. No Bid shall be altered, amended or withdrawn after the specified Bid Deadline, unless otherwise permitted pursuant to the City Procurement Code.

2.4 Inquiries; Interpretation of Plans, Specifications and Drawings.

A. Inquiries. Any question related to the IFB, including any part of the Plans, Specifications, Scope of Work or other Contract Documents, shall be directed to the City Representative and Procurement Administrator whose names appear on the cover page of this IFB. Verbal or telephone inquiries directed to City staff **will not be answered**. Within two business days following the Final Date for Inquiries listed on the cover page of this IFB, answers to all questions received in writing or via e-mail will be mailed, sent via facsimile and/or e-mailed to all parties who obtained an IFB package from the City and who legibly provided a mailing address, facsimile and/or e-mail address to the City. Questions shall be submitted in writing by the date indicated on the cover page of this IFB; the City will not respond to any inquiries submitted later than the Final Date for Inquiries. The Vendor submitting such inquiry will be responsible for its prompt delivery to the City. Any correspondence related to the IFB shall refer to the title and number, page and paragraph. However, the Bidder shall not place the IFB number and title on the outside of any envelope containing questions, because such an envelope may be identified as a sealed Bid and may not be opened until the Bid Opening. Any interpretations or corrections of the proposed Contract Documents will be made only by

addenda duly approved and issued by the City. The City will not be responsible for any other explanations or interpretations of the Contract Documents.

B. Addenda. It shall be the Bidder's responsibility to check for addenda issued to this IFB. Any addendum issued by the City with respect to this IFB will be available at:

City of Avondale City Hall, 11465 West Civic Center Drive, Avondale, Arizona 85323
Buyhub website at <http://eprocare.avondale.org>
City of Avondale website at www.avondale.org/procurement

C. Approval of Substitutions. The Materials, products, and equipment described in this IFB establish a standard or required function, dimension, appearance and quality to be met by any proposed substitution. No substitute will be considered unless written Substitution/Equal Request in the form attached hereto as Exhibit B, has been received by the City Representative at least 10 Days prior to the Bid Deadline. Each such request shall include the name of the Material or equipment for which it is to be substituted and a complete description of the proposed substitute, including any drawings, performance and test data and any other information necessary for evaluation of the substitute. If a substitute is approved, the approval shall be by written addendum to the IFB. Bidder shall not rely upon approvals made in any other manner.

D. Use of Equals. When the Specifications for materials, articles, products and equipment include the phrase "*or equal*," Bidder may bid upon and use materials, articles, products and equipment that will perform equally the requirements imposed by the general design. The Engineer will have the final approval of all materials, articles, products and equipment proposed to be used as an "equal." No such "equal" shall be purchased or installed without prior, written approval from the Engineer. No "equal" will be considered unless a written Substitution/Equal Request, in the form attached hereto as Exhibit B, has been received by the City Representative at least 10 Days prior to the Bid Deadline. The request shall include the name of the material or equipment for which the item is sought to be considered an equal and a complete description of the proposed equal including any drawings, cuts, performance and test data and any other information necessary for evaluation of the equal. All approval of equals shall be issued in the form of written addendum or amendment, as applicable, to this IFB or the Contract.

E. Bid Quantities. It is expressly understood and agreed by the parties hereto that the quantities of the various classes of Services and/or Materials to be furnished under this Contract, which have been estimated as stated in the Bidders' Offer, are only approximate and are to be used solely for the purpose of comparing, on a consistent basis, the Bidders' Offers presented for the Work under this Contract. The selected Contractor agrees that the City shall not be held responsible if any of the quantities shall be found to be incorrect and the Contractor will not make any claim for damages or for loss of profits because of a difference between the quantities of the various classes of Services and/or Materials as estimated and the Services and/or Materials actually provided. Contractor is responsible for ensuring that all Materials contained in the Plans for the project are bid on the Price Sheet. Contractor shall bring any potential discrepancy between the Plans and the Price Sheet to the City's attention, either at the Prospective Bidders' Conference or by written inquiry, as set forth in Subsection 2.4(A) above. If any error, omission or misstatement is found to occur, the same shall not (1) invalidate this Contract or the whole or any part of the Scope of Work, (2) excuse Contractor from any of the obligations or liabilities hereunder or (3) entitle Contractor to any damage or compensation except as may be provided in this Contract.

2.5 Prospective Bidders' Conference. A Prospective Bidders' Conference may be held. If scheduled, the date and time of the Prospective Bidders' Conference will be indicated on the cover page of this IFB. The Prospective Bidders' Conference may be designated as mandatory or non-mandatory on the cover of this IFB. Bids shall not be accepted from Bidders who do not attend a mandatory Prospective Bidders' Conference. Bidders are strongly encouraged to attend those Prospective Bidder's Conferences designated as non-mandatory. The purpose of the Prospective Bidders' Conference will be to clarify the contents of the IFB in order to prevent any misunderstanding of the City's requirements. Any doubt as to the requirements of this

IFB or any apparent omission or discrepancy should be presented to the City at the Prospective Bidders' Conference. The City will then determine if any action is necessary and may issue a written amendment or addendum to the IFB. Oral statements or instructions will not constitute an amendment or addendum to the IFB.

2.6 New Materials. All Materials to be provided by the Contractor and included in the Bid shall be new, unless otherwise stated in the Specifications.

2.7 Prices. Work shall be performed at the unit prices as set forth in the Price Sheet attached hereto as Exhibit C and incorporated herein by reference. Bid prices shall be submitted on a per unit basis by line item, when applicable and include all applicable transaction privilege (sales) tax. In the event of a disparity between the unit price and extended price, the unit price shall prevail. **NOTE: All pricing blanks must be filled in. Empty or unfilled spaces in the Bid Price Sheet shall result in a determination that a Bid is non-responsive.**

2.8 Payment; Discounts. Any Bid that requires payment in less than 30 Days shall not be considered. Payment discounts of 30 Days or less will not be deducted from the Bid Price in determining the low Bid. The City shall be entitled to take advantage of any payment discount offered, provided payment is made within the discount period. Payment discounts shall be indicated on Price Sheet.

2.9 Taxes. The City is exempt from Federal Excise Tax, including the Federal Transportation Tax. Transaction privilege tax, if any, shall be included in the unit price for each line item. It shall not be considered a lump sum payment item. Bidder should not include tax on any allowances. It is the sole responsibility of the Bidder to determine any applicable State tax rates and calculate the tax accordingly. Failure to accurately tabulate any applicable taxes may result in a determination that a Bid is non-responsive. The Bidder shall not rely on, and shall independently verify, any tax information provided by the City.

2.10 Federal Funding. It is the responsibility of the Bidder to verify and comply with federal requirements that may apply to the Work (the "Federal Requirements"). It is also the responsibility of the Bidder to incorporate any necessary amounts in the Bid to accommodate for required federal record-keeping, necessary pay structures or other matters related to the Federal Requirements. Federal Requirements, if any, shall be attached hereto as Exhibit D. In addition to any applicable Federal Requirements, this procurement is subject to a number of state and City regulations. In general, where these rules conflict, the more stringent law or rule applies.

2.11 Cost of Bid/Proposal Preparation. Bids submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner. The City does not reimburse the cost of developing, presenting or providing any response to this solicitation; the Bidder is responsible for all costs incurred in responding to this IFB. All materials and documents submitted in response to this IFB become the property of the City and will not be returned.

2.12 Public Record. All Bids shall become the property of the City. After Contract award, Bids shall become public records and shall be available for public inspection in accordance with the City's Procurement Code, except that any portion of a Bid that was designated as confidential pursuant to Section 2.13 below shall remain confidential from and after the time of Bid opening to the extent permitted by Arizona law.

2.13 Confidential Information. If a Vendor/Bidder believes that a Bid, Specification, or protest contains information that should be withheld from the public record, a statement advising the Procurement Agent of this fact shall accompany the submission and the information shall be clearly identified. The information identified by the Vendor or Bidder as confidential shall not be disclosed until the Procurement Agent makes a written determination. The Procurement Agent shall review the statement and information with the City Attorney and shall determine in writing whether the information shall be withheld. If the City Attorney determines that it is proper to disclose the information, the Procurement Agent shall inform the Vendor or Bidder in writing of such determination.

2.14 Vendor Licensing and Registration. Prior to the award of the Contract, the successful Bidder shall (A) be registered with the Arizona Corporation Commission and authorized to do business in Arizona and (B) have a completed Request for Vendor Number on file with the City Financial Services Department. Bidders shall provide license and certification information with the Bid, attached as Exhibit E and incorporated herein by reference. Upon the City's request, corporations, limited liability companies, partnerships or other entities shall provide Certificates of Good Standing from the Arizona Corporation Commission.

2.15 Bidder Qualifications.

A. Experience and References. Bidder must demonstrate successful completion of at least three similar projects within the past 60 months, one of which must have a dollar value of at least 75% of the total bid for this Project as set forth in the Price Sheet, attached as Exhibit C. Total bid price does not include any City allowances identified. For the purpose of this Solicitation, "successful completion" means completion of a project within the established schedule and budget and "similar projects" resemble this Project in size, nature and scope. References for these three projects shall be listed on the sheet attached hereto as Exhibit F and incorporated herein by reference. *These references will be checked*, and it is Bidder's responsibility to ensure that all information is accurate and current. Bidder authorizes the City's representative to verify all information from these references and releases all those concerned from any liability in connection with the information they provide.

B. Investigation. The City's representative may conduct any investigation deemed necessary to determine the Bidder's ability to perform the Work in accordance with the Contract Documents. The three lowest Bidders may be requested to submit additional documentation within 72 hours (or as specified) to assist the City in its evaluation.

2.16 Certification. By submitting a Bid, the Bidder certifies:

A. No Collusion. The submission of the Bid did not involve collusion or other anti-competitive practices.

B. No Discrimination. It shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246.

C. No Gratuity. It has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip favor or service to a City employee, officer, agent or elected official in connection with the submitted Bid or a resultant Contract. In the event that the resultant Contract is canceled pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover and withhold from the Contractor an amount equal to 150% of the gratuity.

D. Financial Stability. It is financially stable, solvent and has adequate cash reserves to meet all financial obligations including any potential costs resulting from an award of the Contract.

E. No Signature/False Statement. The signature on the Bid and the Vendor Information Form is genuine. Failure to sign the Bid and the Vendor Information Form, or signing either with a false statement, shall void the submitted Bid and any resulting Contract, and the Bidder may be debarred from further bidding in the City.

2.17 Bid Bond. All Vendors desiring to prepare a responsive Bid shall submit a non-revocable bid security payable to the City in the amount of ten percent (10%) of the total Bid Price. This security shall be in the form of a bid bond, certified check or cashier's check and must be in the possession of the City Representative by the Bid Deadline. All bid security from Contractor(s) who have been issued a Notice of Award shall be held until the successful execution of all required Contract Documents and bonds. If the Contractor fails to execute the required contractual documents and bonds within the time specified, or 10 Days after Notice of Award if no period

is specified, the Contractor may be found to be in default and this Contract terminated by the City. In case of default, the City reserves all rights inclusive of, but not limited to, the right to purchase material and/or to complete the Work and to recover any actual excess costs associated with such completion from the Contractor. All bid bonds shall be executed in the form attached hereto as Exhibit G, duly executed by the Bidder as Principal and having as Surety thereon a Surety company holding a Certificate of Authority from the Arizona Department of Insurance to transact surety business in the State of Arizona. Individual sureties are unacceptable. All insurers and sureties shall have, at the time of submission of the proposal, an A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company. As soon as is practicable after the completion of the evaluation, the City will (A) issue a Notice of Award for those Offers accepted by the City and (B) return all checks or bonds to those Bidders who have not been issued a Notice of Award.

2.18 Award of Contract.

A. Multiple Award. The City may, at its sole discretion, accept Bidder's Offer as part of a Multiple Award.

B. Evaluation. The evaluation of this Bid will be based on, but not limited to, the following: (1) compliance with Specifications, (2) Price, including alternates selected by the City, if any, and taxes, but excluding "as-needed" services requested by the City and (3) Bidder qualifications to perform the Work.

C. Waiver, Rejection, Reissuance. Notwithstanding any other provision of this IFB, the City expressly reserves the right to: (1) waive any immaterial defect or informality, (2) reject any or all Bids or portions thereof and (3) cancel or reissue an IFB.

D. Offer. A Bid is a binding offer to contract with the City based upon the terms, conditions and Specifications contained in this IFB and the Bidder's responsive Bid, unless any of the terms, conditions, or Specifications are modified by a written addendum or Contract amendment. Bids become binding Contracts when the Acceptance of Offer and Notice of Award is executed in writing by the City. Bidder Offers shall be valid and irrevocable for **90** Days after the Bid Opening.

E. Protests. Any Bidder may protest this IFB, the proposed award of a Contract, or the actual award of a Contract. All protests will be considered in accordance with the City Procurement Code.

ARTICLE III – GENERAL TERMS AND CONDITIONS

PART A - GENERAL

3.1 Reference Standards. The Contractor shall perform the Work required in conformance with MAG Specifications and the MAG Supplement, each of which is incorporated herein by reference. In the event of a conflict between the MAG Specifications and the MAG Supplement, the MAG Supplement shall prevail.

3.2 Plans and Specifications to Successful Contractor. The successful Contractor may obtain five sets of Plans and Specifications for this Project from the Engineer at no cost.

3.3 Contract Time. The Contract Time for this Project shall be 22 weeks from the Notice to Proceed. All Work on the Project shall be completed on or before the expiration of the Contract Time.

3.4 Pre-Construction Conference. Within 30 Days of the issuance of the Notice of Award, the Contractor shall attend a pre-construction conference. The City will contact the Contractor to schedule a specific date, time and location for the pre-construction conference. The purpose of this conference is to outline specific items and procedures and to address items that require special attention on the part of the Contractor. The Contractor may also present proposed variations in procedures that the Contractor believes may (A) improve the Project, (B) reduce cost or (C) reduce inconvenience to the public. Any necessary coordination and procedures for

construction inspection and staking will be addressed during the pre-construction conference. The Contractor will be required to provide the following items at, or prior to, the pre-construction conference, each of which is subject to review and approval by the Engineer:

A. Key Personnel; Subcontractors. A list of the names and emergency telephone numbers of all proposed key personnel, Subcontractors and suppliers that the Contractor intends to utilize on the Project, in the form attached hereto as Exhibit H and incorporated herein by reference. The term “Key Personnel” means individuals who will be directly assigned to this Project and includes, but is not limited to, the owner, principals, project manager, project superintendent, scheduler, construction engineer and supervisory personnel. At least two of the Bidder’s Key Personnel must have a minimum of three years’ experience in similar projects (defined above) and the scheduler must have experience in employing scheduling techniques appropriate for this Project. Resumes of Key Personnel shall be submitted upon request by the City’s representative. Proposed Subcontractors shall be qualified and have the requisite professional or technical licenses and be licensed to do business in the State of Arizona. The list shall include such information on the professional background of each of the assigned key individuals as may be requested by the City Representative. Such key personnel and Subcontractors shall be satisfactory to the Engineer and shall not be changed except with the consent of the Engineer. Additionally, the Engineer shall have the right to request that the Contractor personnel and Subcontractors be removed from the Project if, in the Engineer’s sole discretion, such personnel or Subcontractor(s) are detrimental to the Project delivery process. Upon receipt of such request, the Contractor shall remove such personnel or Subcontractor(s) unless the Contractor can provide the City with sufficient documentation to prove it is commercially impractical to replace the personnel or Subcontractor(s) with substitute personnel possessing similar qualifications. The Engineer’s approval of substituted personnel or Subcontractor(s) shall not be unreasonably withheld.

B. Progress Schedule. A construction progress schedule showing the estimated time for start and completion of the major items of Work.

C. Payment Schedule. A payment schedule showing the estimated dollar volume of Work for each calendar month during the life of the Project.

D. Traffic Control. A written proposal, prepared by an individual who is IMSA or ATSSA certified, outlining the intended plans for traffic control and for maintaining continuous access to residences and businesses along the construction site.

E. Drawings, Materials & Equipment. An itemized list of all required shop drawings, material and equipment submittals and a schedule indicating the dates each of these items will be transmitted to the City for review.

3.5 Notice to Proceed. Within 45 Days of the issuance of the Notice of Award the City may issue a written Notice to Proceed. The Notice to Proceed shall stipulate the actual Contract start date, the Contract Time and the dates of Substantial Completion and Final Completion. The time required for the Contractor to obtain permits, licenses and easements shall be included in the Contract Time and shall not be justification for a delay claim by the Contractor. The time required for the Contractor to prepare, transmit and obtain approval of applicable submittals shall be included in the Contract Time and shall not be justification for a delay claim by the Contractor. No Work shall be started until after all required permits, licenses, and easements have been obtained. The Contractor shall notify the Engineer, in writing, at least 72 hours before the following events:

A. Commencement. The start of construction.

B. City Services Shut Down. Shutdown of City water, sewer, drainage, irrigation and/or traffic control facilities.

C. Well or Pump Shut Down. Shutdown of existing water wells and booster pumps. Such shutdown shall not exceed 72 hours of any facility and only one facility may be shutdown at any one time.

D. Water Lines. All draining and filling of water lines and irrigation laterals and all operations of existing valves or gauges. The City will furnish all required water meters; provided however, that the meter provided is only for construction purposes. Any domestic water meter necessary for the Project shall be included in the Bid.

E. Start-up and Testing. Start-up or testing of any water well or booster pump to be connected to any part of the existing City water system. This includes operation of existing valves necessary to accommodate the water.

3.6 Laws and Regulations. The Contractor shall keep fully informed of all rules, regulations, ordinances, statutes or laws affecting the Work herein specified, including existing and future (A) City and County ordinances and regulations, (B) State and Federal laws and (C) Occupational Safety and Health Administration (“OSHA”) standards.

3.7 Affirmative Action Report. It is the policy of the City that suppliers of goods or services to the City adhere to a policy of equal employment opportunity and demonstrate an affirmative effort to recruit, hire, and promote regardless of race, color, religion, gender, national origin, age or disability. On any Contract in excess of six months, the Contractor shall provide an annual report to the Engineer highlighting its activities to comply with this Section 3.7.

3.8 Rights-of-Way. The Contractor shall obtain a right-of-way permit for any of the Work completed in the public right-of-way. The Contractor will be responsible for any required Maricopa County permits or other agency permits. The City will provide any necessary easements for Work specified under this Contract, and the Contractor shall not enter or occupy with workers, tools, equipment or materials any private ground outside the property of the City without the written consent of the owner thereof. The Contractor, at its own expense, is responsible for the acquisition of any additional easements or rights-of-way.

3.9 Inspection and Compliance. Each Contractor must inform itself fully of the conditions relating to the construction of the Project and the employment of labor thereon. Failure to do so will not relieve the Contractor of its obligation to furnish all material and labor necessary to carry out the provisions of this Contract. Insofar as possible in carrying out its work, the Contractor must employ such methods or means as will not cause any interruption of or interference with the Work of any other contractor. Contractor affirms that it has inspected the jobsite and has thoroughly reviewed this Contract including, without limitation, the Specifications listed on Exhibit A, as the same may be revised by the City, and is not relying on any opinions or representations of City. Contractor agrees to perform and complete such Work in strict accordance with this Contract and under the general direction of the City. Contractor agrees that any exclusions of any Work must be approved in writing by the City prior to acceptance of this Contract or same shall not be excluded hereunder. Contractor shall provide all competent supervision necessary to execute all Work and any Work incidental thereto in a thorough, first-class, workmanlike manner. It is Contractor’s responsibility that all of the Work and any Work incidental thereto conforms to, and is performed in accordance with, all applicable Federal, State, County and City laws, codes, ordinances, regulations (including National Pollutant Discharge Elimination System and air pollution standards) and orders of public authorities bearing on performance of the Work.

3.10 Safety Plan. Contractor is responsible for all safety precautions and programs and shall perform the Work in accordance with the Safety Plan, which shall be submitted to the City within 10 business days after receipt of the executed Agreement and attached hereto as Exhibit I and incorporated herein by reference. The Safety Plan must be compliant with OSHA, American National Standards Institute and National Institute for Occupational Safety and Health standards. Contractor shall provide all protection and necessary supervision to implement said Safety Plan. Contractor shall take all reasonable precautions for the safety of and provide reasonable protection to prevent damage, injury or loss to: (A) employees or others on the Project, (B) the Work

and materials and (C) other property at the Project or adjacent thereto. Contractor shall designate a responsible person on the Project whose duty shall be prevention of accidents.

3.11 Traffic Regulations. All traffic affected by the Work under this Contract shall be regulated in accordance with the then-current version of the *City of Phoenix-Traffic Barricade Manual* (the “Barricade Manual”) which is incorporated herein by reference; provided, however, that this Contract shall govern in a conflict with the terms of the Barricade Manual. At the time of the pre-construction conference, the Contractor shall designate an employee who is well qualified and experienced in construction traffic control and safety to be responsible for implementing, monitoring and altering traffic control measures, as necessary. At the same time, the City will designate a representative who will be responsible to see that all traffic control and any alterations are implemented and monitored to the extent that traffic is carried through the Work area in an effective manner and that motorists, pedestrians, bicyclists and workers are protected from hazard and accidents.

A. Major Streets. The following shall be considered major streets: All major parkway, mile (section line), arterial and collector (mid-section line and quarter section line) streets so classified by the City.

B. Traffic Control Devices. All traffic control devices required for the Work under this Contract shall be the responsibility of the Contractor. The Contractor shall place advance warning signs (such as REDUCE SPEED, LOOSE GRAVEL, 25 MPH SPEED LIMIT and DO NOT PASS) in accordance with the Barricade Manual. The Contractor shall provide, erect and maintain all necessary flashing arrow boards, barricades, suitable and sufficient warning lights, signals and signs and shall take all necessary precautions for the protection of the Work and safety of the public. The Contractor shall provide, erect and maintain acceptable and adequate detour signs at all closures and along detour routes. All barricades and obstructions shall be illuminated at night, and all safety lights shall be illuminated from sunset until sunrise. All barricades and signs used by the Contractor shall conform to the standard design generally accepted for such purposes and payment for all such services and materials shall be considered as included in the other pay items of this Contract.

C. Existing Signs. The Contractor shall ensure that all existing traffic signs are erect, clean and in full view of the intended traffic at all times. Street name signs at major street intersections shall be maintained erect at all times. If these signs should interfere with construction, the Contractor shall notify the Engineer, in writing, at least 48 hours in advance for City personnel to temporarily relocate or cover said signs. The Engineer will direct the Contractor as to the correct positions to re-set all traffic and street name signs to permanent locations when notified by the Contractor that the interfering construction is complete.

D. Manual Traffic Control. Manual traffic control shall be in conformity with the Barricade Manual, except that the designated liaison officer shall be contacted at the Avondale Police Department. When construction activities or traffic hazards at the construction site require the use of flagmen, it shall be the Contractor’s responsibility to provide trained flagmen to direct traffic safely. When traffic hazards at construction sites warrant the use of certified police personnel to direct traffic, arrangements must be made with the liaison officer at the Avondale Police Department.

E. Contractor Equipment. The assembly and turnarounds of the Contractor’s equipment shall be accomplished using adjacent local streets when possible. Equipment used and/or directed by the Contractor shall travel with traffic at all times. Supply trucks shall travel with traffic except when being spotted. Contractor shall provide a flagman or off-duty, uniformed Avondale officer to assist with spotting.

F. Traffic Alterations. During construction, it may be necessary to alter traffic control. Any such alterations shall be in accordance with the Barricade Manual. No street within the Project area may be closed to through traffic or to local emergency traffic without prior, written approval of the Engineer. Written approval may be given if sufficient time exists to allow for notification of the public at least 72 hours in advance of such closing. Partial closure of streets within the Project shall be done in strict conformity with the Barricade Manual and the Engineer’s written directions.

G. Intersections. Caution should be used when excavating near intersections with traffic signal underground cable. Contractor shall notify the Engineer, in writing, 24 hours in advance of any Work at such intersections. The Contractor shall install and maintain temporary overhead traffic signal cable as specified by the Engineer when underground conduit is to be severed by excavations at intersections. The Contractor shall provide an off-duty, uniformed Avondale police officer to direct traffic while the traffic signal is turned off and the wiring is transferred. All damaged or modified traffic signal overhead and underground items shall be repaired and restored to the Engineer's satisfaction. Magnetic detector loops shall, under no circumstances, be spliced.

H. Adjacent Property Access. The Contractor shall maintain access to all businesses, schools and residences along the Project alignment at all times in accordance with the MAG Supplement, Section 107.7.1 (Access).

I. Covered Crossings. Where crossings of existing pavement occurs, no open trenches shall be permitted overnight, but plating may be permitted if conditions allow, as determined by the Engineer in his sole discretion. If plates cannot be used, crossings shall either be back-filled or the Contractor shall provide a detour.

3.12 Indemnification. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the City and each council member, officer, employee or agent thereof (the City and any such person being herein called an "Indemnified Party"), for, from and against any and all losses, claims, damages, liabilities, costs and expenses (including, but not limited to, reasonable attorneys' fees, court costs and the costs of appellate proceedings) to which any such Indemnified Party may become subject, under any theory of liability whatsoever ("Claims") to the extent that such Claims (or actions in respect thereof) are caused by the negligent acts, recklessness or intentional misconduct of the Contractor, its officers, employees, agents, or any tier of subcontractor in connection with Contractor's work or services in the performance of this Agreement. The amount and type of insurance coverage requirements set forth below will in no way be construed as limiting the scope of the indemnity in this Section.

3.13 Insurance.

A. General.

1. Insurer Qualifications. Without limiting any obligations or liabilities of Contractor, Contractor shall purchase and maintain, at its own expense, hereinafter stipulated minimum insurance with insurance companies authorized to do business in the State of Arizona pursuant to ARIZ. REV. STAT. § 20-206, as amended, with an AM Best, Inc. rating of A- or above with policies and forms satisfactory to the City. Failure to maintain insurance as specified herein may result in termination of this Contract at the City's option.

2. No Representation of Coverage Adequacy. By requiring insurance herein, the City does not represent that coverage and limits will be adequate to protect Contractor. The City reserves the right to review any and all of the insurance policies and/or endorsements cited in this Contract but has no obligation to do so. Failure to demand such evidence of full compliance with the insurance requirements set forth in this Contract or failure to identify any insurance deficiency shall not relieve Contractor from, nor be construed or deemed a waiver of, its obligation to maintain the required insurance at all times during the performance of this Contract.

3. Additional Insured. All insurance coverage, except Workers' Compensation insurance and Professional Liability insurance, if applicable, shall name, to the fullest extent permitted by law for claims arising out of the performance of this Contract, the City, its agents, representatives, officers, directors, officials and employees as Additional Insured as specified under the respective coverage sections of this Contract.

4. Coverage Term. All insurance required herein shall be maintained in full force and effect until all Work or Services required to be performed under the terms of this Contract are satisfactorily performed, completed and formally accepted by the City, unless specified otherwise in this Contract.

5. Primary Insurance. Contractor's insurance shall be primary insurance with respect to performance of this Contract and in the protection of the City as an Additional Insured.

6. Claims Made. In the event any insurance policies required by this Agreement are written on a "claims made" basis, coverage shall extend, either by keeping coverage in force or purchasing an extended reporting option, for three years past completion and acceptance of the services. Such continuing coverage shall be evidenced by submission of annual Certificates of Insurance citing applicable coverage is in force and contains the provisions as required herein for the three-year period.

7. Waiver. All policies, except for Professional Liability, including Workers' Compensation insurance, shall contain a waiver of rights of recovery (subrogation) against the City, its agents, representatives, officials, officers and employees for any claims arising out of the Work or Services of Contractor. Contractor shall arrange to have such subrogation waivers incorporated into each policy via formal written endorsement thereto.

8. Policy Deductibles and/or Self-Insured Retentions. The policies set forth in these requirements may provide coverage that contains deductibles or self-insured retention amounts. Such deductibles or self-insured retention shall not be applicable with respect to the policy limits provided to the City. Contractor shall be solely responsible for any such deductible or self-insured retention amount.

9. Use of Subcontractors. If any Work under this Contract is subcontracted in any way, Contractor shall execute written agreement with its Subcontractors containing the indemnification provisions set forth in this Section and insurance requirements set forth herein protecting the City and Contractor. Contractor shall be responsible for executing any agreements with its Subcontractor and obtaining certificates of insurance verifying the insurance requirements.

10. Evidence of Insurance. Contractor will provide to the City within 10 business days after receipt of the executed Agreement, and prior to commencing any Work or Services under this Contract, suitable evidence of insurance in the form of certificates of insurance and a copy of the declaration page(s) of the insurance policies as required by this Contract, issued by Contractor's insurance insurer(s) as evidence that policies are placed with acceptable insurers as specified herein and provide the required coverages, conditions and limits of coverage specified in this Contract and that such coverage and provisions are in full force and effect. Confidential information such as the policy premium may be redacted from the declaration page(s) of each insurance policy, provided that such redactions do not alter any of the information required by this Contract. The City shall reasonably rely upon the certificates of insurance and declaration page(s) of the insurance policies as evidence of coverage but such acceptance and reliance shall not waive or alter in any way the insurance requirements or obligations of this Contract. If any of the policies required by this Contract expire during the life of this Contract, it shall be Contractor's responsibility to forward renewal certificates and declaration page(s) to the City 30 Days prior to the expiration date. All certificates of insurance and declarations required by this Contract shall be identified by referencing this Contract. A \$25.00 administrative fee shall be assessed for all certificates or declarations received without a reference to this Contract. Additionally, certificates of insurance and declaration page(s) of the insurance policies submitted without referencing this Contract will be subject to rejection and may be returned or discarded. Certificates of insurance and declaration page(s) shall specifically include the following provisions:

a. The City, its agents, representatives, officers, directors, officials and employees are Additional Insureds as follows:

(i) Commercial General Liability - Under Insurance Services Office, Inc., (“ISO”) Form CG 20 10 03 97 or equivalent.

(ii) Auto Liability - Under ISO Form CA 20 48 or equivalent.

(iii) Excess Liability - Follow Form to underlying insurance.

b. Contractor’s insurance shall be primary insurance with respect to performance of this Contract.

c. All policies, except for Professional Liability, including Workers’ Compensation, waive rights of recovery (subrogation) against City, its agents, representatives, officers, officials and employees for any claims arising out of Work or Services performed by Contractor under this Contract.

d. ACORD certificate of insurance form 25 (2014/01) is preferred. If ACORD certificate of insurance form 25 (2001/08) is used, the phrases in the cancellation provision “endeavor to” and “but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives” shall be deleted. Certificate forms other than ACORD form shall have similar restrictive language deleted.

B. Required Insurance Coverage.

1. Commercial General Liability. Contractor shall maintain “occurrence” form Commercial General Liability insurance with an unimpaired limit of not less than \$1,000,000 for each occurrence, \$2,000,000 Products and Completed Operations Annual Aggregate and a \$2,000,000 General Aggregate Limit. The policy shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury. Coverage under the policy will be at least as broad as ISO policy form CG 00 010 93 or equivalent thereof, including but not limited to, separation of insured’s clause. To the fullest extent allowed by law, for claims arising out of the performance of this Contract, the City, its agents, representatives, officers, officials and employees shall be cited as an Additional Insured under ISO, Commercial General Liability Additional Insured Endorsement form CG 20 10 03 97, or equivalent, which shall read “Who is an Insured (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of “your work” for that insured by or for you.” If any Excess insurance is utilized to fulfill the requirements of this subsection, such Excess insurance shall be “follow form” equal or broader in coverage scope than underlying insurance.

2. Vehicle Liability. Contractor shall maintain Business Automobile Liability insurance with a limit of \$1,000,000 each occurrence on Contractor’s owned, hired and non-owned vehicles assigned to or used in the performance of the Contractor’s Work or Services under this Contract. Coverage will be at least as broad as ISO coverage code “1” “any auto” policy form CA 00 01 12 93 or equivalent thereof. To the fullest extent allowed by law, for claims arising out of the performance of this Contract, the City, its agents, representatives, officers, directors, officials and employees shall be cited as an Additional Insured under ISO Business Auto policy Designated Insured Endorsement form CA 20 48 or equivalent. If any Excess insurance is utilized to fulfill the requirements of this subsection, such Excess insurance shall be “follow form” equal or broader in coverage scope than underlying insurance.

3. Professional Liability. If this Contract is the subject of any professional Services or Work, or if the Contractor engages in any professional Services or Work in any way related to performing the Work under this Contract, the Contractor shall maintain Professional Liability insurance covering negligent errors and omissions arising out of the Services performed by the Contractor, or anyone employed by the Contractor, or anyone for whose negligent acts, mistakes, errors and omissions the

Contractor is legally liable, with an unimpaired liability insurance limit of \$2,000,000 each claim and \$2,000,000 annual aggregate.

4. Workers' Compensation Insurance. Contractor shall maintain Workers' Compensation insurance to cover obligations imposed by Federal and State statutes having jurisdiction over Contractor's employees engaged in the performance of Work or Services under this Contract and shall also maintain Employers Liability Insurance of not less than \$500,000 for each accident, \$500,000 disease for each employee and \$1,000,000 disease policy limit.

5. Builder's Risk Insurance. Unless expressly waived by the City Manager in a written addendum or amendment to this Contract, the Contractor shall be responsible for purchasing and maintaining insurance to protect the Project from perils of physical loss. The insurance shall provide for the full cost of replacement for the entire Project at the time of any loss. The insurance shall include as named insureds the City, the Contractor, the Contractor's Subcontractors and subsubcontractors and shall insure against loss from the perils of fire and all-risk coverage for physical loss or damage due to theft, vandalism, collapse, malicious mischief, transit, flood, earthquake, testing, resulting loss arising from defective design, negligent workmanship or defective material. The Contractor shall increase the coverage limits as necessary to reflect changes in the estimated replacement cost.

C. Cancellation and Expiration Notice. Insurance required herein shall not expire, be canceled, or be materially changed without 30 Days' prior written notice to the City.

3.14 Performance Bond. The Contractor shall be required to furnish non-revocable security binding the Contractor to provide faithful performance of this Contract in the amount of one hundred percent (100%) of the total Contract Price payable to the City. Performance security shall be in the form of a performance bond, certified check, cashier's check or irrevocable letter of credit. This security must be in the possession of the Engineer within 10 business days after receipt of the executed Agreement from the City. If the Contractor fails to execute and deliver the security instrument as required, the Contractor may be found in default and this Contract terminated by the City. In case of default the City reserves all rights. All performance bonds shall be executed in the form attached hereto as Exhibit J, duly executed by the Contractor as Principal and having as Surety thereon a Surety company approved by the City and holding a Certificate of Authority to transact surety business in the State of Arizona by the Arizona Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have, at the time of submission of the performance bond, an A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company.

3.15 Payment Bond. The Contractor shall be required to furnish non-revocable security for the protection of all persons supplying labor and material to the Contractor or any Subcontractor for the performance of any Work related to this Contract. Payment security shall be in the amount of one hundred percent (100%) of the total Contract Price and be payable to the City. Payment security shall be in the form of a payment bond, certified check, cashier's check or irrevocable letter of credit. This security must be in the possession of the Engineer within 10 business days after receipt of the executed Agreement from the City. If the Contractor fails to execute and deliver the security instrument as required, the Contractor may be found in default and this Contract terminated by the City. In case of default the City reserves all rights. All payment bonds shall be executed in the form attached hereto as Exhibit K, duly executed by the Contractor as Principal and having as Surety thereon a Surety company approved by the City and holding a Certificate of Authority to transact surety business in the State of Arizona by the Arizona Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have, at the time of submission of the payment bond, an A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company.

3.16 Changes in the Work. The City may, without invalidating this Contract, order changes in the Work consisting of additions, deletions or other revisions to this Contract and the Contract Price and the Contract Time shall be adjusted as provided below. The Contract Price and/or the Contract Time may only be changed by

the City's written approval authorizing said change, and said changes shall be performed under the applicable conditions of this Contract. The Contract Price shall be adjusted as a result of a change in the Work as follows:

A. Additions. When the City increases the scope of the Work, Contractor will perform the increased work pursuant to Contractor's unit prices set forth on the Price Sheet.

B. Deletions. When the City decreases the Work resulting in a decrease in Contractor's quantity of the Work, the City shall be allowed a decrease in the Contract Price amounting to the quantity of the deleted Work multiplied by the Contractor's unit prices.

C. Estimating. Whenever the City is considering a change to the Work, Contractor shall promptly, and in any event within five business days, estimate the price of the contemplated additional or deleted Work in good faith and as accurately as is then-feasible. The estimate shall show quantities of labor, material and equipment and shall be pursuant to the rates set forth in the Contractor's Bid.

3.17 Substantial Completion. When the Contractor considers that the Work is Substantially Complete, the Engineer shall prepare and submit to the Contractor a comprehensive list of Punch List items, which the Contractor may edit and supplement. The Contractor shall proceed promptly to complete and correct Punch List items. Failure to include an item on the Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The City shall determine when the Project and the Contractor's Work is substantially complete. "Substantial Completion" means construction has been completed in accordance with the Contract Documents to the extent that the City can use or occupy the entire Project, or the designated portion of the Project, for the use intended without any outstanding, concurrent construction at the site, except as may be required to complete or correct Punch List items. A prerequisite for Substantial Completion, over and above the extent of construction completion required, is receipt by the City of acceptable documentation that Contractor has successfully tested and demonstrated all systems for their intended use. The date of Substantial Completion shall be confirmed by a Certificate of Substantial Completion signed by the City and Contractor. The Certificate of Substantial Completion signed by the City and Contractor shall state the respective responsibilities of the City and the Contractor for security, maintenance, utilities, damage to the Work and insurance. The Certificate of Substantial Completion shall also include the Punch List as created by the Contractor and modified by the City and establish the time for completion and correction of all Punch List items. If the City and the Contractor cannot agree as to the appropriate date of Substantial Completion, such issue shall be submitted for dispute resolution in accordance with the procedures set forth in Article III, Part B below. Notwithstanding such disagreement, the Contractor shall diligently proceed with completion of the Punch List items.

3.18 Final Completion. The City shall determine when the Project and the Contractor's Work is finally completed. "Final Completion" means completion of the Project by the Contractor in accordance with the Contract Documents, certified to the City by the Contractor. Final Completion shall be achieved only upon the City's written acceptance of (A) the construction, (B) all testing, (C) demonstration by Contractor that the Work functions as required by the Contract Documents and meets all Contract requirements, (D) resolution of all outstanding system deficiencies and Punch List items, if any, (E) delivery of all as-built documentation, drawings, completed record documents (with revisions made after Substantial Completion), annotated submittals and design document deliverables, (F) submittal, acceptance, and delivery of the one hundred percent (100%) complete O&M manuals, (G) delivery of warranties, inspection certificates, bonds and all other required documents, (H) all prerequisites for final payment and (I) submittal of Contractor's request for final payment and acceptance enclosing all required documentation. Upon Final Completion the Engineer shall issue a Certificate of Final Completion to the Contractor on behalf of the City. Following receipt of payment from the City, the Contractor shall make all payments due to the Subcontractors.

3.19 Payments to Contractor. Payment shall be conditioned upon Contractor's compliance with the payment terms and conditions set forth below. Contractor expressly acknowledges and agrees that (A) the Contract Price is an estimated amount based upon an engineer's estimate of the quantities of the Materials deemed necessary to perform the Work and (B) the amount of any payment to be made pursuant to this Contract shall be

determined by the field-measured quantities of Materials actually installed by Contractor. Material or equipment delivered to the Project by or on behalf of Contractor shall not constitute material or equipment furnished in the performance of the Work until same has been incorporated into the improvements constituting the Project. Payment shall not constitute acceptance by the City or evidence thereof of any Work performed.

A. Progress Payments.

1. On or before the 15th day of each month after construction has commenced, the Contractor shall submit to the City an application for payment consisting of the cost of the Work performed up to the end of the prior month, including the cost of material stored on the site or at other locations approved by the City. The application shall be deemed approved and certified for payment seven Days after it is submitted unless before that time the City prepares and issues a specific written finding setting forth those items in detail that are not approved for payment under this Contract. Prior to submission of the next application for payment, the Contractor shall make available at the request of the City a statement accounting for the disbursement of funds received under the previous application for purposes of audit. The extent of such statement shall be as agreed upon between the City and Contractor.

2. Within 14 Days after approval of each monthly application for payment, the City shall pay directly to the Contractor the appropriate amount for which application for payment is made, less amounts (a) previously paid by the City, (b) sufficient to pay expenses the City reasonably expects to incur in correcting deficiencies which are set forth in writing and provided to the Contractor and (c) any retainage as set forth in subsection 3.19(B) below.

3. The City's progress payment, occupancy or use of the Project, whether in whole or in part, shall not be deemed as acceptance of any Work not conforming to the requirements of this Contract.

4. Upon Substantial Completion of the Work, the City shall pay the Contractor the unpaid balance of the cost of the Work, less a sum equal to the Contractor's estimated cost of completing any unfinished items as agreed to between the City and the Contractor as to extent and time for Final Completion. The City thereafter shall pay the Contractor monthly the amount retained for unfinished items as each item is completed.

B. Retainage. With respect to the Work, the City shall retain ten percent (10%) of the amount of each estimate until Final Completion and acceptance of all Material, equipment and Work covered by this Contract.

1. Any securities submitted by Contractor in lieu of retainage as may be allowed by law, shall be deposited in an escrow account by the City. The City shall be listed as payee or multiple payees with Contractor on all such securities.

2. When the Work is fifty percent (50%) completed, one-half of the amount retained including any securities substituted pursuant to subsection 3.19 (B)(1) shall be paid to the Contractor upon the Contractor's request, provided the Contractor is making satisfactory progress on the Work and there is no specific cause or claim requiring a greater amount to be retained. After the construction Work is fifty percent (50%) completed, no more than five percent (5%) of the amount of any subsequent progress payments made under this Contract may be retained, provided the Contractor is making satisfactory progress on the Project. If, at any time, the City determines satisfactory progress is not being made, ten percent (10%) retention shall be reinstated for all progress payments made under this Contract after the determination.

C. Payment for On-site and Off-site Stored Materials. Payment shall be made on account of Materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work.

Payment may similarly be made for Materials and equipment suitably stored off the site, conditioned upon the Contractor furnishing evidence to the City that (1) title to the Materials and equipment will pass to the City upon payment therefore, (2) the Materials and equipment are adequately safeguarded and insured, including during transit from the off-site location to the Project site and (3) such other matters as the City may reasonably request in order to protect its interests. With the prior, written approval of the City, Contractor may advance order the bulk delivery of Materials to be incorporated into the Work over the course of this Contract. Upon delivery and receipt of supplier invoice, the City shall pay for the bulk delivery, either directly to the Contractor or to the vendor or by joint check to Contractor and vendor, and shall receive a full release for the amount paid from vendor and Contractor. Contractor agrees to assume full responsibility for the safekeeping of all such Materials and shall guarantee to the City that such Materials shall remain safe from theft or damage from any and all causes (unless caused by the sole negligence of the City). Contractor shall immediately replace, repair or restore said Materials to their original condition so as to not cause any delay in the Work, and Contractor shall indemnify and hold harmless the City for, from and against any and all loss, cost, liability or expense resulting from any loss or damage to any of the Materials described herein from any cause unless due to the City's sole negligence. Should the City have reason to believe Contractor is not properly safeguarding any of the Materials, the City shall have the right, but not the affirmative duty, to immediately take such steps as it deems necessary to do so, including removing Contractor from the job, replacing any Materials or expending any sums to properly carry out Contractor's responsibility hereunder, and any amounts so expended shall be billed back to Contractor or deducted from any sums then or thereafter due to Contractor. Contractor shall fully insure all Materials stored on site as required by the City, and if such insurance is not obtained due to a lack of insurable interest, the City shall have the right to obtain such insurance and charge the amount thereof back to Contractor or deduct said amount from any funds then or thereafter due to Contractor.

D. Title to Construction Work. The Contractor warrants that title to all Work covered by an application for payment shall pass to the City no later than the time of payment. The Contractor further warrants that upon submittal of an application for payment, all Work for which applications for payment have been previously issued and payments received from the City shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, Materials and equipment relating to the Work.

E. Final Payment.

1. Final payment, consisting of the unpaid balance of the cost of the Work shall be due and payable at Final Completion and acceptance by the City. Before issuance of final payment, the City may request satisfactory evidence that all payrolls, Materials bills and other indebtedness connected with the Work have been paid or otherwise satisfied.

2. In making final payment the City waives all claims except for:

- a. Outstanding liens.
- b. Improper workmanship or defective Materials.
- c. Work not in conformance with this Contract or Work not completed.
- d. Terms of any special warranties required by this Contract.
- e. Delivery to City of all warranties, operation and maintenance manuals, "AS-BUILT" record drawings and other documents as required by this Contract.
- f. Right to audit Contractor records for a period of three years.
- g. Claims previously made in writing and which remain unsettled.

3. Acceptance of final payment by the Contractor shall constitute a waiver of affirmative claims by the Contractor, except those previously made in writing and identified as unsettled at the time of final payment.

F. Warranty. Contractor or its assignee shall give to the City a one-year warranty against deficiencies in material and workmanship for all Work on the Project or other such warranty as required by the City Engineer, which warranty shall begin on the date that the City accepts the Work as provided in this Section. Any material deficiencies in material or workmanship identified by City staff during the one-year warranty period shall be brought to the attention of the Contractor or its assignee that provided the warranty, which shall promptly remedy or cause to be remedied such deficiencies to the reasonable satisfaction of the City Engineer. Continuing material deficiencies in a particular portion of the Work shall be sufficient grounds for the City to require (1) an extension of the warranty for an additional one-year period and (2) the proper repair of or the removal and reinstallation of, that portion of the Work that is subject to such continuing deficiencies. Regardless of whether the applicable warranty period has expired, the Contractor agrees to repair any damage to the Work caused by Contractor's construction activities on the Property. Nothing contained herein shall prevent the City or Contractor from seeking recourse against any other third party for damage to the Work caused by such third party.

3.20 Offset.

A. Offset for Damages. In addition to all other remedies at law or equity, the City may offset from any money due to the Contractor any amounts Contractor owes to the City for damages resulting from breach or deficiencies in performance or breach of any obligation under this Contract.

B. Offset for Delinquent Fees or Taxes. The City may offset from any money due to the Contractor any amounts Contractor owes to the City for delinquent fees, transaction privilege taxes and property taxes, including any interest or penalties.

PART B - PERFORMANCE OF THE WORK

3.21 Project Videotape. The Contractor shall produce and provide a project videotape to the Engineer as required by MAG Supplement Section 105.5.3. All costs associated with the Project videotape produced in accordance with this Section shall be deemed incidental.

3.22 Soil and Subsurface Conditions. In addition to conformance to MAG Specifications, Section 102.4 (Examination of Plans, Special Provisions and Site Work), the Contractor shall make its own determinations as to the soil and subsurface conditions, including rock, caliche and ground water and shall complete the Work in whatever material and under whatever conditions may be encountered or created, without extra cost to the City pursuant to the provisions of the MAG Supplement Section 102.4.1.

3.23 Work Scheduling. Time is of the essence for this Contract. Contractor shall provide the Engineer with any requested scheduling information and a proposed schedule for performance of the Work within the Contract Time in a form acceptable to the Engineer and approved by the Engineer, in his sole and absolute discretion, providing for commencement and completion of the Work (the "Schedule"). The Schedule shall include the date for Substantial Completion of the Work. The Engineer may revise the Schedule during the course of the Work. Contractor, to induce the City to enter into this Contract, has and does hereby agree to fully perform and complete the Work for the Contract Price within the Schedule.

3.24 Contractor's Representative. The Contractor or his authorized representative shall be present at the Work site at all times during working hours. Instructions and information provided by the Engineer to the Contractor's representative shall be considered as having been given to the Contractor, per MAG Supplement Section 105.5.2.

3.25 Prosecution of the Work. The Contractor shall prosecute the Work so that the portion of the Work completed at any point in time shall be not less than as required by the Schedule. If the delay is an Inexcusable Delay, as defined below, the Contractor shall prepare a recovery schedule for the Engineer's review and approval, showing how the Contractor will compensate for the delays and achieve Substantial Completion by the date(s) shown on the Schedule. If the Contractor is unable to demonstrate how it will overcome Inexcusable Delays, the Engineer may order the Contractor to employ such extraordinary measures as are necessary to bring the Work into conformity with the Substantial Completion date(s) set forth therein, the costs of which shall be included as part of the Cost of the Work. If the delay is an Excusable Delay, as defined below, the Engineer shall either (A) authorize an equitable extension in the Schedule to account for such delay, and equitably adjust the contract sum on account of such delay or (B) request that the Contractor prepare a recovery schedule showing how (if possible) the Contractor can achieve Substantial Completion by the applicable date shown on the Schedule, and equitably adjust the Contract Price in accordance with the provisions of this Contract on account of any extraordinary activities required of the Contractor on account of such recovery schedule.

3.26 Extensions of Time.

A. Allowable Extensions. An extension in the scheduled date of Substantial Completion will only be granted in the event of Excusable Delays affecting the Schedule for the Work. The Contractor shall be entitled to general condition costs and extra costs related to the Excusable Delay for idle labor, equipment inefficiency and lost productivity of the performance of the Work. The Contractor must submit evidence reasonably satisfactory to the City substantiating such costs. Such adjustment to the Price and Substantial Completion date shall be issued in a Change Order or Contract amendment, as applicable.

B. Excusable Delay. To the extent any of the following events results in an actual delay in the Work, such shall constitute an "Excusable Delay" (to the extent not set forth below, a delay will be considered an "Inexcusable Delay"):

1. Delays resulting from Force Majeure.
2. Differing, unusual or concealed site conditions that could not reasonably have been anticipated by the Contractor in preparing the Schedule, including, without limitation, archaeological finds and unusual soil conditions (including rock or other geological conditions), underground foundations, abandoned utility lines and water conditions.
3. Delays resulting from the existence or discovery of Hazardous Materials on the Site not brought to the Site by the Contractor.
4. Delays resulting from changes in Applicable Laws occurring after the date of execution of this Contract.
5. Delays occurring due to the acts or omissions of the City and those within the control of the City.
6. Delays occurring due to the acts or omissions of a utility, so long as Contractor has coordinated with the utility causing the delay and the delay occurs despite reasonable steps taken by Contractor to avoid the delay.
7. Delays resulting from weather conditions that make it unreasonable to perform the Work in accordance with the Schedule; provided, however, that Contractor's Schedule shall be deemed to include five Days for weather delays (the "Expected Delay Days"), regardless of whether such weather delays are specifically set forth in the Schedule. Contractor shall notify the City within 24 hours in writing of a weather-related delay. If Contractor fails to give the required 24-hour notice, no such weather delay

will be subtracted from the Expected Delay Days. Weather delays shall not be deemed “Excusable” unless all of the Expected Delay Days have been exhausted.

8. Delays resulting from Additional Work (defined below) that cannot be performed concurrently with the Work on the Schedule.

C. Required Notice. In order to obtain an extension of time due to an Excusable Delay, the Contractor shall comply with the following requirements. The Contractor shall notify the Engineer in writing of the Excusable Delay as soon as practicable, but in no event more than seven Days after the Contractor becomes aware of the occurrence of the Excusable Delay. Such notice shall describe the Excusable Delay and shall state the approximate number of Days the Contractor expects to be delayed. After the cessation of the Excusable Delay, the Contractor shall notify the Engineer of the number of Days the Contractor believes that its activities were in fact delayed by the Excusable Delay. In the event that the delay arises as a result of a Change Order request by the City, the request for an extension of time contained in the resulting Change Order proposal shall be deemed sufficient for purposes of this subsection.

D. Determination. Within 10 Days after cessation of an event giving rise to either an Excusable Delay or Inexcusable Delay, the parties will use good faith efforts to agree on the extent to which the Work has been delayed and whether the delay is an Excusable Delay or an Inexcusable Delay. In the absence of agreement between the parties as to the then-current status of Excusable Delays and Inexcusable Delays, the Engineer will provide the Contractor with written notice of Engineer’s determination of the respective number of Days of Excusable Delay and/or Inexcusable Delay. The Engineer’s determination may be issued at such time as the Engineer deems reasonable, but not later than 10 Days after receipt by the Engineer of the Contractor’s written request for such determination. The Contractor shall not, however, deem an issuance by the Engineer of such a determination to be a concurrence of the matters set forth in the Contractor’s request. The Contractor may invoke the dispute resolution procedures set forth in Part D below with respect to such determination.

E. Concurrent Delay. To the extent the Contractor is entitled to an extension of time due to an Excusable Delay, but the performance of the Work would have been suspended, delayed or interrupted by the fault or neglect of the Contractor or by an Inexcusable Delay, the Contractor shall not be entitled to any additional costs for the period of such concurrency.

3.27 Liquidated Damages. It is expressly understood that should Contractor fail to complete the Work covered hereby within the Contract Time, the Contractor agrees to pay and shall pay to the City upon request therefore for each Day of delay beyond the original or revised scheduled time of completion of Contractor’s Work as liquidated damages, and not as a penalty, in the amount per day as set forth in MAG Specifications for each Day of delay.

A. Prior to Termination. If this Contract is not terminated, the Contractor shall continue performance and be liable to the City for the liquidated damages until the Work is complete.

B. After Termination. In the event the City exercises its right of termination, the Contractor shall be liable to the City for any excess costs and, in addition, for liquidated damages until such time as the City may reasonably obtain delivery or performance of similar Services.

3.28 Suspension by the City for Convenience.

A. City Determination. The City may order the Contractor in writing to suspend, delay or interrupt all or any part of the Work without cause for such period of time as the City may determine to be appropriate for its convenience.

B. Contract Adjustments. Adjustments caused by suspension, delay or interruption shall be made for increases in the applicable contract sum and/or the date(s) of Substantial Completion. No adjustment

shall be made if the Contractor is or otherwise would have been responsible for the suspension, delay or interruption of the Work, or if another provision of this Contract is applied to render an equitable adjustment.

3.29 Termination by the City for Convenience. The City may, upon 30 Days' written notice to the Contractor, terminate this Contract, in whole or in part, for the convenience of the City without prejudice to any right or remedy otherwise available to the City. Upon receipt of such notice, the Contractor shall immediately discontinue all Services affected unless such notice directs otherwise. In the event of a termination for convenience of the City, the Contractor's sole and exclusive right and remedy shall be payment for all Work performed through the date of termination. The Contractor shall not be entitled to be paid any amount as profit for unperformed Services or consideration for the City's termination by convenience.

3.30 Termination by the City for Cause.

A. Default; Cure. If the Contractor refuses or fails to supply sufficient properly skilled staff or proper Materials, or disregards laws, ordinances, rules, regulations, or orders of any public authority jurisdiction, or otherwise substantially violates or materially breaches any term or provision of this Contract, and such nonperformance or violation continues without cure for 15 Days after the Contractor receives written notice of such nonperformance or violation from the City, then the City may, without prejudice to any right or remedy otherwise available to the City, terminate this Contract.

B. Substitute Performance. Upon termination of this Contract by the City, the City shall be entitled to furnish or have furnished the Services to be performed hereunder by the Contractor by whatever method the City may deem expedient. Also, in such case, the Contractor shall not be entitled to receive any further payment until completion of the Work, and the total compensation to the Contractor under this Contract shall be the amount that is equitable under the circumstances. If the City and the Contractor are unable to agree on the amount to be paid under the foregoing sentence, the City shall fix an amount, if any, that it deems appropriate in consideration of all of the circumstances surrounding such termination, and shall make payment accordingly. The Contractor may dispute the City's assessment of the termination amount pursuant to the dispute resolution process set forth in in Part D of this Contract.

C. Contractor Insolvency. Upon the appointment of a receiver for the Contractor, or if the Contractor makes a general assignment for the benefit of creditors, the City may terminate this Contract, without prejudice to any right or remedy otherwise available to the City, upon giving three business days' written notice to the Contractor. If an order for relief is entered under the bankruptcy code with respect to the Contractor, the City may terminate this Contract by giving three business days' written notice to the Contractor unless the Contractor or the trustee completes all of the following:

1. Promptly cures all breaches within such three-day period.
2. Provides adequate assurances of future performance.
3. Compensates the City for actual pecuniary loss resulting from such breaches.
4. Assumes the obligations of the Contractor within the established time limits.

3.31 Contract Subject to Appropriation. The City is obligated only to pay its obligations set forth in this Agreement as may lawfully be made from funds appropriated and budgeted for that purpose during the City's then current fiscal year. The City's obligations under this Agreement are current expenses subject to the "budget law" and the unfettered legislative discretion of the City concerning budgeted purposes and appropriation of funds. Should the City elect not to appropriate and budget funds to pay its Agreement obligations, this Agreement shall be deemed terminated at the end of the then-current fiscal year term for which such funds were appropriated and budgeted for such purpose and the City shall be relieved of any subsequent obligation under this Agreement. The parties agree that the City has no obligation or duty of good faith to

budget or appropriate the payment of the City's obligations set forth in this Agreement in any budget in any fiscal year other than the fiscal year in which this Agreement is executed and delivered. The City shall be the sole judge and authority in determining the availability of funds for its obligations under this Agreement. The City shall keep Contractor informed as to the availability of funds for this Agreement. The obligation of the City to make any payment pursuant to this Agreement is not a general obligation or indebtedness of the City. Contractor hereby waives any and all rights to bring any claim against the City from or relating in any way to the City's termination of this Agreement pursuant to this section.

3.32 Additional Work, Materials and/or Overtime. Contractor expressly agrees that if overtime or additional workers or materials are necessary to meet the Schedule, that such overtime will be performed or additional workers or materials will be procured by the Contractor, and the additional expense thereof shall be borne by Contractor unless the delay requiring overtime was directly caused by the City, in which event Contractor shall be entitled to compensation for such overtime Work. If the City requests Contractor to perform additional Work in connection with the Project ("Additional Work"), Contractor shall charge the City a negotiated fixed amount for the Additional Work. In the event a fixed amount cannot be negotiated, Contractor shall invoice the City on a time and materials basis for the Additional Work at the unit prices set forth in the price sheet.

3.33 No Damage for Delay or Additional Work by the City. Contractor shall adjust its operations to conform to any progress schedule changes and hereby waives and releases the City from any liability for damages or expenses that may be caused to or sustained by Contractor by reason of such changes or by reason of delays in the Work, whether caused in whole or in part by conduct on the part of the City, including without limitation, any breach of this Contract or delays by other contractors or Subcontractors. Contractor's exclusive remedy in the event of delay or Additional Work by the City shall be an extension of time hereunder to complete the Work.

3.34 Risk of Loss. Contractor shall assume the risk of loss occasioned by fire, theft or other damage to Materials, machinery, apparatus, tools and equipment relating to the Work prior to actual installation in final place on the Project and acceptance by the City. Contractor shall be responsible for damage to the Materials, machinery, apparatus, tools, equipment and property of the City and other contractors resulting from the acts or omissions of its Subcontractors, employees, agents, representatives Subcontractors, and for payment of the full costs of repair or replacement of any said damage.

3.35 Protection of Finished or Partially Finished Work. The Contractor shall properly guard and protect all finished or partially finished Work and shall be responsible for the same until the entire Contract is completed and accepted by the Engineer. The Contractor shall turn over the entire Work in full accordance with this Contract before final settlement shall be made.

3.36 Character and Status of Workers. Only skilled foremen and workers shall be employed on portions of the Work requiring special qualifications. When required by the Engineer, the Contractor shall discharge any person who is, in the opinion of the Engineer, disorderly, dangerous, insubordinate, incompetent or otherwise objectionable. The Contractor shall indemnify and hold harmless the City from and against damages or claims for compensation that may occur in the enforcement of this Section. The Contractor shall be responsible for ensuring the legal working status of its employees and its Subcontractor's employees. The Contractor agrees that once assigned to Work under this Contract, key personnel shall not be removed or replaced without written notice to the City. If key personnel are not available for Work under this Contract for a continuous period exceeding 30 Days, or are expected to devote substantially less effort to the Work than initially anticipated, the Contractor shall immediately notify the City and shall, subject to the concurrence of the City, replace such personnel with personnel of substantially equal ability and qualifications.

3.37 Work Methods. The methods, equipment and appliances used on the Work shall be such as will produce a satisfactory quality of Work, and shall be adequate to complete this Contract within the Contract Time. Except as is otherwise specified in this Contract, the Contractor's procedure and methods of construction may, in general, be of its own choosing, provided such methods (A) follow best general practice and (B) are calculated to secure results which will satisfy the requirements of this Contract. The Work covered by this Contract shall be

Carefully laid out in advance and performed in a manner to minimize interference with normal operation and utilization of the City’s right-of-way. The Contractor shall exercise caution during the course of this Work to avoid damage to all known existing or possible unknown existing underground utilities. It shall conduct its operations in such a manner as to avoid injury to its personnel and to avoid damage to all utilities. Any damage done will be repaired without delay and at the expense of the Contractor.

3.38 Safety Fencing Requirement for Trenches and Excavations. The Contractor shall provide safety construction fencing around all open trenches and excavations during all non-working hours. In addition, the Contractor shall provide safety fencing around the Project site during working hours in order to ensure public safety. The Contractor shall provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress. Fencing shall be securely anchored to approved steel posts located not less than six feet on center, having a minimum height of six feet, and shall consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six feet. The fencing, when installed about the periphery of excavations and trenches, shall form an effective barrier against intrusion by the general public into areas of construction. The Contractor, at all times when construction is not in progress, shall be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, shall take immediate action to rectify any deficiency. Prior to the start of any excavation or trenching required for the execution of the proposed Work, the Contractor shall submit to the Engineer for approval, detailed plans showing types of materials and methods of fabrication for the protective fencing. There will be no separate measurement or payment for furnishing, installing, or maintaining protective fencing. The cost shall be considered incidental to the cost of the pipe, bridge, and any other structures for which trenching is necessary.

3.39 Plans and Shop Drawings, Samples and Substitution of Materials. All submittals shall conform to MAG Specifications, Section 105.2 (Plans and Drawings) as modified by the MAG Supplement. Contractor shall furnish, within three business days following request therefore by the City, detailed drawings of the Work, samples of Materials and other submittals required for the performance or coordination of the Work. Substitutions shall be equal or superior to Materials specified in the Contract Documents, shall be clearly identified on submittals as “proposed substitutions” and shall be approved by the City in accordance with Section 2.4 above. Contractor shall be fully responsible for the adequacy, completeness and promptness of all such submittals. Materials shall not be furnished to the jobsite unless same is in strict compliance with the Specifications or otherwise approved in writing by the City. Approval by the City shall not relieve Contractor of full responsibility for compliance with scope, intent and performance in accordance with this Contract.

3.40 Cooperation with Utilities. The Contractor shall comply with the requirements of MAG Specifications 105.6, as modified by the MAG Supplement.

3.41 Sampling and Testing. Sampling and testing shall conform to the requirements of the MAG Specifications, Section 106, as modified by the MAG Supplement.

3.42 Cooperation between Contractors. The Contractor shall comply with the requirements of MAG Specifications, Section 105.7, as modified by the MAG Supplement.

3.43 Outdoor Construction Time Restrictions. Unless otherwise permitted by the Engineer, construction will be restricted as listed in the following table:

May 1 – October 31	November 1 – April 30
5:00 a.m. to 7:00 p.m.	6:00 a.m. to 7:00 p.m.

Construction Work shall not begin Work prior to 7:00 a.m. and shall stop by 7:00 p.m. on Saturdays, Sundays and all City, State and Federal holidays.

3.44 Construction Survey. Construction survey and as-built record drawings shall conform to the requirements of the MAG Specifications, Section 105.8 (Construction Stakes, Lines and Grades), as modified by the MAG Supplement.

3.45 Survey Control Points. Existing survey markers (either brass caps or iron pipes) shall be protected by the Contractor or removed and replaced under direct supervision of the Engineer. Survey monuments shall be constructed to the requirements of MAG Specifications, Section 405. Lot corners shall not be disturbed without knowledge and consent of the property owner. The Contractor shall replace benchmarks, monuments or lot corners moved or destroyed during construction at no expense to the City. Contractor and its sureties shall be liable for correct replacement of disturbed survey benchmarks except where the City elects to replace survey benchmarks using its own forces.

3.46 Stockpile of Materials.

A. Engineer Approval. The Contractor may, if approved by the Engineer, place or stockpile Materials in the public right-of-way provided such Materials do not prevent access to adjacent properties or prevent compliance with traffic regulations.

B. No Traffic Interference. Traffic shall not be required to travel over stockpiled Materials and proper dust control shall be maintained.

3.47 Excess Materials. When excavations are made, resultant loose earth shall be (A) utilized for filling by compacting in place or (B) disposed of off-site. Excess or unsuitable material, broken asphaltic concrete and broken portland cement concrete excavated from the right-of-way shall be removed from the Project Site and disposed of by the Contractor. Disposal of material within the Avondale City Limits or Planning Area must be approved by the Engineer. Waste material shall not be placed on private property without express permission of the property owner. The Contractor shall, at all times, keep the premises free from accumulation of waste materials or rubbish caused by its operations. At the completion of the Work, Contractor shall remove all equipment, tools and surplus materials, and shall completely clean the premises, removing and disposing of all debris and rubbish and cleaning all stains, spots, marks, dirt, smears or other blemishes. When the Work premises are turned over to the City, they shall be thoroughly clean and ready for immediate use. Clean-up shall include removal of all excess pointing mortar materials within pipes and removal of oversized rocks and boulders left after finish grading. The Contractor shall provide for the legal disposal of all waste products and debris and shall make necessary arrangements for such disposal.

3.48 Dust Control and Water. Contractor shall implement dust control measures in accordance with MAG Specifications, Section 104.1, and the MAG Supplement. Installation and removal of fire hydrant meters should be scheduled at least three business days in advance through the City Water Billing Department. Watering shall conform to the provisions of MAG Specifications, Section 225. A deposit and installation fee in amounts set forth in the City's fee schedule is required for each meter. The cost of the water is at the prevailing rate.

3.49 Temporary Sanitary Facilities. The Contractor shall provide ample toilet facilities with proper enclosures for the use of workers employed on the Work site. Toilet facilities shall be installed and maintained in conformity with all applicable State and local laws, codes, regulations and ordinances and shall be properly lit and ventilated, and kept clean at all times. Adequate and satisfactory drinking water shall be provided at all times and under no circumstances and under no conditions will the use of common cups be permitted. The Contractor must supply sanitary drinking cups for the benefit of all employees.

3.50 Electric Power, Water and Telephone. Unless otherwise specified, the Contractor shall make its own arrangements for electric power, water and telephone. Subject to the convenience of the utility, it may be permitted to connect to existing facilities where available, but Contractor shall meter and bear the cost of such power or water, and installation and disconnect of such power, water and telephone services.

3.51 Energized Aerial Electrical Power Lines. Utility companies may maintain energized aerial electrical power lines in the immediate vicinity of this Project. Contractor shall not presume any such lines to be insulated. Construction personnel working in proximity to these lines may be exposed to an extreme hazard from electrical shock. Contractor shall ensure that its employees and all other construction personnel working on this Project are warned of the danger and instructed to take adequate protective measures, including maintaining a minimum ten feet of clearance between the lines and all construction equipment and personnel. (see: OSHA Std. 1926.550 (a) 15, as amended). As an additional safety precaution, Contractor shall call the affected utility companies to arrange, if possible, to have these lines de-energized or relocated when the Work reaches their immediate vicinity. The cost of such temporary arrangements shall be borne by the Contractor. Contractor shall account for the time necessary to cause such utility disconnection in the preparation of its Bid. Electrical utility companies may maintain energized underground electrical power lines in the immediate vicinity of this Project. These power lines represent an extreme hazard of electrical shock to any construction personnel or equipment coming in contact with them. Arizona law requires all parties planning excavations in public rights-of-way to contact all utility firms for locations of their underground facilities. Contractor shall ensure that its employees and all other personnel working near any underground power lines must be warned to take adequate protective measure. (see: OSHA Std. 1926-651 (A), as amended).

3.52 Site Clean Up. Contractor shall at all times, but not less than daily unless otherwise agreed by City Representative, keep the premises on which the Work is being performed clean and free from accumulation of any waste materials, trash, debris and excess dirt, and at all times shall remove Contractor's implements, machinery, tools, apparatus and equipment from the jobsite when not needed on the jobsite. Should the City Representative find it necessary in his/her opinion to employ help to clean up, remove or store any of the foregoing due to failure of Contractor to do so, the expense thereof shall be charged to Contractor. Verbal notice from the City Representative on clean-up or removal is considered adequate notice hereunder, and failure to conform with his/her request within 24 hours thereof will be construed as a breach of this Contract by the Contractor and such charges will be made against Contractor's account as are necessary to accomplish the clean-up or removal. The cost of cleanup, removal or storage by the City, if not deducted by the City from monies due Contractor, shall be paid by Contractor within five business days of written demand by the City.

3.53 Use of the Site. Contractor shall at all times comply fully with all laws, orders, citations, rules, regulations, standards and statutes with respect to occupational health and safety, the handling and storage of hazardous materials, accident prevention and safety equipment and practices, including any accident prevention and safety program of the City; provided, however, that the City shall not be required to impose any safety requirements or administer any such programs and the review or requirement of any safety plan by the City shall not be deemed to release Contractor or in any way diminish its liability, by way of indemnity or otherwise, as assumed by it under this Contract. Contractor shall conduct inspections regularly to determine that safe working conditions and equipment exist and accepts sole responsibility for providing a safe place to Work for its employees and employees of its Subcontractors, laborers, suppliers of material and equipment and any other person visiting the Site, for adequacy of and required use of all safety equipment and for compliance herewith. When so ordered, Contractor shall stop any part of the Work that the City deems unsafe until corrective measures satisfactory to the City have been taken. Should Contractor neglect to adopt such corrective measures, the City may do so and deduct the cost from payments due Contractor. Contractor shall timely submit copies of all accident or injury reports to the City.

3.54 Public Information and Notification. Intentionally Omitted.

PART C - MISCELLANEOUS

3.55 Applicable Law; Venue. This Contract shall be governed by the laws of the State of Arizona and suit pertaining to this Contract may be brought only in courts in Maricopa County, Arizona.

3.56 Conflict of Interest. This Contract is subject to the provisions of ARIZ. REV. STAT. § 38-511. The City may cancel this Contract without penalty or further obligations by the City or any of its departments or

agencies if any person significantly involved in initiating, negotiating, securing, drafting or creating this Contract on behalf of the City or any of its departments or agencies is, at any time while this Contract or any extension of this Contract is in effect, an employee of any other party to this Contract in any capacity or a consultant to any other party of this Contract with respect to the subject matter of this Contract.

3.57 Contract Amendments. This Contract may be modified only by a written amendment signed by persons duly authorized to enter into contracts on behalf of the City and the Contractor; provided, however, that Change Orders may be issued and approved administratively by the City when such changes do not alter the Contract Price.

3.58 Provisions Required by Law. Each and every provision of law and any clause required by law to be in this Contract will be read and enforced as though it were included herein and, if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, this Contract will promptly be physically amended to make such insertion or correction.

3.59 Severability. The provisions of this Contract are severable to the extent that any provision or application held to be invalid by a Court of competent jurisdiction shall not affect any other provision or application of this Contract which may remain in effect without the invalid provision or application.

3.60 Independent Contractor. It is clearly understood that each party will act in its individual capacity and not as an agent, employee, partner, joint venturer, or associate of the other. An employee or agent of one party shall not be deemed or construed to be the employee or agent of the other for any purpose whatsoever. The Contractor acknowledges and agrees that the Services provided under this Agreement are being provided as an independent contractor, not as an employee or agent of the City. Contractor, its employees and subcontractors are not entitled to workers' compensation benefits from the City. The City does not have the authority to supervise or control the actual work of Contractor, its employees or subcontractors. The Contractor, and not the City, shall determine the time of its performance of the services provided under this Agreement so long as Contractor meets the requirements of its agreed scope of work and the specifications, plans/construction drawings as set forth in Section 2.1 above and Exhibit A. Contractor is neither prohibited from entering into other contracts nor prohibited from practicing its profession elsewhere. City and Contractor do not intend to nor will they combine business operations under this Agreement.

3.61 Entire Agreement; Interpretation-Parol Evidence. This Contract represents the entire agreement of the parties with respect to its subject matter, and all previous agreements, whether oral or written, entered into prior to this Contract are hereby revoked and superseded by this Contract. No representations, warranties, inducements or oral agreements have been made by any of the parties except as expressly set forth herein, or in any other contemporaneous written agreement executed for the purposes of carrying out the provisions of this Contract. This Contract shall be construed and interpreted according to its plain meaning, and no presumption shall be deemed to apply in favor of, or against the party drafting this Contract. The parties acknowledge and agree that each has had the opportunity to seek and utilize legal counsel in the drafting of, review of, and entry into this Contract.

3.62 Assignment; Delegation. No right or interest in this Contract shall be assigned or delegated by Contractor without prior, written permission of the City, signed by the City Manager. Any attempted assignment or delegation by Contractor in violation of this provision shall be a breach of this Contract by Contractor.

3.63 Subcontracts. No subcontract shall be entered into by the Contractor with any other party to furnish any of the Materials, Services or construction specified herein without the prior, written approval of the City. The Contractor is responsible for performance under this Contract whether or not Subcontractors are used.

3.64 Rights and Remedies. No provision in this Contract shall be construed, expressly or by implication, as waiver by the City of any existing or future right and/or remedy available by law in the event of any

claim of default or breach of this Contract. The failure of the City to insist upon the strict performance of any term or condition of this Contract or to exercise or delay the exercise of any right or remedy provided in this Contract, or by law, or the City's acceptance of and payment for Materials or Services, shall not release the Contractor from any responsibilities or obligations imposed by this Contract or by law, and shall not be deemed a waiver of any right of the City to insist upon the strict performance of this Contract.

3.65 Attorneys' Fees. In the event either party brings any action for any relief, declaratory or otherwise, arising out of this Contract or on account of any breach or default hereof, the prevailing party shall be entitled to receive from the other party reasonable attorneys' fees and reasonable costs and expenses, determined by the court sitting without a jury, which shall be deemed to have accrued on the commencement of such action and shall be enforced whether or not such action is prosecuted through judgment.

3.66 Notices and Requests. Any notice or other communication required or permitted to be given under this Contract shall be in writing and shall be deemed to have been duly given if (A) delivered to the party at the address set forth below, (B) deposited in the U.S. Mail, registered or certified, return receipt requested, to the address set forth below or (C) given to a recognized and reputable overnight delivery service, to the address set forth below:

If to the City: City of Avondale
 11465 West Civic Center Drive
 Avondale, Arizona 85323
 Attn: David W. Fitzhugh, City Manager

With copy to: GUST ROSENFELD P.L.C.
 One East Washington Street, Suite 1600
 Phoenix, Arizona 85004-2553
 Attn: Andrew J. McGuire

If to Contractor: _____

 Attn: _____

or at such other address, and to the attention of such other person or officer, as any party may designate in writing by notice duly given pursuant to this Section. Notices shall be deemed received (A) when delivered to the party, (B) three business days after being placed in the U.S. Mail, properly addressed, with sufficient postage or (C) the following business day after being given to a recognized overnight delivery service, with the person giving the notice paying all required charges and instructing the delivery service to deliver on the following business day. If a copy of a notice is also given to a party's counsel or other recipient, the provisions above governing the date on which a notice is deemed to have been received by a party shall mean and refer to the date on which the party, and not its counsel or other recipient to which a copy of the notice may be sent, is deemed to have received the notice.

3.67 Overcharges by Antitrust Violations. The City maintains that, in practice, overcharges resulting from antitrust violations are borne by the purchaser. Therefore, to the extent permitted by law, the Contractor hereby assigns to the City any and all claims for such overcharges as to the goods and services used to fulfill this Contract.

3.68 Force Majeure. Except for payment for sums due, neither party shall be liable to the other nor deemed in default under this Contract if and to the extent that such party's performance of this Contract is prevented by reason of force majeure. The term "*force majeure*" means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Without limiting the foregoing, force majeure includes acts of God; acts of the public enemy; war; riots; strikes; mobilization; labor disputes; civil disorders; fire; floods; lockouts, injunctions-intervention-acts, or failures or refusals to act by government authority; and other

similar occurrences beyond the control of the party declaring force majeure which such party is unable to prevent by exercising reasonable diligence. The force majeure shall be deemed to commence when the party declaring force majeure notifies the other party, in accordance with Section 3.66, of the existence of the force majeure and shall be deemed to continue as long as the results or effects of the force majeure prevent the party from resuming performance in accordance with this Contract. Force majeure shall not include the following occurrences:

A. Late Delivery. Late delivery of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, an oversold condition of the market, inefficiencies or similar occurrences.

B. Late Performance. Late performance by a Subcontractor unless the delay arises out of a force majeure occurrence in accordance with this Section 3.68.

Any delay or failure in performance by either party hereto shall not constitute default hereunder or give rise to any claim for damages or loss of anticipated profits if, and to the extent that such delay or failure is caused by force majeure. If either party is delayed at any time in the progress of the Work by force majeure, then the delayed party shall notify the other party in accordance with Section 3.66 and shall make a specific reference to this Section, thereby invoking its provisions. The delayed party shall cause such delay to cease as soon as practicable and shall notify the other party in writing. The time of Substantial Completion or Final Completion shall be extended by written Contract amendment for a period of time equal to the time that the results or effects of such delay prevent the delayed party from performing in accordance with this Contract.

3.69 Confidentiality of Records. The Contractor shall establish and maintain procedures and controls that are acceptable to the City for the purpose of ensuring that information contained in its records or obtained from the City or from others in carrying out its obligations under this Contract shall not be used or disclosed by it, its agents, officers, or employees, except as required to perform Contractor's duties under this Contract. Persons requesting such information should be referred to the City. Contractor also agrees that any information pertaining to individual persons shall not be divulged other than to employees or officers of Contractor as needed for the performance of duties under this Contract.

3.70 Records and Audit Rights. To ensure that the Contractor and its Subcontractors are complying with the warranty under Section 3.71 below, Contractor's and its Subcontractors' books, records, correspondence, accounting procedures and practices, and any other supporting evidence relating to this Contract, including the papers of any Contractor and its Subcontractors' employees who perform any Work or Services pursuant to this Contract (all of the foregoing hereinafter referred to as "Records"), shall be open to inspection and subject to audit and/or reproduction during normal working hours by the City, to the extent necessary to adequately permit (1) evaluation and verification of any invoices, payments or claims based on Contractor's and its Subcontractors' actual costs (including direct and indirect costs and overhead allocations) incurred, or units expended directly in the performance of Work under this Contract and (2) evaluation of the Contractor's and its Subcontractors' compliance with the Arizona employer sanctions laws referenced in Section 3.71 below. To the extent necessary for the City to audit Records as set forth in this Section, Contractor and its Subcontractors hereby waive any rights to keep such Records confidential. For the purpose of evaluating or verifying such actual or claimed costs or units expended, the City shall have access to said Records, even if located at its Subcontractors' facilities, from the effective date of this Contract for the duration of the Work and until three years after the date of final payment by the City to Contractor pursuant to this Contract. Contractor and its Subcontractors shall provide the City with adequate and appropriate workspace so that the City can conduct audits in compliance with the provisions of this Section. The City shall give Contractor or its Subcontractors reasonable advance notice of intended audits. Contractor shall require its Subcontractors to comply with the provisions of this Section by insertion of the requirements hereof in any subcontract pursuant to this Contract.

3.71 E-verify Requirements. To the extent applicable under ARIZ. REV. STAT. § 41-4401, the Contractor and its Subcontractors warrant compliance with all Federal immigration laws and regulations that relate to their employees and their compliance with the E-verify requirements under ARIZ. REV. STAT. § 23-214(A).

Contractor's or its Subcontractors' failure to comply with such warranty shall be deemed a material breach of this Contract and may result in the termination of this Contract by the City.

3.72 Israel. Contractor certifies that it is not currently engaged in, and agrees for the duration of this Agreement that it will not engage in, a "boycott" of Israel, as that term is defined in ARIZ. REV. STAT. § 35-393.

3.73 Right to Inspect Plant. The City may, at reasonable times, inspect the part of the plant or place of business of the Contractor or Subcontractor that is related to the performance of this Contract.

3.74 Warranties. Contractor warrants to the City that all Materials and equipment furnished shall be new unless otherwise specified and agreed by the City and that all Work shall be of first class quality, free from faults and defects and in conformance with this Contract. If at any time within one year following the date of Final Completion and acceptance of the entire Project (or such longer period as may be provided under warranties for equipment or Materials): (A) any part of the Materials furnished in connection with the Work shall be or become defective due to defects in either labor or Materials, or both, or (B) Contractor's Work or Materials, or both, are or were not in conformance with original or amended Plans and Specifications, or supplementary shop drawings, then the Contractor shall upon written notice from the City immediately replace or repair such defective or non-conforming Material or workmanship at no cost to the City. Contractor further agrees to execute any special guarantees as provided by this Contract or required by law. Contractor shall require similar guarantees from all vendors and from all its Subcontractors. Contractor further agrees, upon written demand of the City and during the course of construction, to immediately re-execute, repair or replace any Work that fails to conform to the requirements of this Contract, whether caused by faulty Materials or workmanship, or both. In the event Contractor shall fail or refuse to make such change upon the City's written demand, the City shall have the right to have such Work re-executed, repaired or replaced, to withhold from or back charge to Contractor all costs incurred thereby.

3.75 Inspection. All Materials and/or Services are subject to final inspection and acceptance by the City. Materials and/or Services failing to conform to the Specifications of this Contract will be held at Contractor's risk and may be returned to the Contractor. If so returned, all costs are the responsibility of the Contractor. Upon discovery of non-conforming Materials or Services, the City may elect to do any or all of the following by written notice to the Contractor: (A) waive the non-conformance; (B) stop the Work immediately; or (C) bring material or service into compliance and withhold the cost of same from any payments due to the Contractor.

3.76 No Replacement of Defective Tender. Every tender of Materials shall fully comply with all provisions of this Contract. If a tender is made which does not fully conform, this shall constitute a breach of this Contract as a whole.

3.77 Shipment Under Reservation Prohibited. Contractor is not authorized to ship Materials under reservation and no tender of a bill of lading will operate as a tender of the Materials.

3.78 Liens. All Materials, Service or construction shall be free of all liens and, if the City requests, a formal release of all liens shall be delivered to the City.

3.79 Licenses. Contractor shall maintain in current status all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this Contract.

3.80 Patents and Copyrights. All Services, information, computer program elements, reports and other deliverables, which may be patented or copyrighted and created under this Contract are the property of the City and shall not be used or released by the Contractor or any other person except with the prior written permission of the City.

3.81 Preparation of Specifications by Persons other than City Personnel. All Specifications shall seek to promote overall economy for the purposes intended and encourage competition and not be unduly restrictive in satisfying the City's needs. No person preparing Specifications shall receive any direct or indirect benefit from the utilization of Specifications, other than fees paid for the preparation of Specifications.

3.82 Advertising. Contractor shall not advertise or publish information concerning this Contract without prior, written consent of the City.

PART D - ALTERNATIVE DISPUTE RESOLUTION

3.83 Scope. Notwithstanding anything to the contrary provided elsewhere in the Contract Documents, except for subsection 3.86(G) below, the alternative dispute resolution ("ADR") process provided for herein shall be the exclusive means for resolution of claims or disputes arising under, relating to or touching upon this Contract, the interpretation thereof or the performance or breach by any party thereto, including but not limited to original claims or disputes asserted as cross claims, counterclaims, third party claims or claims for indemnity or subrogation, in any threatened or ongoing litigation or arbitration with third parties, if such disputes involve parties to contracts containing this ADR provision.

3.84 Neutral Evaluator, Arbitrators. The City will select a Neutral Evaluator to serve as set forth in this ADR process, subject to the Contractor's approval, which approval shall not be unreasonably withheld. In the event that the City and the Contractor are unable to agree upon a Neutral Evaluator, the neutral evaluation process shall be eliminated and the parties shall proceed with the binding arbitration process set forth in Section 3.86 below. The City and Contractor shall each select an arbitrator to serve as set forth in this ADR process. Each arbitrator selected shall be a member of the State Bar of the State of Arizona and shall have experience in the field of construction law. None of the arbitrators nor any of the arbitrator's firms shall have presently, or in the past, represented any party to the arbitration.

3.85 Neutral Evaluation Process. If the parties have been unable to resolve the disputes after discussions and partnering, but the parties have agreed to a Neutral Evaluator, the following neutral evaluation process shall be used to resolve any such dispute.

A. Notification of Dispute. The City through its Engineer shall notify the Neutral Evaluator in writing of the existence of a dispute within 10 Days of the City or the Contractor declaring need to commence the neutral evaluation process.

B. Non-Binding Informal Hearing. The Neutral Evaluator shall schedule a non-binding informal hearing of the matter to be held within seven Days from receipt of notification of the existence of a dispute. The Neutral Evaluator may conduct the hearing in such manner as he deems appropriate and shall notify each party of the hearing and of its opportunity to present evidence it believes will resolve the dispute. The Neutral Evaluator shall require that each party submit a written outline of the issues and evidence intended to be introduced at the hearing and the proposed resolution of the dispute to the Neutral Evaluator before the hearing commences. Arbitrators shall not participate in such informal hearing or proceedings process. The Neutral Evaluator is not bound by the rules of evidence when admitting evidence in the hearing and may limit the length of the hearing, the number of witnesses or any evidence introduced to the extent deemed relevant and efficient.

C. Non-Binding Decision. The Neutral Evaluator shall render a non-binding, written decision as soon as possible, but not later than five Days after the hearing.

3.86 Binding Arbitration Procedure. The following binding arbitration procedure, except as provided in subsection 3.86(G) below, shall serve as the exclusive method to resolve a dispute if (A) the parties cannot agree to a Neutral Evaluator as set forth in Section 3.84 above or (B) any party chooses not to accept the decision of the Neutral Evaluator. The party requesting binding arbitration shall notify the Neutral Evaluator of a request for arbitration in writing within three business days' of receipt of the Neutral Evaluator's decision. If the Contractor

requests arbitration or if Contractor rejects the City's selection of a Neutral Evaluator, it shall post a cash bond with the Neutral Evaluator in an amount agreed upon by the parties or, in the event of no agreement, the Neutral Evaluator shall establish the amount of the cash bond to defray the cost of the arbitration as set forth in subsection 3.86(M) and the proceeds from the bond shall be allocated in accordance with subsection 3.86(M) by the Arbitration Panel.

A. Arbitration Panel. The Arbitration Panel shall consist of three arbitrators: the City's appointed arbitrator, the Contractor's appointed arbitrator and a third arbitrator (or "Neutral Arbitrator") who shall be selected by the parties' arbitrators as set forth in subsection 3.86(B) If more than one consultant or contractor is involved in a dispute, the consultants and/or contractors shall agree on an appointee to serve as arbitrator. The Neutral Evaluator shall not participate in the proceedings.

B. Selection of Neutral Arbitrator. The parties' arbitrators shall choose the Neutral Arbitrator within five business days of receipt of notification of a dispute from the Neutral Evaluator. The Neutral Arbitrator shall have the same qualifications as those of the arbitrators set forth in Section 3.84. In the event that the selected arbitrators cannot agree on the Neutral Arbitrator as set forth above, the Neutral Arbitrator shall be the Default Neutral Arbitrator, a person or entity jointly selected by the City and the Contractor. If the City and the Contractor cannot agree on a Default Neutral Arbitrator, the City and the Contractor shall each submit two names to an appropriate judge who shall select one person to serve as the Default Neutral Arbitrator.

C. Expedited Hearing. The parties have structured this procedure with the goal of providing for the prompt, efficient and final resolution of all disputes falling within the purview of this ADR process. To that end, any party can petition the Neutral Evaluator to set an expedited hearing. If the Neutral Evaluator determines that the circumstances justify it, the Neutral Evaluator shall contact the selected Arbitration Panel and arrange for scheduling of the arbitration at the earliest possible date. In any event, the hearing of any dispute not expedited will commence as soon as practical but in no event later than 20 Days after notification of request for arbitration having been submitted. This deadline can be extended only with the consent of all the parties to the dispute, or by decision of the Arbitration Panel upon a showing of emergency circumstances.

D. Procedure. The Arbitration Panel will select a Chairman and will conduct the hearing in such a manner that will resolve disputes in a prompt, cost efficient manner giving regard to the rights of all parties. Each party shall supply to the Arbitration Panel a written pre-hearing statement which shall contain a brief statement of the nature of the claim or defense, a list of witnesses and exhibits, a brief description of the subject matter of the testimony of each witness who will be called to testify, and an estimate as to the length of time that will be required for the arbitration hearing. The Arbitration Panel shall review and consider the Neutral Evaluator decision, if any. The Chairman shall determine the nature and scope of discovery, if any, and the manner of presentation of relevant evidence consistent with deadlines provided herein and the parties' objective that disputes be resolved in a prompt and efficient manner. No discovery may be had of any materials or information for which a privilege is recognized by Arizona law. The Chairman, upon proper application, shall issue such orders as may be necessary and permissible under law to protect confidential, proprietary or sensitive materials or information from public disclosure or other misuse. Any party may make application to the Maricopa County Superior Court to have a protective order entered as may be appropriate to confirm such orders of the Chairman.

E. Hearing Days. In order to effectuate parties' goals, the hearing once commenced, will proceed from business day to business day until concluded, absent a showing of emergency circumstances.

F. Award. The Arbitration Panel shall, within 10 Days from the conclusion of any hearing, by majority vote, issue its award. The award shall include an allocation of fees and costs pursuant to subsection 3.86(M) herein. The award is to be rendered in accordance with this Contract and the laws of the State of Arizona.

G. Scope of Award. The Arbitration Panel shall be without authority to award punitive damages, and any such punitive damage award shall be void. The Arbitration Panel shall be without any authority to issue an award against any individual party in excess of twenty percent (20%) of the original Contract amount,

but in no event shall any award exceed \$2,000,000, exclusive of interest, arbitration fees, costs and attorneys' fees. If an award is made against any individual party in excess of \$100,000, exclusive of interest, arbitration fees, costs and attorneys' fees, it must be supported by written findings of fact, conclusions of law and a statement as to how damages were calculated. Any claim in excess of twenty percent (20%) of the original Contract amount or in excess \$2,000,000 shall be subject to the jurisdiction of the Superior Court of Arizona, Maricopa County. Any party can contest the validity of the amount claimed if an action is filed in the Superior Court.

H. Jurisdiction. The Arbitration Panel shall not be bound for jurisdictional purposes by the amount asserted in any party's claim, but shall conduct a preliminary hearing into the question of jurisdiction upon application of any party at the earliest convenient time, but not later than the commencement of the arbitration hearing.

I. Entry of Judgment. Any party can make application to the Maricopa County Superior Court for confirmation of an award, and for entry of judgment on it.

J. Severance and Joinder. To reduce the possibility of inconsistent adjudications: (1) the Neutral Evaluator or the Arbitration Panel may, at the request of any party, join and/or sever parties, and/or claims arising under other contracts containing this ADR provision, and (2) the Neutral Evaluator, on his own authority, or the Arbitration Panel may, on its own authority, join or sever parties and/or claims subject to this ADR process as they deem necessary for a just resolution of the dispute, consistent with the parties' goal of the prompt and efficient resolution of disputes, provided, however, that the Contractor, Architect/Engineer and Project professionals shall not be joined as a party to any claim made by a Contractor. Nothing herein shall create the right by any party to assert claims against another party not germane to this Contract or not recognized under the substantive law applicable to the dispute. Neither the Neutral Evaluator nor the Arbitration Panel are authorized to join to the proceeding parties not in privity with the City. Contractor cannot be joined to any pending arbitration proceeding, without Contractor's express written consent, unless Contractor is given the opportunity to participate in the selection of the non-City appointed arbitrator.

K. Appeal. Any party may appeal (1) errors of law by the Arbitration Panel if, but only if, the errors arise in an award in excess of \$100,000, (2) the exercise by the Chairman or Arbitration Panel of any powers contrary to or inconsistent with this Contract or (3) on the basis of any of the grounds provided in ARIZ. REV. STAT. § 12-1512, as amended. Appeals shall be to the Maricopa County Superior Court within 15 Days of entry of the award. The standard of review in such cases shall be that applicable to the consideration of a motion for judgment notwithstanding the verdict, and the Maricopa County Superior Court shall have the authority to confirm, vacate, modify or remand an award appealed under this Section, but not to conduct a trial, entertain the introduction of new evidence or conduct a hearing de novo.

L. Uniform Arbitration Act. Except as otherwise provided herein, binding arbitration pursued under this provision shall be governed by the Uniform Arbitration Act as codified in Arizona in ARIZ. REV. STAT. § 12-1501, *et seq.*

M. Fees and Costs. Each party shall bear its own fees and costs in connection with any informal hearing before the Neutral Evaluator. All fees and costs associated with any arbitration before the Arbitration Panel, including without limitation the Arbitration Panelists' fee, and the prevailing party's reasonable attorneys' fees, expert witness fees and costs, will be paid by the non-prevailing party, except as provided for herein. In no event shall any Arbitrator's hourly fees be awarded in an amount in excess of \$200 per hour and (1) costs shall not include any travel expenses in excess of mileage at the rate paid by the City, not to exceed a one way trip of 150 miles, and (2) all travel expenses, including meals, shall be reimbursed pursuant to the travel policy of the City in effect at the time of the hearing. The determination of prevailing and non-prevailing parties, and the appropriate allocation of fees and costs, will be included in the award by the Arbitration Panel. Fees for the Neutral Evaluator shall be divided evenly between the City and the Contractor.

N. Confidentiality. Any proceeding initiated under ADR shall be deemed confidential to the maximum extent allowed by Arizona law and no party shall, except for disclosures to a party's attorneys or accountants, make any disclosure related to the disputed matter or to the outcome of any proceeding except to the extent required by law, or to seek interim equitable relief, or to enforce an agreement reached by the parties or an award made hereunder.

O. Equitable Litigation. Notwithstanding any other provision of ADR to the contrary, any party can petition the Maricopa County Superior Court for interim equitable relief as necessary to preserve the status quo and prevent immediate and irreparable harm to a party or to the Program pending resolution of a dispute pursuant to ADR provided herein. No court may order any permanent injunctive relief except as may be necessary to enforce an order entered by the Arbitration Panel. The fees and costs incurred in connection with any such equitable proceeding shall be determined and assessed in ADR.

P. Change Order. Any award in favor of the Contractor against the City or in favor of the City against the Contractor shall be reduced to a Change Order and executed by the parties in accordance with the award and the provisions of this Contract.

Q. Merger and Bar. Any claim asserted pursuant to this ADR process shall be deemed to include all claims, demands, and requests for compensation for costs and losses or other relief, including the extension of this Contract performance period which reasonably should or could have been brought against any party that was or could have been brought into this ADR process, with respect to the subject claim. The Arbitration Panel shall apply legal principles commonly known as merger and bar to deny any claim or claims against any party regarding which claim or claims recovery has been sought or should have been sought in a previously adjudicated claim for an alleged cost, loss, breach, error, or omission.

R. Inclusion in Other Contracts. The Contractor shall cooperate with the City in efforts to include this ADR provision in all other Project contracts. Subject to Contractor's reasonable agreement, the Contractor agrees that any modification to this ADR provision that is included in the construction or other contracts shall also apply to the Contractor. It is the intent of the parties that any changes to this ADR provision in later contracts will be evolutionary and designed to incorporate the terms of this ADR provision without material changes to the substance or procedure of this ADR provision.

EXHIBIT A
TO
INVITATION FOR BIDS NO. PW17-010

[Specifications, Plans/Construction Drawings, Reference Materials]

See following pages.



TECHNICAL SPECIFICATIONS

Rancho Santa Fe Reservoir Modifications and Coating

(PW17-010)

September 2016

Prepared By:



EXP. DATE: 09/30/18

202 E. Earll Drive, Suite 110
Phoenix, AZ 85012
T: (602) 629-0206
F: (602) 629-0223

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

01030	SUMMARY OF WORK
01040	ORDER OF CONSTRUCTION
01060	SPECIAL CONDITIONS
01072	PROJECT RECORD DOCUMENTS
01210	CONTINGENCY ITEMS
01331	REFERENCE FORMS
01340	TECHNICAL SUBMITTALS
01350	SPECIAL PROCEDURES
01423	REFERENCE STANDARDS
01450	MEASUREMENTS AND PAYMENTS
01500	TEMPORARY FACILITIES
01560	ENVIRONMENTAL PROTECTION AND SPECIAL CONTROLS
01600	PRODUCT DELIVERY, STORAGE AND HANDLING
01610	REGULATORY REQUIREMENTS
01651	TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT
01770	CLOSEOUT PROCEDURES

DIVISION 2 – SITE WORK

02250	GROUND SURFACE RESTORATION
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DIVISION 9 - FINISHES

09800	SPECIAL COATINGS
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DIVISION 13 - SPECIAL CONSTRUCTION

13208	MISCELLANEOUS WORK ASSOCIATED WITH WELDED STEEL STORAGE RESERVOIRS
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DIVISION 15 - MECHANICAL

15115	GATE VALVES AND APPURTENANCES
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EXP. DATE: 09/30/18

DIVISION 1
GENERAL REQUIREMENTS

SECTION 01030

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Identification and summary description of the Work, location, OWNER furnished equipment, Work by OWNER, activities by others, and coordination.

1.02 THE WORK

- A. The Work consists of miscellaneous improvements, and surface preparation and coating of one 1,750,000 gallon water storage reservoir.

1.03 LOCATION OF PROJECT

- A. The Project is located at 12550 W. McDowell Rd, Avondale, Arizona.

1.04 OWNER FURNISHED EQUIPMENT

- A. None

1.05 WORK BY THE OWNER

- A. Drain and isolate the reservoir.
- B. Remove the impressed current cathodic protection system components located on and within the reservoir before draining the reservoir. Reinstall the cathodic protection system after CONTRACTOR completes coating and before CONTRACTOR begins disinfection of the reservoir.
- C. Remove and reinstall the existing reservoir pressure sensor and piping.
- D. Collect water samples after the CONTRACTOR has completed disinfection of the reservoir and conduct bacteriological test.

1.06 ACTIVITIES BY OTHERS

- A. OWNER, utilities, and others may perform activities within Project area while the Work is in progress:
 - 1. Schedule the Work with OWNER, utilities, and others to minimize mutual interference.

- B. Cooperate with others to minimize interference and delays:
 - 1. When cooperation fails, submit recommendations and perform Work in coordination with work of others as directed.
 - 2. When the Work depends on proper execution or on results of the work performed by others, inspect and promptly report apparent discrepancies or defects in work performed by others.

1.07 OPERATION OF EXISTING FACILITIES

- A. There are existing operational facilities at this site. The booster station and second water storage reservoir on the site are operational. All work must be scheduled with the OWNER to avoid interference with existing facilities. Refer to Section 01040 for additional requirements:
 - 1. Any damage to existing property/equipment must be replaced to original working conditions.

1.08 COORDINATION OF WORK

- A. Maintain overall coordination of the Work:
 - 1. CONTRACTOR shall be solely responsible for coordination of all of the work. Supervise, direct and cooperate fully with all subcontractors, manufacturers, fabricators, suppliers, distributors, installers, testing agencies and all others whose services, materials or equipment are required to ensure completion of the work within the Contract time.
 - 2. CONTRACTOR shall cooperate with and coordinate work with the work of any other contractors, utility service companies or OWNER's employees performing additional work related to the Project site.
 - 3. CONTRACTOR shall coordinate work with the work of others to assure compliance with schedules.
 - 4. CONTRACTOR shall attend and participate in all project coordination or progress meetings and report on the progress of all work and compliance with construction schedule.

1.09 POTABLE WATER SUPPLY PROTECTION

- A. All materials of construction which may come into contact with drinking water shall conform to NSF International Standards 60 and 61.

1.10 PERMITS

- A. CONTRACTOR shall include the cost for and obtain all construction related permits. These permits include, but are not limited to:
 - 1. Necessary permits for discharge of hydrostatic test water and chlorinated water used to disinfect piping and equipment.
 - 2. City of Avondale construction permit. No fee is required for this permit.

1.11 SAFETY PLAN

- A. CONTRACTOR shall submit a safety plan in compliance with Occupational Safety and Health Administration (OSHA) and Confined Space Requirements at the Pre-Construction Conference.

1.12 CONTRACTOR'S USE OF PREMISES

- A. CONTRACTOR shall limit his use of the premises for Work and storage, and allow for work by other contractors/subcontractors. CONTRACTOR shall store materials and equipment on north portion of site.
- B. CONTRACTOR assumes full responsibility for the protection and safekeeping of products and materials CONTRACTOR has stored on the site.
- C. CONTRACTOR shall move any stored products, or materials, under CONTRACTOR's responsibility, which interfere with operations of OWNER and separate contractors/subcontractors.
- D. CONTRACTOR shall obtain and pay for the use of any additional storage or work areas if needed for CONTRACTOR's operations.
- E. CONTRACTOR shall be solely responsible for the location/identification of materials storage, equipment storage, and employee and subcontractor parking areas, subject to the approval of the OWNER.
- F. CONTRACTOR shall restore any areas used for materials storage, equipment storage, or employee and subcontractor parking to their original condition or better, unless specified otherwise.

1.13 MAINTENANCE OF TRAFFIC

- A. Conduct Work to interfere as little as possible with public travel, whether vehicular or pedestrian.
- B. Do not close any public street or portion thereof without first notifying and receiving approval from the local Fire Department and Police Department. Conduct operations to minimize interference with emergency vehicle access.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01040

ORDER OF CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Order of construction activities to allow the OWNER normal operation of the existing facilities located on the Project site.
- B. Related Sections include, but are not necessarily limited to:
 - 1. Division 1.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

- A. Milestone Dates - The construction duration to reach final completion shall not exceed 150 calendar days. CONTRACTOR shall also comply with the following interim dates of completion:

Task	Interim Completion Date (days after Notice To Proceed)
Complete cleaning of Reservoir	10
Perform reservoir inspection of interior	15
Complete Reservoir structural modifications and recoating	120
Complete disinfection of Reservoir and obtain negative bacteriological test result	130
Final acceptance and punch list	150

- 1. The OWNER anticipates awarding of a contract on October 17, 2016, and issuing the Notice to Proceed on November 14, 2016.

- B. Tie-ins shall be coordinated with the OWNER and shall be scheduled as to minimize the disruption of services:
1. At no time shall CONTRACTOR or his employees modify operation of the existing facilities or start construction modifications without approval of the OWNER.
 2. CONTRACTOR shall plan his work to allow OWNER access to existing facilities to perform maintenance and repair work on existing facilities.
 3. Operation of existing valves shall only be performed by OWNER's personnel.
- C. The following is a suggested construction sequence for the project which the CONTRACTOR should consider in developing his overall plan of construction. This is not intended to release the CONTRACTOR from the responsibility to coordinate the work in any manner which shall insure project completion within the time allowed:
1. Remove and replace existing 20" gate valve.
 2. The OWNER will drain the reservoir. The OWNER will retain Corrpro Companies to remove the impressed current protection system components located on and inside the reservoir.
 3. Clean the reservoir. The entire reservoir floor is covered with an average of 1/8-inch thick layer of sediments.
 4. OWNER, CONTRACTOR, and ENGINEER to conduct structural inspection of interior of reservoir and identify scope of improvements.
 5. Perform modifications as shown on the drawings and identified during structural inspection.
 6. Perform work associated with surface preparation of interior of reservoir.
 7. Install coating on interior of reservoir.
 8. Perform work associated with surface preparation and coating on exterior of reservoir.
 9. The OWNER will retain Corrpro Companies to reinstall the impressed current protection system components for the reservoir.
 10. Disinfect, fill, and obtain negative bacteriological test results for the reservoir.
 11. Complete punchlist items.

END OF SECTION

SECTION 01060

SPECIAL CONDITIONS

PART 1 GENERAL

1.01 CONTRACTOR'S STORAGE TRAILERS (Applicable as needed or utilized)

- A. Establish at site of Project subject to approval of OWNER (as necessary and not mandatory).
- B. Remove storage trailers from site upon acceptance of the entire Work by the OWNER.
- C. Maintenance:
 - 1. CONTRACTOR shall provide all weekly maintenance and upkeep of trailer and equipment. Equipment breakdowns shall be repaired promptly by CONTRACTOR.
 - 2. Pay all utilities costs.
 - 3. Maintain at least until acceptance of the entire Work by the OWNER or until otherwise suspended by the OWNER.

1.02 ENGINEER/OWNER FIELD OFFICE

- A. Field office is not required. Project meetings shall be held at the OWNER'S Municipal Operations Service Center at 399 E. Lower Buckeye Road, Avondale.

1.03 SITE MAINTENANCE AND TEMPORARY PAINTING

- A. Paint and maintain in good repair temporary structures, fences, barricades and related items.
- B. Keep site clean of debris. Store and stockpile materials in an orderly manner and protect against damage.

1.04 TESTING

- A. Except as set out in other sections of Contract Documents, payment and responsibility for testing is as follows:
 - 1. Unless specifically stated otherwise in individual sections of specifications or Drawings, required testing, testing procedures, reports, certificates, and costs associated with all phases of securing required satisfactory test information which may be required by individual sections of specifications or Drawings is the full responsibility of the CONTRACTOR.
 - 2. Testing performed by OWNER shall include microbiological sampling and testing of water samples from disinfection tests for the reservoir.

1.05 PROJECT MEETINGS

- A. The OWNER/ENGINEER shall conduct a preconstruction conference and progress meetings involving:
 - 1. CONTRACTOR's Project Manager.
 - 2. CONTRACTOR's Project Superintendent.
 - 3. OWNER's designated Representative(s).
 - 4. ENGINEER's designated Representative(s).
 - 5. CONTRACTOR's Subcontractors as appropriate to the work in progress.
- B. Progress meetings will be held bi-weekly at a location designated by OWNER.
- C. The ENGINEER shall take meeting minutes and distribute copies of meeting minutes to the designated recipients. Corrections, additions or deletions to the minutes shall be noted and distributed as required.
- D. The CONTRACTOR shall have available at each meeting up-to-date red line as-built drawings.

1.06 SPECIAL CONSIDERATIONS

- A. CONTRACTOR shall be responsible for negotiations of any waivers or alternate arrangements required to enable transportation of materials to the site:

1.07 CONSTRUCTION SCHEDULE

- A. The CONTRACTOR shall prepare a construction schedule:
 - 1. The CONTRACTOR shall submit a complete gantt chart to the OWNER at the pre-construction meeting. The schedule shall cover the CONTRACTOR's anticipated time schedule.
 - 2. The schedule shall show the following:
 - a. The schedule shall be time-scaled in calendar weeks.
 - b. The schedule shall show the order and interdependence of activities and the sequence of work.
 - c. The schedule shall include, in addition to all construction activities, such tasks as mobilization and demobilization, submittal and approval of samples of materials and shop drawings, procurement of significant materials and equipment, fabrication of special items, surface preparation, coating application, installation, disinfection, cleanup, and interfacing with other projects /contractors / utility companies, etc.
 - 3. The CONTRACTOR shall provide an updated schedule every month commencing from notice to proceed in conformation with the following:
 - a. The OWNER or ENGINEER shall determine if the schedule requires revision in whole or in part, and shall so inform the CONTRACTOR of noncompliance with Contract schedule within 5 calendar days.

D. Close-out Items:

1. The Schedule of Values shall include a separate line item for close-out and completion of punchlist items (Close-out), valued at not less than five (5) percent of the Contract Price, representing the faithful final completion of the Work, including but not limited to correction of incomplete or deficient items identified in the final inspection; final cleaning and removal of temporary facilities and controls; preparation and delivery of operation and maintenance manuals, record drawings, and other project records and documents; completion of all required demonstrations and training; completion of all close-out submittals, and all other close-out procedure and requirements, if any, required for the project.
2. Any change in the Contract Price made in accordance with the Contract Documents shall be reflected by a proportionate change in the value assigned to Close-out.
3. Close-out shall be included in the CONTRACTOR'S final application for payment and paid for as part of the OWNER'S final payment hereof, assuming faithful completion of Close-out and satisfaction of any and all other conditions to such payment set forth in the Contract Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01072

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Prepare and maintain record documents for the project to accurately reflect the construction work as built. The record documents must be submitted at completion of the construction work as a condition of final acceptance of the Work by the OWNER.

1.02 MAINTENANCE OF RECORD DOCUMENTS

- A. The CONTRACTOR shall maintain at the project site one copy each of the following record documents:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Design addenda.
 - 4. Reviewed shop drawings.
 - 5. Contract Change Orders and field orders.
 - 6. Supplemental drawings and written material provided by the ENGINEER to clarify the Contract Documents.
 - 7. Other contract modifications.
 - 8. Approved samples and/or sample results.
- B. The CONTRACTOR shall store the project record documents in an approved location apart from other documents. Record documents are not to be used for construction purposes. The CONTRACTOR shall provide files and racks as needed for orderly storage of the documents, maintain the documents in clean, dry, legible condition, and make the documents and samples available at all times for inspection by the ENGINEER.

1.03 MARKING DEVICES

- A. Mark all changes with red pencil or pen.

1.04 RECORDING

- A. The CONTRACTOR shall keep the record documents current with construction in progress. Completed construction work shall not be permanently concealed until required information has been recorded.

- B. The CONTRACTOR shall provide a rubber stamp for use in marking all project record documents. The stamp shall have a line border of approximately 4" x 1" with the words "PROJECT RECORD" printed inside the border.
- C. The CONTRACTOR shall neatly stamp, in red, each record document "PROJECT RECORD", and legibly mark the Contract Drawings to record actual construction deviations as follows:
 - 1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 2. Field changes of dimension and detail.
 - 3. Changes made by design addenda, change order or field order.
 - 4. Details not on original Contract Drawings.

1.05 SUBMITTAL

- A. Red line record drawings shall be available for review by the ENGINEER whenever an application for a monthly progress payment is made. The partial record drawings shall be up-to-date through the end of the progress payment application period.
- B. At completion of construction, and prior to the final inspection and final acceptance of the project by the OWNER, the CONTRACTOR shall deliver the project record documents to the ENGINEER bound into rolls of convenient size for ease of handling and properly labeled.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01210
CONTINGENCY ITEMS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements governing Contingency Items.

1.02 CONTINGENCY ITEMS

- A. Contingency Items are available for sole use by OWNER.
- B. Bond, insurance, taxes, profit, and overhead shall be included in the Contingency Items amount on the Price Sheet.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SCHEDULE OF CONTINGENCIES

- A. See Sections 09800 and 13208.

END OF SECTION

SECTION 01331

REFERENCE FORMS

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section contains the forms for CONTRACTOR to use in documenting Work required under this Contract. CONTRACTOR may use an alternative form if approved by ENGINEER that contains the required information and is in a similar format.
- B. The forms listed below may be referenced from other Sections in the Contract Documents. Forms will include, but will not be limited to the following:

<u>No.</u>	<u>Form Title</u>
1.	Request for Change Order Proposal
2.	Change Order Proposal
3.	Request for Information
4.	Contractor's Daily Construction Report
5.	Field Order
6.	Work Change Directive
7.	Shop Drawing Transmittal (See Section 01340)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

REQUEST FOR CHANGE ORDER PROPOSAL

Date: _____

Contractor: _____

Project Name: Rancho Santa Fe Reservoir Modifications and Coating

Request for Change Order Proposal No. _____

NOTICE TO CONTRACTOR: Please submit a Change Order Proposal for the proposed modifications to the Contract Documents as described below. If acceptable, a Change Order will be issued to authorize the work. **THIS IS NOT A CHANGE ORDER FOR AUTHORIZATION TO PROCEED WITH THE WORK AS DESCRIBED!**

SCOPE OF WORK:

OWNER

CHANGE ORDER PROPOSAL

Date: _____

Contractor: _____

Project Name: Rancho Santa Fe Reservoir Modifications and Coating

Project No.

Change Order Proposal No.: _____

Dear Sir:

Certain items of extra work have been found necessary which are not covered by the Contract for the above referenced Project. Therefore, we submit the following amounts as the basis of compensation for such extra work:

JUSTIFICATION:

The Contract Time will be (increased)(decreased) _____ calendar days.

The Contract Amount will be (increased)(decreased) \$ _____ dollars.

By: _____

Title: _____

Contractor: _____

REQUEST FOR INFORMATION

Rancho Santa Fe Reservoir Modifications and Coating

Project Name _____	Project Owner _____
Contractor _____	RFI# _____
Requested By _____	Directed to _____
Subject _____	Date Received _____
Spec. Section _____	Date Transmitted _____
Drawing References _____	Date Reply Received _____
Date Reply Needed _____	Date Reply Transmitted _____

INFORMATION NEEDED:

Date: _____ Signature: _____

REPLY:

Date: _____ Signature: _____

WORK CHANGE DIRECTIVE

No. _____

PROJECT: Rancho Santa Fe Reservoir Modifications and Coating

DATE OF ISSUANCE _____ EFFECTIVE DATE _____

OWNER: Mohave County Public Works

CONTRACTOR: _____

You are directed to proceed promptly with the following change(s):

Description:

Purpose of Work Change Directive:

Attachments: (List documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Times, any claim for a Change Order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

- Unit Prices
- Lump Sum
- Other _____

Estimated increase (decrease) in Contract Price: \$ _____

If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Method of determining change in Contract Times:

- Contractor's records
- OWNER's records
- Other _____

Estimated increase (decrease) in Contract Times: Substantial Completion: _____ days

Ready for final payment: _____ days
If the change involves an increase, the estimated time is not to be exceeded without further authorization.

AUTHORIZED:

OWNER

By: _____

SECTION 01340
TECHNICAL SUBMITTALS SHOP DRAWINGS, PROJECT DATA & SAMPLES
OPERATION AND MAINTENANCE MANUALS

PART 1 GENERAL

1.01 SUMMARY

- A. Article III - General Terms and Conditions, Part B – Performance of the Work, Section 3.38 that relates to shop drawings and samples shall be superceded by this Section 01340.
- B. General:
 - 1. Section Addresses:
 - a. Mechanics of shop drawing and operation and maintenance manual submittal and review process.
- C. Related Sections include but are not necessarily limited to:
 - 2. Division 1 - General Requirements.
 - 3. Sections in Divisions 2 through 15 identifying submittal requirements.
- D. Approval of Technical Submittals by ENGINEER or OWNER shall not relive CONTRACTOR of full responsibility for compliance with scope, intent, and performance in accordance with this Contract.

1.02 SUBMITTALS: GENERAL

- A. Transmit all technical submittals to:

Sriram Barigeda
NCS Engineers
202 E. Earll Drive, Suite 110
Phoenix, AZ 85012
Sriram@ncseng.com

- B. Utilize one copy of “Contractor’s Shop Drawing Transmittal” (Exhibit A-01340) Form to transmit all shop drawings and samples. Transmittals will not be received from or returned to subcontractors.
- C. Provide submittal information defining specific equipment or materials utilized on the project. Generalized product information not clearly defining specific equipment or materials to be provided will be rejected.
- D. Calculations required in individual specification sections will be received

for information purposes only and will be returned stamped "E". Engineer's Review Not Required" to acknowledge receipt.

- E. Assure submittals meet the following schedule:
 - 1. Shop drawings:
 - a. Submittal and approval prior to that portion of work being installed and prior to 50 overall percent completion.
 - b. ENGINEER will attempt to return all submittals to CONTRACTOR within 7 days of receipt.
 - 2. Operation and Maintenance Manuals and Data Record Sheets:
 - a. Initial submittal within 45 days after date shop drawings are approved.
- F. Final payment on the project shall not be made until final approved copies of all Operation and Maintenance Manuals have been received.
- G. Provide CONTRACTOR's stamp of approval as indication of his checking and verification of dimensions and coordination with interrelated work.

1.03 SUBMITTALS: SHOP DRAWINGS

- A. Transmittal Mechanics:
 - 1. Utilize one copy of "Contractor's Transmittal" Form.
 - 2. Number transmittals consecutively beginning with 1.
 - 3. Assure resubmitted items retain the original number but with an added suffix letter starting with "A".
 - 4. Assure only one specification section is covered by one letter of transmittal.
 - 5. Provide breakout of each transmittal component on the "Contractor's Transmittal" Form. Each component thus defined shall receive specific action by the ENGINEER. Define manufacturer, item, tag number, and Drawing/Specification reference, as applicable.
 - 6. Do not change the scope of any re-submittal from the original transmittals' scope. If some components of the original transmittals are approved and others are not, the CONTRACTOR shall not resubmit the approved components in subsequent re-submittal packages, unless requested to do so by ENGINEER. Provide a summary sheet containing all components of the original transmittal at the front of each re-submittal. Indicate each component as either "approved", "outstanding", or "submitted for action". Items previously approved shall be referenced to the transmittal in which approval was received. "Outstanding" items are defined as items unapproved and not yet resubmitted for action. "Submitted for action" shall indicate items which are included for review in the transmittal.

7. Provide submittals in pdf format and transmit to ENGINEER for review via e-mail.
8. Provide clear space (3 inch square) for ENGINEER stamping of each component.
9. Marks on transmittal by Contractor, mark reproducible transparencies with a rectangular box.
10. ENGINEER will return reviewed submittals in pdf format via e-mail.
11. In addition to final pdf, CONTRACTOR shall provide two (2) hard copies of final approved shop drawings.

B. Transmittal Contents:

1. Coordinate and identify shop drawing contents so that all items can be easily verified by the ENGINEER.
2. Identify equipment or material use, tag number, drawing detail reference, weight, and other project specific information.
3. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.
4. Submit items like equipment brochures, cuts of fixtures, product data sheets or catalog sheets on 8½ x 11 inch pages. Indicate exact item or model and all proposed options. Larger sheets (11"x17" or 24"x36") should be folded into smaller sections to fit into the submittal package.
5. Include legible scale details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout drawings, parts catalogs, rough-in diagrams, wiring diagrams, controls weights and other pertinent data. Arrange data and performance information in format similar to that provided in Contract Documents. Provide, at minimum, the detail provided in the Contract Documents.
6. If proposed equipment or materials deviate from the Specifications or Drawings in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet. If explanation is not given, shop drawings will be returned without action.
7. Provide copy of applicable specification section annotated in red to indicate that all requirements have been met with the shop drawing.

1.04 SUBMITTALS: SAMPLES

- A. Identify sample as to: manufacturer, item, use, type, project designation, tag number, specification section or drawing detail reference, color, range, texture, finish and other pertinent data.
- B. Include application specific brochures, and installation instructions.

- C. Provide CONTRACTOR's stamp of approval on samples as indication of his checking and verification of dimensions and coordination with interrelated work.
- D. Resubmit samples of rejected items.
- E. Approved samples submitted or constructed, constitute criteria for judging completed work. Finished work or items not equal to samples will be rejected.
- F. Samples may be retained for comparison purposes and the CONTRACTOR shall remove samples when directed. CONTRACTOR shall include in bid all costs of furnishing and removing samples.

1.05 SUBMITTALS: OPERATION AND MAINTENANCE MANUALS

- A. Transmittal Mechanics:
 - 1. See Paragraph 1.02 and 1.03.
 - 2. Provide transmittal form for Operation and Maintenance Manual with original number of the shop drawing approved item plus a suffix "O-M".
 - 3. Submit one copy until approval is received.
 - 4. Acceptable submittals will be retained with the transmittal form returned with a request for two (2) final paper copies and two electronic copies on compact disk. Provide complete electronic copies of the entire O&M manual in PDF format. The entire O&M manual information for each specification section shall be included in a single PDF. Each PDF shall be appropriately labeled. This is required for all O&M manuals associated with this Project.
 - 5. Deficient submittals will be returned along with transmittal form which will be marked to indicate deficient areas.
 - 6. Identify resubmittals with the original number plus a suffix letter starting with "A."
 - 7. Submit Operation and Maintenance Manuals printed on 8-1/2" x 11" inch size high quality paper with standard three-hole punching and bound in stiff metal hinged binder constructed as a three-post style. Provide binders with titles. Tab each section of manuals for easy reference with plastic-coated dividers. Provide index for each manual.
 - 8. Reduce drawings or diagrams bound in manuals to an 8 1/2" x 11" inch or 11" x 17" inch size. However, where reduction is not practical to ensure readability, fold large drawings separately and place in vinyl envelopes which are bound into the binder. Identify vinyl envelopes with drawing numbers.
- B. Transmittal Content:
 - 1. Submission of Operation and Maintenance Manuals is applicable to but not necessarily limited to:

- a. Equipment such as meters, valves, pumps and feed system controls, electrical panels, and instrumentation.
 - b. Equipment used with electrical motor loads (pumps).
 - c. Specialized equipment including valves and instrumentation and control system components for process systems such as meters, recorders, and transmitters.
 - d. Valves and actuators.
2. Prepare operation and maintenance manuals which include, but are not necessarily limited to the following detailed information, as applicable:
- a. Equipment function, normal operating characteristics, limited operations.
 - b. Assembly, disassembly, installation, alignment, tolerances, adjustment, and checking instructions.
 - c. Operating instructions for start-up, routine and normal operation, regulation and control, shutdown, and emergency conditions.
 - d. Lubrication and maintenance instructions (including schedules).
 - e. Guide to “troubleshooting”.
 - f. Parts list (including material of construction) and predicted life of parts subject to wear.
 - g. Outline, cross-section, and assembly (exploded view) drawings; engineering data; and electrical diagrams, including elementary diagrams, wiring diagrams, connection diagrams, word description of wiring diagrams and interconnection diagrams.
 - h. Test data and performance curves.
 - i. A list of recommended spare parts with a price list.
 - j. Copies of installation instructions, parts lists or other documents packed with equipment when delivered.
 - k. Tag numbers relating the equipment back to the Contract Documents.
 - l. Safety instructions.
 - m. ISO identification numbers for bearings.
 - n. List of specialty tools required and availability.
 - o. List weight of overall assemblies and individual weights of major individual components.
 - p. List of vendors and who to contact for warranty work.
 - q. List of fastener grades.
 - r. Copy of warranty, if applicable.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUBMITTALS: APPROVAL OR REJECTION

- A. Items within Transmittals will be reviewed for overall design intent and will receive one of the following Actions:

- A - NO EXCEPTIONS TAKEN
- B - FURNISH AS NOTED
- C - REVISE AND RESUBMIT
- D - REJECTED
- E - ENGINEER'S REVIEW NOT REQUIRED

- B. Transmittals received will be initially reviewed to ascertain inclusion of CONTRACTOR's approval stamp. Drawings not stamped by the CONTRACTOR or stamped with a stamp containing language other than that specified in Paragraph 1.02 G will not be reviewed for technical content and will be returned without any action.
- C. Transmittals returned with disposition "A" or "B" are considered ready for fabrication and installation. If for any reason a transmittal that has an "A" or "B" disposition is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal. The CONTRACTOR shall assure that previously approved documents are destroyed when they are superseded by a resubmittal as such.
- D. Transmittals with disposition "A" or "B" combined with Action "C" (Revise and Resubmit) or "D" (Rejected), will be individually analyzed giving consideration as follows:
 - 1. The portion of the transmittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Conference). One copy or the one transparency of the "C" or "D" drawings will be marked up and returned to the CONTRACTOR. It shall be the CONTRACTOR's responsibility to ensure that these items are corrected and resubmitted.
 - 2. Items marked "A" or "B" will be fully distributed.
 - 3. If a portion of the items or system proposed are acceptable, however, the major part of the individual drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" action. This is at the sole discretion of the ENGINEER. In this case, some drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package." Distribution to the OWNER, CONTRACTOR, and ENGINEER will not be made (unless previously agreed to otherwise).
- E. Failure to include any specific information specified under the submittal paragraphs of the specifications shall result in the transmittal being returned to the CONTRACTOR unapproved.
- F. In addition to calculations stamped and returned "E. Engineer's Review Not Required", other transmittals such as submittals which the Engineer considers as "Not Required" and submittal information in a transmittal which have been reviewed and approved in a prior transmittal, will be returned with action "E. Engineer's Review Not Required."

END OF SECTION

SECTION 01350

SPECIAL PROCEDURES

PART 1 GENERAL

1.01 CONCEALED EXISTING FACILITIES

- A. Verify locations of utilities and facilities which may exist by consulting with OWNER, utility companies, and “Call Arizona 811”, Phone No. 811, before you dig:
 - 1. Abide by easement and right-of-way restrictions.
- B. Notify owners of facilities when the Work will be in progress. Make arrangements for potential emergency repairs in accordance with requirements of Owners of facilities including individual or residential facilities.
- C. Assume responsibility for repair of facilities damaged by performance of the Work.
- D. Expose sanitary and storm sewers, water, gas, electric, telephone utility lines, and other underground facilities indicated to permit survey of location and elevation prior to commencement of Work in affected area.
- E. Expose in ample time to permit relocation of interfering utilities with minimum delaying effect on contract time.
- F. Work required for raising, lowering, or relocating utilities in right of way not indicated will be performed by affected utility owners or as part of the Work at option of affected owners of utilities and OWNER.

1.02 PROTECTION OF THE WORK AND PROPERTY

- A. CONTRACTOR shall assume responsibility for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage.
- B. In order to prevent damage, injury or loss, CONTRACTOR’S actions shall include, but not be limited to the following:
 - 1. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not unduly interfere with the progress of the Work or the Work of any other contractor or utility service company.
 - 2. Provide suitable storage facilities for all materials which are subject to injury by exposure to weather, theft, breakage, or otherwise.

3. Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.
 4. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by CONTRACTOR's operations, to the end that at all times the site of the Work shall present a safe, orderly and workmanlike appearance.
 5. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other hazardous areas.
- C. CONTRACTOR shall not, except after written consent from proper parties, enter or occupy privately owned land with personnel, tools, materials or equipment, except on easements provided herein.
- D. CONTRACTOR shall assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the Work by the CONTRACTOR, it shall be restored by the CONTRACTOR, at his expense, to a condition equal to that existing before the damage was done.
- E. Underground Structures:
1. Underground structures are defined to include, but are not limited to, all sewer, water, gas, and other piping, and manholes, chambers, electrical conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.
 2. All underground structures known to ENGINEER, except water, gas, sewer, electric, and telephone service connections, are shown on Drawings. This information is shown for the assistance of CONTRACTOR, in accordance with the best information available, but is not guaranteed to be correct or complete.
 3. CONTRACTOR shall explore ahead of trenching and excavation Work and shall uncover all obstructing underground structures sufficiently to determine their location, to prevent damage to them and to prevent interruption to the services which such structures provide. If CONTRACTOR damages an underground structure, restore it to original condition at his expense.
 4. Necessary changes in the location of the Work may be made by the OWNER to avoid unanticipated underground structures.
 5. If permanent relocation of an underground structure or other subsurface facility is required and is not otherwise provided for in the Contract Documents, OWNER will direct CONTRACTOR, in writing, to perform the Work, which shall be paid for under the provisions of the General Conditions.

- F. Surface Structures: Surface structures are defined as all existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, roads, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.
- G. Protection of Underground and Surface Structures:
 - 1. CONTRACTOR shall sustain in their places and protect from direct or indirect injury all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, CONTRACTOR shall satisfy the OWNER that the methods and procedures to be used have been approved by the party owning same.
 - 2. CONTRACTOR shall assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work. CONTRACTOR shall be responsible for all damage and expense for direct or indirect injury caused by his Work to any structure. CONTRACTOR shall repair immediately all damage caused by his work, to the satisfaction of the OWNER of the damaged structure.
- H. All other existing surface facilities, including but not limited to guard rails, posts, guard cables, signs, poles, markers, and curbs, which are temporarily removed to facilitate installation of the Work, shall be replaced and restored to their original condition at CONTRACTOR's expense.

1.03 DAILY WORK REPORTS

- A. CONTRACTOR shall provide to OWNER and ENGINEER one copy of his daily field report indicating work completed, number and classification of personnel on site, number and types of construction equipment on site and weather conditions. The field reports shall be in pdf format and shall be submitted on Monday for the prior week.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01423

REFERENCE STANDARDS

PART 1 GENERAL

1.01 SUMMARY

- A. When a reference standard is specified, comply with requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The latest provisions of applicable standards shall apply to the Work, unless otherwise specified. Reference standards include, but are not necessarily limited to, the following:
1. American Concrete Institute (ACI).
 2. American Institute of Steel Construction (AISC).
 3. American National Standards Institute (ANSI).
 4. American Society for Testing and Materials (ASTM).
 5. American Water Works Association (AWWA).
 6. American Welding Society (AWS).
 7. Concrete Reinforcing Steel Institute (CRSI)
 8. Factory Mutual (FM).
 9. Occupational Safety and Health Administration (OSHA).
 10. Underwriters' Laboratories, Inc. (UL).
 11. All other applicable standards listed in the Specifications and the standards of utility service companies, where applicable.
 12. NSF International (NSF).
 13. State Division of Industrial Safety (DIS)
 14. National Association of Corrosion Engineers (NACE)

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01450

MEASUREMENTS AND PAYMENTS

PART 1 GENERAL

1.01 SCOPE

A. Section Includes:

1. The methods by which measurement will be made of the quantities for which payment will be made for the project. It is the intention of this Specification that payment will be made for those items listed in the Price Sheet only. All items of work not specifically listed in the Price Sheet shall be included in the prices for the various items listed on the Price Sheet.
2. In computing quantities, the length, area, solid contents, number, weight, or time as specified in the Contract or the Price Sheet must be used.

B Related Sections

1. 01030 – Summary of Work.
2. 01060 – Special Conditions.
3. 02250 – Ground Surface Restoration.
4. 09800 – Special Coatings.
5. 13208 – Miscellaneous Work Associated with Welded Steel Storage Reservoir.
6. 15115 – Gate Valves and Appurtenances.

PART 2 PRODUCTS

A. Materials

1. Partial payment shall be made for approved materials stored at the project site at the submission of the material invoices.

PART 3 EXECUTION

A. The following section describes the measurements and payments of the Work performed in this Contract:

1. Reservoir Coating and Miscellaneous Improvements: The replacement of the existing reservoir 24"x24" roof hatch, improvements of the existing reservoir interior ladder, installation of the new ventilation manway and other miscellaneous reservoir improvements shall be performed in accordance with the Drawings and Specification Section 13208. After completing reservoir improvements, the entire reservoir interior surface

shall be blasted and coated, and the reservoir exterior surface shall be pressure washed and overcoated per Specification Section 09800. ENGINEER will inspect the progress of the Work and will measure the quantity of the Work performed in comparison with the total Work. ENGINEER will approve payments only on the portion of the Work performed.

2. Removal and Replacement of 20-inch Gate Valve: The existing 20-inch valve on the reservoir fill line shall be removed and replaced with new 20-inch gate valve in accordance with the Drawings and Specification Section 15115. Measurement for this item shall be based on complete installation of the gate valve including restoration of disturbed ground and is ready for continuous operation. Payment for replacement of the gate valve shall be made at the lump sum price as submitted on the Price Sheet.
3. Ground Surface Restoration: The existing ground areas disturbed during construction shall be restored by providing and installing decomposed granite (DG) per Specification Section 02250. Measurement for the DG material shall be made for the actual quantity required to cover the disturbed areas in tons. Payment for the ground restoration shall be made for the quantities approved by the ENGINEER at the unit price per ton as submitted on the Price Sheet.
4. Removal and Replacement of Outer Rafter: The existing reservoir outer roof rafters shall be removed and replaced in accordance with the Drawings and Specification Section 13208. ENGINEER will field identify and authorize the quantity of the outer rafters that need to be replaced. Measurement for removal and replacement of outer rafters shall be made per actual number of rafters satisfactorily removed and replaced. Payment for the removal and replacement of outer rafter shall be made based on the authorized quantity at the unit price as submitted on the Price Sheet.
5. Removal and Replacement of Inner Rafter: The existing reservoir inner roof rafters shall be removed and replaced in accordance with the Drawings and Specification Section 13208. ENGINEER will field identify and authorize the quantity of the inner rafters that need to be replaced. Measurement for removal and replacement of inner rafters shall be made per actual number of rafters satisfactorily removed and replaced. Payment for the removal and replacement of inner rafter shall be made based on the authorized quantity at the unit price as submitted on the Price Sheet.
6. Floor Weld Plates: Deep pits (pits greater than 1/8-inch depth) on the reservoir floor shall be covered by welding 4-inch diameter and 1/4-inch thick steel plates per Specification Section 13208. ENGINEER will field identify deep pit locations and authorize the quantity of the weld plates that need to cover deep pits. Measurement for floor weld plates shall be made per actual number of weld plates installed. Payment for the floor weld plates shall be made based on the authorized quantity at the unit price as submitted on the Price Sheet.

7. 2 Man Weld Crew Hours to Grind Reservoir Interior Weld Seams: Welding spatter and sharp edges on the reservoir interior shell and floor plates weld seams shall be grinded per Specification Section 13208. ENGINEER will field determine and authorize quantity of 2 man weld crew hours for completing this task. Measurement for the reservoir interior weld seams' grinding shall be made per actual number of 2 man weld crew hours spent in grinding the weld seams. Payment for the reservoir interior weld seams' grinding shall be made based on the authorized quantity at the unit price as submitted on the Price Sheet.
8. Removal and Replacement of Tie Rods: The existing reservoir outer rafter tie rods shall be removed and replaced in accordance with the Drawings and Specification Section 13208. ENGINEER will field identify and authorize the quantity of the tie rods that need to be replaced. Measurement for the removal and replacement of tie rods shall be made per actual number of tie rods satisfactorily removed and replaced. Payment for the removal and replacement of tie rods shall be made based on the authorized quantity at the unit price as submitted on the Price Sheet.
9. Removal and Replacement of Rafter Clips: The existing reservoir rafter clips shall be removed and replaced in accordance with the Drawings and Specification Section 13208. ENGINEER will field identify and authorize the quantity of the rafter clips that need to be replaced. Measurement for the removal and replacement of rafter clips shall be made per actual number of rafter clips satisfactorily removed and replaced. Payment for the removal and replacement of rafter clips shall be made based on the authorized quantity at the unit price as submitted on the Price Sheet.
10. Dehumidification and Ventilation System: Provide and operate dehumidification and ventilation system per Specification Section 09800. Measurement for the dehumidification and ventilation system shall be made on mobilization, satisfactory operation and demobilization of the system. Payment for the dehumidification and ventilation system shall be made in half of the unit price as submitted in the Price Sheet upon mobilization and satisfactory operation, and the remaining payment shall be made upon demobilization of the system.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Furnishing, maintaining, and removing construction facilities including temporary utilities, construction aids, barriers and enclosures, security, and removal after construction.
 - 1. Requirements are of concern to OWNER and are representative of construction facilities and controls which are solely CONTRACTOR's responsibility.
 - 2. No attempt is made to set out in detail means or methods necessary to satisfy requirements:
 - a. Recognition of requirements is made to assist CONTRACTOR in the identification of necessary costs.

1.02 TEMPORARY UTILITIES

- A. Temporary Electrical Power:
 - 1. CONTRACTOR is responsible for all costs of wiring, connections, and interface with local power company for temporary power supply during construction or provide his own generators.
 - 2. One 120V power outlet is available at the project site. CONTRACTOR can use it for operating small tools at no extra cost.
- B. Temporary Electrical Lighting:
 - 1. In work areas, provide temporary lighting sufficient to maintain lighting levels during working hours not less than lighting levels required by OSHA and state agency which administers OSHA regulations where Project is located.
- C. Temporary Heating, Cooling, and Ventilating:
 - 1. Heat and ventilate work areas to protect the Work from damage by freezing, high temperatures, weather, and to provide safe environment for workers.
- D. Temporary Water:
 - 1. See Section 13208.
 - 2. CONTRACTOR may use limited amount of water from OWNER at no cost. Provide approved method of backflow prevention device.
- E. Temporary Fire Protection: Provide sufficient number of fire extinguishers of type and capacity required to protect the Work and ancillary facilities.

- F. First Aid: Post first aid facilities and information posters conforming to requirements of OSHA and other applicable Laws and Regulations in readily accessible locations.

1.03 CONSTRUCTION AIDS

A. General:

1. Use construction hoists, elevators, scaffolds, stages, shoring and similar temporary facilities of ample size and capacity to adequately support and move loads.
2. Provide railings, kick plates, enclosures, safety devices, and controls required by Laws and Regulations and as required for adequate protection of life and property.
3. Design temporary supports with adequate safety factor to assure adequate load bearing capability:
 - a. When requested, submit design calculations by professional registered engineer prior to application of loads.
4. Submitted design calculations are for information and record purposes only.

B. Accident Prevention:

1. Exercise precautions throughout construction for protection of persons and property.
2. Observe safety provisions of applicable Laws and Regulations.
3. Guard machinery and equipment, and eliminate other hazards.
4. Make reports required by authorities having jurisdiction, and permit safety inspections of the Work.
5. Before commencing construction Work, take necessary action to comply with provisions for safety and accident prevention.

C. Barricades:

1. Place barriers at ends of excavations and along excavations to warn pedestrian and vehicular traffic of excavations.
2. Provide barriers with flashing lights after dark.
3. Keep barriers in place until excavations are entirely backfilled and compacted.
4. Barricade excavations to prevent persons from entering excavated areas in streets, roadways, parking lots, other public or private areas, and on project site.

D. Warning Devices and Barricades: Adequately identify and guard hazardous areas and conditions by visual warning devices and, where necessary, physical barriers.

1. Devices shall conform to minimum requirements of OSHA and State agency which administers OSHA regulations where Project is located.

- E. Hazards in Public Right-of-Way:
 - 1. Mark at reasonable intervals, trenches and other continuous excavations in public right-of-way, running parallel to general flow of traffic, with traffic cones, barricades, or other suitable visual markers during daylight hours:
 - a. During hours of darkness, provide markers with torches, flashers, or other adequate lights.
 - 2. At intersections or for pits and similar excavations, where traffic may reasonably be expected to approach head on, protect excavations by continuous barricades:
 - a. During hours of darkness, provide warning lights at close intervals.
- F. Hazards in Protected Areas: Mark or guard excavations in areas from which public is excluded, in manner appropriate for hazard.
- G. Above Grade Protection: On multi-level structures, provide safety protection that meets requirements of OSHA and State agency which administers OSHA regulations where Project is located.
- H. Protect existing structures, trees, shrubs, and other items to be preserved from injury, damage or destruction by vehicles, equipment, workers or other agents with substantial barricades or other devices commensurate with hazards.

1.04 REMOVAL

- A. Remove temporary buildings and furnishings before inspection for Final Completion or when directed.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Remove underground installations to minimum depth of 24 inches and grade to match surrounding conditions, unless noted otherwise.
- D. Restore existing facilities used during construction to specified or original condition.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01560

ENVIRONMENTAL PROTECTION AND SPECIAL CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. The CONTRACTOR shall perform all work in such manner as to minimize the polluting of air, water, or land, and shall, within reasonable limits, control noise and the storage of solid waste materials.

1.02 QUALITY ASSURANCE

- A. Employ and utilize environmental protection methods, and obtain all necessary permits required at the site for air quality, solid waste, storm water pollution, and hazardous wastes. CONTRACTOR shall comply with all state, county, and Federal regulations.

1.03 SUBMITTALS

- A. See Section 01340.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 ERECTION AND INSTALLATION

- A. Land Protection:
 - 1. Manage and control all work or storage areas, access routes and embankments to prevent sediment from entering nearby water or land adjacent to site of work.
 - 2. Restore all disturbed areas including haul areas and establish permanent type of locally adaptable vegetative cover.
- B. Control of Responsibilities:
 - 1. Collect and dispose of solid waste on a daily basis.
 - 2. Provide disposal of degradable debris to an approved solid waste disposal site.
 - 3. Provide disposal of nondegradable debris to an approved solid waste disposal site or in an alternate manner approved by OWNER and regulatory agencies.
 - 4. Store chemical wastes in watertight containers and remove from project site and dispose of to sites approved by regulatory agencies. Assure maximum disposal frequency of one month.
 - 5. Control dust at all times, including nonworking hours, weekends and

holidays. Sprinkle site or treat with dust suppressors as necessary to control dust. Utilize methods and practices of construction to eliminate dust in full observance of regulatory agencies.

6. Minimize noise by fitting equipment with appropriate mufflers. The use of explosives or blasting operations are not approved.
7. On completion of work, leave area in a clean condition representative of current conditions. Assure all signs of temporary construction and activities incidental to construction of required permanent work in place are obliterated.

END OF SECTION

SECTION 01600

PRODUCT DELIVERY, STORAGE AND HANDLING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Scheduling of product delivery.
 - 2. Packaging of products for delivery.
 - 3. Protection of products against damage from:
 - a. Handling.
 - b. Exposure to elements or harsh environments.
- B. Related Sections include but are not necessarily limited to:
 - 1. Division 1 - General Requirements.
- C. Payment:
 - 1. No payment will be made to CONTRACTOR for equipment not properly stored and insured.
 - 2. Previous payments for items will be deducted from subsequent progress estimate(s) if proper storage procedures are not observed.

1.02 QUALITY ASSURANCE

- A. Manufacturer's written directions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING

- A. Scheduling:
 - 1. Schedule delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.
- B. Packaging:
 - 1. Deliver products or equipment in manufacturer's original unbroken cartons or other containers, clearly and fully marked and identified as to manufacturer, item, installation location and instructions for assembly, use and storage.
- C. Protection:
 - 1. Protect all materials in accordance with manufacturer's written directions:
 - a. Store products or equipment in location to avoid physical damage to items while in storage.

- b. Handle products or equipment in accordance with manufacturer's recommendations and instructions.
2. Protect equipment from exposure to elements and keep thoroughly dry. Store pumps, motors, electrical equipment, and other equipment having antifriction or sleeve bearings in a weathertight warehouses which are maintained at a temperature of at least 60 deg. F.
3. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Repaint damaged painted surfaces to satisfaction of OWNER.
4. Protect electrical equipment, controls, and insulation against moisture or water damage.

3.02 FIELD QUALITY CONTROL

- A. Inspect all products or equipment delivered to the site prior to unloading and reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.
- B. Continually monitor storage area to ensure suitable temperature and moisture controls are maintained.

END OF SECTION

SECTION 01610

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Description of applicable codes, ordinances, and regulations.

1.02 CODES AND ORDINANCES

- A. Applicable Codes: Compliance with all laws, ordinances, and regulations of authorities having jurisdiction is an integral requirement of the Contract Documents, whether each code is mentioned or not in the Contract documents.
- B. Compliance: Comply with all applicable codes, ordinances and regulations in effect at the time of bid opening, including but not necessarily limited to the following:
1. State and Federal Safety and Health Laws.
 2. Clean Water Act compliance for storm water and potable water discharges.
 3. NSF International Standards 60 and 61.
- C. Detailed Requirements: Be familiar with and verify detailed requirements of applicable codes to verify that items and their installation provided under Work of this Contract meet or exceed legal requirements.
1. Discrepancies: If discrepancies occur between the Contract Documents, local codes, local utility requirements, etc., most stringent requirements shall apply.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01651

TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.01 DESCRIPTION

- A. CONTRACTOR shall make all arrangements for transportation, delivery and handling of equipment and materials required for prosecution and completion of the Work.
- B. Shipments of materials to CONTRACTOR or subcontractors shall be delivered to the site only during regular working hours. Shipments shall be addressed and consigned to the proper party giving name of Project, street number and city. Shipments shall not be delivered to OWNER, except where otherwise directed.
- C. If necessary to move stored materials and equipment during construction, CONTRACTOR shall move materials and equipment without any additional compensation.

1.02 PREPARATION FOR SHIPMENT

- A. When practical, factory assemble products. Matchmark or tag separate parts and assemblies to facilitate field assembly. Cover machined and unpainted parts that may be damaged by the elements with a strippable protective coating.
- B. Package products to facilitate handling and protect from damage during shipping, handling, and storage. Mark or tag outside of each package or crate to indicate its purchase order number, bill of lading number, contents by name, OWNER'S contract name and number, CONTRACTOR, equipment number, and approximate weight. Include complete packing lists and bills of materials with each shipment.
- C. Protect products from exposure to the elements and keep thoroughly dry and dust free at all times. Protect painted surfaces against impact, abrasion, discoloration, or other damage. Grease or oil all bearings and similar items.
- D. Do not have products shipped until:
 - 1. Related Shop Drawings have been approved by ENGINEER.
 - 2. Related factory test results, required in the individual Specification Sections, have been reviewed and accepted by ENGINEER.
 - 3. Required storage facilities have been provided.

1.03 DELIVERY

- A. CONTRACTOR shall arrange, with the United States Postal Service, a special address for the Project, if needed. All deliveries shall be made to that address.
- B. Arrange deliveries of products in accordance with construction schedules and in ample time to facilitate inspection prior to installation.
- C. Coordinate deliveries to avoid conflict with Work and conditions on site and to accommodate the following:
 - 1. Work of other contractors, or OWNER.
 - 2. Limitations of storage space.
 - 3. Availability of equipment and personnel for handling products.
 - 4. OWNER'S use of premises.
- D. Have products delivered to site in manufacturer's original, unopened, labeled containers. Keep ENGINEER informed of delivery of all equipment to be incorporated in the Work.
- E. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.
- F. Immediately on delivery, inspect shipment to assure:
 - 1. Product complies with requirements of Contract Documents and reviewed submittal.
 - 2. Quantities are correct.
 - 3. Containers and packages are intact, and labels are legible.
 - 4. Products are properly protected and undamaged.
- G. Promptly remove damaged products from the Project site and expedite delivery of new undamaged products, and remedy incomplete or lost products to provide that specified, so as not to delay progress of the Work.

1.04 PRODUCT HANDLING

- A. Provide equipment and personnel necessary to handle products, including those provided by OWNER, by methods to prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- C. Handle products by methods to prevent bending or overstressing.
- D. Lift heavy components only at designated lifting points.

- E. Materials and equipment shall at all times be handled in a safe manner and as recommended by manufacturer or supplier so that no damage will occur to them. Do not drop, roll or skid products off delivery vehicles. Hand carry or use suitable materials handling equipment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Contract closeout requirements including:
 - 1. Final cleaning.
 - 2. Disinfection of systems.
 - 3. Preparation and submittal of closeout documents.
 - 4. Final completion certification.

1.02 FINAL CLEANING

- A. Perform final cleaning prior to inspections for acceptance of the Work:
 - 1. Clean grease, mastic, adhesives, dust, dirt, stains, fingerprints, paint, blemishes, sealants, plaster, concrete, and other foreign materials from sight-exposed surfaces, and fixtures and equipment.
 - 2. Remove non-permanent protection and labels.
 - 3. Clean light fixtures and replace burned-out or dim lamps.

1.03 WASTE DISPOSAL

- A. Arrange for and dispose of surplus materials, waste products, and debris off-site.
- B. Do not create unsightly or unsanitary nuisances during disposal operations.

1.04 TOUCH-UP AND REPAIR

- A. Touch-up or repair finished surfaces on structures, equipment, fixtures, and installations that have been damaged prior to inspection for acceptance of the Work.
- B. Refinish or replace entire surfaces which cannot be touched-up or repaired satisfactorily.

1.05 CLOSEOUT DOCUMENTS

- A. Submit following Closeout Submittals upon completion of the Work and at least 7 days prior to submitting Application for Final Payment:
 - 1. Evidence of compliance with requirements of governing authorities.
 - 2. Project Record Documents.
 - 3. Warranties and Bonds.

4. Evidence of Payment and Release of Liens as outlined in Conditions of the Contract.
5. Release of claims as outlined in Conditions of the Contract.
6. Red-Line as-builts.

1.06 EVIDENCE OF COMPLIANCE WITH REQUIREMENTS OF GOVERNING AUTHORITIES

- A. Submit the following:
 1. Certificate of Inspection as required.
 2. Certificate of Occupancy will not be required.

1.07 WARRANTIES AND BONDS

- A. Provide executed Warranty or Guaranty Form if required by Contract Documents.
- B. Provide specified additional warranties, guarantees, and bonds from manufacturers and suppliers.

PART 2 PRODUCTS (**NOT USED**)

PART 3 EXECUTION (NOT USED)

END OF SECTION

DIVISION 2
SITE WORK

SECTION 02250

GROUND SURFACE RESTORATION

PART 1 GENERAL

1.01 SCOPE

- A. General work included in this Section:
 - 1. Restoration of all disturbed areas during construction.
- B. Related Sections include but are not necessarily limited to:
 - 1. Division 1.
- C. Location of Work: All areas within the project site which are disturbed in the course of the Work.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Decomposed Granite (DG)
 - 1. Provide decomposed granite in accordance with the Maricopa Association of Governments (MAG) Standard Specification Section 702 - Base Materials.

2.02 TOLERANCES

- A. Finish Grading Tolerance: 0.1 ft plus/minus from the existing surface elevations.

PART 3 EXECUTION

3.01 RESTORATION

- A. CONTRACTOR shall rough grade and finish grade the areas disturbed by the CONTRACTOR during the course of performing Work. This task shall be performed as part of Bid Item No.3.
- B. Furnish and apply a 2 in. layer of DG over the prepared areas.
- C. Confirm color with OWNER.

END OF SECTION

DIVISION 9

FINISHES

SECTION 09800
SPECIAL COATINGS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Field applied high performance coatings. All exposed surfaces of equipment, piping, supports, and reservoir interior and exterior surfaces shall be field finished, unless specifically stated otherwise.

- B. Related Sections:
 - 1. Section 13208 - Miscellaneous Work Associated with Welded Steel Storage Reservoirs.

- C. See Drawings.

1.02 REFERENCES

- A. NSF International (NSF):
 - 1. 61 - Drinking Water System Components - Health Effects.

- B. American National Standards Institute (ANSI):
 - 1. A159.1 - Surface Preparation Specifications.

- C. American Society for Testing and Materials (ASTM):
 - 1. D 16 - Terminology Relating for Paint, Related Coatings, Materials, and Applications.
 - 2. D 4417, Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.
 - 3. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

- D. American Water Works Association (AWWA):
 - 1. C652 Disinfection of Water Storage Facilities
 - 2. D102, Coating Steel Water-Storage Tanks

- E. The Society for Protective Coatings (SSPC):
 - 1. SP 1 - Solvent Cleaning.
 - 2. SP 2 - Hand Tool Cleaning.
 - 3. SP 3 - Power Tool Cleaning.
 - 4. SP 6 - Commercial Blast Cleaning.
 - 5. SP 10 - Near White Metal Blast Cleaning.
 - 6. SP 11 - Power Tool Cleaning to Bare Metal.

7. Steel Structures Painting Manual, Volumes 1 and 2.
 8. VIS 1 - Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning.
 9. VIS 3 - Guide and Reference Photographs for Steel Surfaces Prepared by Hand and Power Tool Cleaning.
 10. PA1 - Shop, Field, and Maintenance Painting of Steel, latest revision.
 11. PA2 Level 3- Procedure for Determining Conformance to Dry Coating Thickness Requirements.
 12. PA10-Guide to Safety and Health Requirements.
 13. Guide 6-Guide for Containing Surface Preparation Debris Generated During Paint Removal Operations.
 14. Guide 12-Guide for Illumination of Industrial Painting Projects.
- F. National Association of Corrosion Engineers (NACE International)
1. SP0188-Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.
 2. Publication 6D-173-A Manual for Painter Safety.

1.03 DEFINITIONS

- A. Submerged Metal: Steel or iron surfaces below tops of channel or structure walls which will contain water even when above expected water level.
- B. Dry Film Thickness (DFT): Thickness of fully cured coating, measured in mils (1/1000 inch).
- C. Volatile Organic Compound (VOC): Content of air polluting hydrocarbons in uncured coating products measured in units of grams per liter or pounds per gallon.
- D. Rust Spot: Rusted surface with area smaller than 0.05 SQ.FT.
- E. Installer or Applicator: Installer or applicator is the person actually installing or applying the product in the field at the Project site. Installer or applicator are synonymous. Installer or Applicator may be the CONTRACTOR.
- F. Inaccessible Areas: Areas of the finished structure that, by virtue of the configuration of the completed structure, cannot be accessed to perform surface preparation or coating application (with or without the use of scaffolding, rigging, or staging). Inaccessible areas include such areas as the contact surfaces of roof plate lap joints, underside of roof plates where they cross supporting members, top surface of rafters directly supporting roof plates, contact surfaces of bolted connections, underside of column base plates, contact surfaces of mating parts not intended to be removed or disassembled during routine operation or maintenance of the tank, and underside of the tank bottom for ground-supported flat-bottom reservoirs.

- G. Holiday: A void, crack, thin spot, foreign inclusion, or contamination in the coating film that significantly lowers the dielectric strength of the coating. May also be identified as a pinhole.
- H. The term “coating” and “lining” as used herein are considered interchangeable and mean coating systems materials, including any applicable resinous primers and finish coats that function to provide protection of steel substrates.
- I. Touch-Up Coating: The application of a coating on areas of coated surfaces to repair marks, scratches, and areas where the coating has deteriorated to restore the coating film to an unbroken condition.
- J. Shop Coat: One or more coats applied in a shop or plant prior to shipment to the site, where the field or finishing coat is applied.
- K. Wet Film Thickness (WFT): Thickness of wet coating measured in mils.

1.04 PERFORMANCE REQUIREMENTS

- A. Coating materials for metal surfaces shall be especially adapted for use in potable water storage reservoirs.
- B. Coating materials that come into contact with potable water shall be certified to NSF Standard 61.

1.05 SUBMITTALS

- A. Product Data: Submit in accordance with Sections 01340. Include description of physical properties of coatings including solids content and ingredient analysis, VOC content, temperature resistance, typical exposures and limitations, and manufacturer’s standard color chips.
- B. Certificates: Submit in accordance with requirements for Product Data.
- C. Manufacturer’s Instructions: Submit in accordance with requirements for Product Data. Include:
 - 1. Special requirements for transportation and storage.
 - 2. Mixing instructions.
 - 3. Shelf life.
 - 4. Pot life of material.
 - 5. Precautions for applications free of defects.
 - 6. Surface preparation.
 - 7. Method of application.
 - 8. Recommended number of coats.
 - 9. Recommended thickness of each coat.
 - 10. Recommended total thickness.

11. Drying time of each coat, including prime coat.
 12. Required prime coat.
 13. Compatible and non-compatible prime coats.
 14. Recommended thinners, when recommended.
 15. Limits of ambient conditions during and after application.
 16. Time allowed between coats.
 17. Required protection from sun, wind and other conditions.
 18. Touch-up requirements and limitations.
 19. Material Safety Data Sheet.
- D. Certified statement on lead free coatings for interior of water storage reservoirs.
- E. Certification: Certify that applicable pigments meet the specifications.

1.06 QUALITY ASSURANCE

- A. Qualifications of CONTRACTOR and Applicator:
1. All work of this Contract shall be done in a workmanlike manner, by skilled personnel experienced in the particular type of work being performed. The coating shall be performed in a manner satisfactory to the ENGINEER and using approved methods, acceptable tools and practices.
 2. CONTRACTOR is completely responsible to insure that applicator personnel are completely trained and experienced in the proper use of all specified/submitted coating and lining materials, surface preparation and application equipment being used for the project.
- B. Regulatory Requirements: Comply with requirements regarding the following:
1. Volatile organic compound limitations.
 2. Coatings containing lead compounds.
 3. NSF certification of coatings for use in potable water supply systems.
- C. Compatibility of Coatings: Use products by same manufacturer for prime coats, intermediate coats, and finish coats on same surface, unless specified otherwise.
- D. If any requirements of this specification conflict with a referenced standard, the more stringent requirement shall apply.
- E. Do not use or retain contaminated, outdated, or diluted materials for coating operations. Do not use materials from previously opened containers.
- F. Use only products of the approved manufacturer. Use products of one manufacturer in any one resurfacing system with compatible materials. Provide same material product for touch up as for original material.
- G. Make available all locations and phases of the work for access by the ENGINEER or other personnel designated by the ENGINEER. The CONTRACTOR shall

provide ventilation and egress to safely access the coating work areas for inspection.

H. Pre-Application Meetings:

1. Pre-application meetings shall take place at the job-site a minimum 1 week before the application of any coating or lining work proceeding. Attendance is required of all principal decision making parties directly affecting work of this Section, including CONTRACTOR, ENGINEER, OWNER, Trades Persons of other work in and around the coatings work, Coating Applicator, Coating Manufacturer's Technical Representative, and ENGINEER'S Coating Inspector.

I. Coating Application Log:

1. Coating Application Log shall be maintained on a daily basis for all areas where the Work is being performed. The Paint Application Log shall be turned over to the ENGINEER by 9:00 a.m. on the day following the day that the work was performed. The log shall include the following:

- a. Date.
- b. Time.
- c. Weather condition (at work location).
- d. Air temperature (at work location).
- e. Surface temperature (at work location).
- f. Dew point (at work location).
- g. Humidity (at work location).
- h. Wind direction, wind speed, and surface temperature a minimum of three (3) times per day for each day the CONTRACTOR is on site completing the work. The CONTRACTOR shall also record the interior metal surface temperatures on sides of reservoirs that are shaded and not shaded from the sun.
- i. Material temperature Before (Separately) and Mixed (Combined).
- j. Location/area square footage of area coated.
- k. Description of work performed.
- l. Materials used, colors and batch numbers, quantity of materials used (not including waste).
- m. Application/surface preparation equipment and personnel.
- n. WFT/surface profile measurements.
- o. Comments, quality control procedures.
- p. Signature/title.

1.07 PROJECT CONDITIONS

A. Proceed with surface preparation and coating application only when air and surface temperatures are above the manufacturers' recommended minimum surface temperature and below 100 degrees Fahrenheit, and surface temperature is at least 5 degrees above dew point air temperature reading. Coating shall not be applied to dusty, wet, or damp surfaces, and shall not be applied in rain, snow, fog

or mist, or when relative humidity exceeds 85 percent. No coating shall be applied when it is expected that the relative humidity will exceed 85 percent or when the air temperature will drop below 40 degrees Fahrenheit within 8 hours after the application of the coating. If working conditions are questionable, the ENGINEER shall make the decision and the CONTRACTOR shall accept ENGINEER'S interpretation as final and binding.

- B. Provide adequate continuous ventilation and sufficient heating facilities to maintain minimum 45 degrees Fahrenheit for 48 hours before, during, and 72 hours after application of finishes.
- C. No surface preparation or coating application work shall be done under unfavorable weather conditions, unless the work is adequately protected, and then only with the specific approval of the ENGINEER and inspection.
- D. Before coating is started in any area, all surfaces to be coated and floors shall be cleaned of all dust using commercial vacuum cleaning equipment equipped with high-efficiency particulate air filters (HEPA filters) and dust containment systems. Just blowing down surface is not acceptable.
- E. Apply coatings to dust free surfaces. To test surfaces, apply strip of clear adhesive tape provided in OTB-SCATT test kit to surface and rub onto surface with finger or supplied roller. When removed, compare the tape to the supplied OTB-SCATT SC PERCENTAGES chart. Visual observations (without magnification) should show a rating of SC-1(1%) or less, i.e. little or no dust, blast abrasive, or other contaminant. Attach tape test strip to the middle rating sheet. Reject contaminated surfaces, clean by vacuum cleaning, and retest. Randomly test surfaces at rate of 8 tests for the first 1000 square feet. Afterwards conduct one test for each additional 1000 square feet. Provide two additional tests for each failed test or questionable test. Submit test tapes results with Daily Inspection Reports. OTB-SCATT can be obtained at OTB Technologies Inc. 5401 E. BeckLane Scottsdale, AZ 85254 or www.OTBTECH.NET, or approved equal.
- F. Provide lighting for all work areas as prescribed in SSPC Guide 12.

1.08 MAINTENANCE

- A. Extra Materials: Provide minimum 1 gallon of each type and color of coating applied.
 - 1. When manufacturer packages material in gallon cans, deliver unopened labeled cans as comes from factory.
 - 2. When manufacturer does not package material in gallon cans, deliver material in new gallon containers, properly sealed and identified with typed labels indicating brand, type, and color.

1.09 PRODUCTS DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products in accordance with Section 01651.
- B. Remove unspecified and unapproved paints from Project site immediately.
- C. Deliver containers with labels identifying the manufacturer's name, brand name, product type, batch number, date of manufacturer, expiration date or shelf life, color, and mixing and reducing instructions.
- D. Store coatings in well ventilated facility that provides protection from the sun weather, and fire hazards. Maintain ambient storage temperature between 45 and 90 degrees Fahrenheit, unless otherwise recommended by the manufacturer.
- E. Take precautions to prevent fire and spontaneous combustion.

1.10 PROTECTION

- A. During application of exterior coating of reservoir, the CONTRACTOR shall take any and all necessary precautions to avoid coating fallout on and the consequent damage to any works, improvements or properties either of the OWNER or of other parties, wherever located. The CONTRACTOR shall be responsible for all damage resulting from the coating.
- B. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted and in particular, surfaces within storage and preparation area.
- C. Place cotton waste, cloths and material which may constitute fire hazard in closed metal containers and remove daily from site.
- D. Remove electrical plates, surface hardware, fittings and fastenings, prior to coating operations. Carefully store, clean and replace on completion of coating in each area. Do not use solvent or degreasers to clean hardware that may remove permanent lacquer finish.

1.11 CONTINGENCY ITEMS

- A. The CONTRACTOR shall perform the following Work on the reservoir on a unit price basis if authorized by the OWNER.
 - 1. Contingency Item No. 7
 - a. Provide and utilize dehumidification and ventilation equipment to control humidity, temperature, and vapor levels inside reservoir from beginning of the surface preparation process through coating application and curing. System shall maintain vapor concentrations at or below 10 percent of Lower Explosive Limit (LEL). System

may incorporate any combination of solid desiccant and direct expansion refrigeration equipment. No liquid, granular, calcium chloride or lithium chloride drying systems will be accepted. Use only electric, indirect fired combustion, indirect friction, or steam coil auxiliary heaters. System shall be compatible with removal of dust and solvent vapors, and shall have fail-safe measures to ensure reliability during operations.

- 1). Enclosures for other areas or items that may require protection from the inclement weather or other detrimental effects so the project can continue is the responsibility of the CONTRACTOR.
- b. Provide generator and fuel for operating the dehumidification and ventilation equipment. No electric service is available at the reservoir site to run the dehumidification and ventilation equipment.
- c. The unit price shall include all costs for furnishing, installing, maintaining, operating and removing the dehumidification and ventilation system.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Coating Systems - General:
 1. P = prime coat. I = intermediate coat. F1, F2,. . . Fn = first finish coat, second finish coat . . . nth finish coat, color as selected by OWNER. FnE = exterior finish nth coat.
 2. Coating thicknesses specified are minimum dry mil thicknesses.
- B. Coating Systems:
 1. System No. 1: Polyamide Epoxy - For exterior of reservoir new appurtenances. Items include but are not limited to new ventilation manway and roof hatch.
 - a. Following are acceptable Manufacturers and coating systems:
 - 1). Carboline Protective Coatings
 - 2). International Paint - Devoe
 - 3). Tnemec Coatings
 - 4). Or pre-approved equal

Carboline Epoxy/Urethane System

P1 = Carboguard 61 Epoxy, 1 Coat, 4-6 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

I = Carboguard 61 Epoxy, 1 Coat, 4-6 mils DFT.

F1E = Carbothane 133HB, 1 coat, 3- 4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

Devoe Epoxy/Urethane System

P1 = Devoe Bar-Rust 233H, 1 Coat, 4-6 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

I = Devoe Bar-Rust 233H, 1 Coat, 4-6 mils DFT.

F1E = Devthane 378H, 1 coat, 3- 4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

Tnemec Epoxy/Urethane System

P1 = Series 66 Hi-Build Epoxoline, 1 coat, 4-6 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

I1 = Series 66 Hi-Build Epoxoline, 1 coat, 4-6 mils DFT.

F1E = Series 1075U, 1 coat, 3-4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

2. System No.2: 100% Solids Polyurethane (EPA/NSF) - For reservoir floor and interior shell surfaces. Items also include but are not limited to columns, column base assemblies, ladder, shell manways, discharge and drain piping, overflow weir boxes, and other reservoir interior appurtenances. The system shall conform to AWWA D102 Inside Coating System (ICS) No.4.

a. Following are acceptable Manufacturers and coating systems:

- 1). Carboline Protective Coatings
- 2). International Paint - Polibrid
- 3). Sherwin Williams
- 4). Or pre-approved equal

Carboline Polyurethane Hybrid

F1E = Reactamine 760, 1 Coat, 30-40 mils DFT, 100% Solids, Zero VOC

Polibrid Polyurethane

F1E = Polibrid 705, 1 Coat, 30-40 mils DFT, 100% Solids, Zero VOC

Sherwin Williams Polyurethane

F1E = SherFlex, 1 Coat, 30-40 mils DFT, 100% Solids, Zero VOC

3. System No. 3: Epoxy-Polyurethane: For overcoating reservoir exterior surface. Items include but are not limited to entire existing exterior reservoir surface, exterior ladders, railing, roof and shell manways/hatches, rust spots, conduits, and piping.

a. Following are acceptable Manufacturers and coating systems:

- 1). Carboline Protective Coatings
- 2). International Paint - Devoe
- 3). Tnemec Coatings
- 4). Or pre-approved equal

Carboline

Spot Prime = Carbomastic 615, 1 coat, 2-4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned. (for rust spots only)

P1 = Carbomastic 615, 1 coat, 2-4 mils DFT. (For entire existing reservoir surface and appurtenances. Not required for System No. 1 items.)

F1E = Carbothane 133HB, 1 coat, 3- 4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

Devoe

Spot Prime = Bar-Rust 233H, 1 coat, 2-4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned. (for rust spots only)

P1 = Bar-Rust 233H, 1 coat, 2-4 mils DFT. (For entire existing reservoir surface and appurtenances. Not required for System No. 1 items.)

F1E = Devthane 378H, 1 coat, 3- 4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

Tnemec

Spot Prime = Series 135 Chembuild, 1 coat, 2-4 mils DFT, maximum VOC = 3.5 LBS/GAL. (for rust spots only)

P1 = Series 135 Chembuild, 1 coat, 2-4 mils DFT. (For entire existing reservoir surface and appurtenances. Not required for System No. 1 items.)

F1E = Series 1075U, 1 coat, 3- 4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

- b. CONTRACTOR to apply minimum two test patches per reservoir, 1'-0"x1'-0" in size, of new coating system on the reservoir exterior surface to confirm the adhesion with the existing coating system. CONTRACTOR shall apply these test patches prior to reservoir interior surface preparation.

4. System No. 4: Polyamide Epoxy-Polyurethane: For exposed PVC and CPVC piping.

- a. Following are acceptable Manufacturers and coating systems:

- 1). Carboline Protective Coatings
- 2). International Paint - Devoe
- 3). Tnemec Coatings
- 4). Or pre-approved equal

Carboline

P1 = Carboguard 893 SG Epoxy, 1 coat, 4-6 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

F1E = Carbothane 133HB, 1 coat, 3- 4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

Devoe

P1 = Bar-Rust 233H, 1 coat, 4-6 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

F1E = Devthane 378H, 1 coat, 3- 4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

Tnemec

P1 = Series N69 Hi-Build Epoxoline II, 1 coat, 3-4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

F1E = Series 1075 Endura-Shield II, 1 coat, 3-4 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

5. System No. 5: Two Coat Epoxy (EPA/NSF) - For reservoir interior roof surface and column top plates. Items also include but are not limited to beams, rafters, bolted connections, roof vent, ventilation manway, roof hatches, dollar plate (center column top plate) and intermediate column top plates (both top and bottom sides),.
- a. Following are acceptable Manufacturers and coating systems:
- 1). Carboline Protective Coatings
 - 2). International Paint - Devoe
 - 3). Tnemec Coatings
 - 4). Or pre-approved equal

Carboline

P1 = Carboguard 61, 1 coat, 6-8 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

F1E = Carboguard 61, 1 coat, 6-8 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

Devoe

P1 = Bar-Rust 233H, 1 coat, 6-8 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

F1E = Bar-Rust 233H, 1 coat, 6-8 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

Tnemec

P1 = Series N140, 1 coat, 6-8 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

F1E = Series N140, 1 coat, 6-8 mils DFT, maximum VOC = 3.5 LBS/GAL thinned.

C. Blast Abrasive:

1. Use proper equipment and abrasives when blast cleaning to produce the mil profile, within the range of 3.5 to 5.0 or as recommended by the coating manufacturer. Do not reuse abrasives.

2. CONTRACTOR shall use only garnet for blasting purposes. The garnet abrasive used shall be of the type that is graded as to proper size, shape and hardness. It shall be free of contaminants and shall not embed itself in the blasted surface. Garnet type abrasives shall be chemically washed, dried, dust, dirt and fines free, resistant to fracture (shattering), and contain no leachable contaminants. The use of reduced or dust free abrasive blasting is required. Prior to mobilization to the field, samples of the CONTRACTOR's selected abrasive and/or abrasive/admixture shall be submitted to the ENGINEER for testing and review. Random field testing of the abrasive shall be done by the CONTRACTOR, as directed by the ENGINEER to ensure the abrasive used complies with these requirements.

PART 3 EXECUTION

3.01 GENERAL PREPARATION

- A. Prepare surfaces in accordance with coating manufacturer's instructions, unless more stringent requirements follow.
- B. Protect following surfaces from abrasive blasting in accordance with Paragraph 1.10, by masking, or other means:
 1. Surfaces to be assembled against gaskets.
- C. Protect installed equipment, and adjacent coated equipment from abrasive blasting to prevent damage caused by entering sand or dust.
- D. Reservoir Exterior Surface:
 1. Unless specified otherwise, the reservoir exterior surface shall be pressure washed (minimum 3,500psi with rotating tip) and wiped with mop to remove all chalk, dirt, debris and contaminants followed by SSPC SP-3 Power Tool Cleaning on any areas where there is visible rust, bare metal or loose coating. CONTRACTOR shall coordinate with ENGINEER to determine the areas that require power tool cleaning.
 - a. Approximate number of rust spots for reservoir is given below:
 - 1). Reservoir Shell: 50
 - 2). Reservoir Roof: 30
 2. All new ventilation manway and roof hatch surfaces shall be prepared in accordance with per SSPC SP-6.
 3. CONTRACTOR shall be responsible for all third party claims for over spray.
 4. The existing reservoir exterior coating shall be handled as hazardous waste. Attached is September 7, 2016 Legend Technical Services report on testing for lead and chromium on the reservoir exterior coating. During the surface preparation for rust spots, rust areas and other areas that require removal of the existing exterior coating to the bare metal, the

CONTRACTOR shall take necessary measures for safely removing, collecting and disposing of the coating debris as a hazardous waste. The coating debris shall be handled, stored, transported and disposed as a hazardous waste. The CONTRACTOR shall be responsible for any third party claims involved in removing the hazardous exterior coating. In performing this Work CONTRACTOR shall comply with the following provisions:

- a. CONTRACTOR shall utilize services of a properly licensed hazardous waste handling and disposal vendor in performing this work.
- b. CONTRACTOR shall submit an exterior coatings removal and disposal plan prior to performing the Work, for ENGINEER's review and approval. This shall detail the approach used and the method for handling and disposal and the parties involved.
- c. CONTRACTOR shall take care to ensure that all exterior coating waste that is removed is contained using a proven approach such as a grinder with a vacuum pump and shroud, or similar method that contains waste particles properly prior to disposal.
- d. CONTRACTOR shall comply with all State and Federal Resource Recovery and Recovery Act regulations applicable to this work. All manifests shall be submitted to OWNER for necessary signatures and proper filing when work is completed.

E. Reservoir Interior Surface:

1. Remove grease and oil in accordance with SSPC SP-1.
2. Unless specified otherwise, abrasive blast in accordance with SSPC SP-10 or better to remove rust, scale, and welding slag and spatter, and to provide roughened angular surface profile of not less than 3.5 mils and not more than 5.0 mils in depth when measured with Elcometer 224, or as recommended by the coating manufacturer. Where not possible to abrasive blast, power tool clean surfaces in accordance with SSPC SP-11.
3. When abrasive blasted surfaces rust or discolor before coating, abrasive blast surfaces again to remove rust and discoloration.
4. Do not coat surfaces before abrasive blasting.
5. When metal surfaces are exposed because of coating damage, abrasive blast surfaces before touching-up.
6. Include containment sheets over the reservoir openings to prevent airborne spreading of the blast material.
7. The City doesn't have available records on the existing interior coating system for the reservoirs. For bidding purposes, the CONTRACTOR shall consider the reservoir interior coating thickness to be 20 mils.

F. Exterior Coating Repairs Following Welding Activities:

1. Prior to welding, remove existing reservoir coating from the exterior reservoir surface, per SSPC SP-3, within a one foot diameter area centered on the welding location.

2. Weld attachment to the reservoir surface.
3. Feather edge of surrounding sound coating around perimeter of the one foot diameter area where the existing coating was removed. Feather edge must provide a sound, tightly adhering and smooth transition from the area exposed to the remaining existing coating system.
4. Remove grease and oil in accordance with SSPC SP-1.
5. Remove all surface imperfections (e.g., sharp fins, sharp edges, weld spatter, burning slag, scabs, slivers) using SSPC-SP2 and/or SSPC-SP3 before full surface preparation operations begin.
6. Coat surfaces within 12 hours of power tool cleaning. Do not coat surfaces before power tool cleaning.
7. Before applying the exterior prime coat, the prepared substrate must meet the SSPC-SP3 cleanliness standard requirements.
8. When metal surfaces are exposed because of coating damage, power tool clean surfaces before touching-up.
9. Brush apply new primer and coatings to the welded area. The new coating shall overlap the feathered edge of the existing coating by two inches.

G. Shop Primed Metal:

1. New Ventilation manway and roof hatch.
2. Submerged or non-submerged ferrous surfaces including structural steel and miscellaneous metal to be shop-primed, shall be prepared according to the coating manufacturers most current written guidelines for the submitted coating system and its intended service environment.
3. Correct abrades, scratched or otherwise damaged areas of shop prime coat by power tool cleaning in accordance with SSPC SP-3
4. When entire shop priming fails or has weathered excessively, or when recommended by paint manufacturer, abrasive blast shop prime coat to remove entire coat and prepare surface in accordance with SSPC SP-10.
5. When incorrect prime coat is applied, remove incorrect prime coat by abrasive blasting in accordance with SSPC SP-10.

3.02 GENERAL PROTECTION

- A. Protect adjacent surfaces not to be coated from weld spatter and droppings with drop cloths and other coverings:
1. Mask off surfaces of items not to be coated or remove items from area.

3.03 GENERAL APPLICATION REQUIREMENTS

- A. Apply coatings in accordance with manufacturer's most current written instructions.
- B. Verify metal surface preparation immediately before applying coating in accordance with the specified cleanliness standard for that area.

- C. Allow surfaces to dry, except where coating manufacturer requires surface wetting before coating.
- D. Spot prime exposed metal of shop primed surfaces before applying primer over entire surface.
- E. Apply minimum number of specified coats.
- F. Apply coats to thicknesses specified.
- G. Apply additional coats when necessary to achieve specified thicknesses, especially at edges and corners.
- H. Coat surfaces without runs, drops, ridges, waves, holiday, laps, or brush marks.
- I. Remove spatter and droppings after completion of coating.
- J. When multiple coats of same material are specified, tint prime coat and intermediate coats with suitable pigment to distinguish each coat.
- K. Dust coatings between coats: Lightly sand and dust surfaces to receive high gloss finishes, unless instructed otherwise by coating manufacturer.
- L. Application of the coating to the reservoir interior surfaces shall be spray application only. No coating shall be applied to interior surface by roller application, unless otherwise specified. Apart from the specified interior coats, all weld seams, corners and edges, including roof plates, shall receive one additional hand rolled coat. The additional coat shall extend three to four inches on both sides of weld seams, and extend three to four inches from corners and edges.
- M. Application of the coating to the exterior reservoir surfaces shall be rolled according to the manufacturer's recommendations.
- N. Spray Application:
 - 1. When using spray application, apply coating to thickness not greater than that suggested in coating manufacturer's instructions.
 - 2. Use airless spray method, unless air spray method is required by coating manufacturer's instruction or these Specifications.
 - 3. Conduct spray coating under controlled conditions. Protect adjacent construction and property from coating mist or spray.
- O. Drying and Recoating:
 - 1. Limit drying time to that required by coating manufacturer's instructions.
 - 2. Do not allow excessive drying time or exposure which may impair bond between coats.
 - 3. Recoat within time limits recommended by coating manufacturer.
 - 4. When time limits are exceeded, re-prepare surface according to the

coating manufacturer's most current written recommendations before applying another coat.

5. When limitations on time between abrasive blasting and coating cannot be met before attachment of components to surfaces which cannot be abrasive blasted, coat components before attachment.
6. Ensure primer and intermediate coats of coating are unscarred and completely integral at time of application of each succeeding coat.
7. Touch up suction spots between coats and apply additional coats where required to produce finished surface of solid, even color, free of defects.
8. Check for discontinuities on steel immersion surfaces using holiday detector (NACE SP0-188). Any discontinuities located shall be corrected in accordance with the coating manufacturer's most current written recommendations/guidelines. All corrected discontinuities shall be re-tested according to (NACE SP0-188) until compliant.
9. Sand and recoat scratched, contaminated, or otherwise damaged coating surfaces so damages are invisible to naked eye.

P. DFT readings shall be recorded in accordance with SSPC PA2- Level 3.

Q. No coating work shall be performed on weekends.

3.04 FIELD QUALITY CONTROL

- A. Inspection will be performed prior to and following the abrasive blasting, power wash and power tool cleaning, and following each coat. Strip and remove defective coats, prepare surfaces and recoat. Successive coats shall only be applied following approval of previous coat or surface preparation.
- B. Control and check dry film thicknesses and integrity of coatings.
- C. Measure dry film thickness with calibrated thickness gauge.
- D. Dry film thickness reading equipment to be used must be certified and still within certification during the inspection process.
 1. Ferrous and Non-Ferrous substrates - Type 1 or Type 2 dry film thickness gauges, manufactured by Elcometer, Delfelsko or equal.

3.05 SCHEDULES OF ITEMS NOT REQUIRING COATING

- A. Nameplates.
- B. Caution signs
- C. Serial number tags.
- D. Control Panels.

E. Instruments.

3.06 CLEANING

- A. As work proceeds and upon completion, promptly remove coating where spilled, splashed, or spattered.
- B. During progress of work keep premises free from unnecessary accumulation of tools, equipment, surplus materials and debris.
- C. Upon completion of work leave premises neat and clean.

3.07 FIRST ANNIVERSARY INSPECTION

- A. Interior and exterior surfaces of the reservoirs shall be inspected by OWNER, ENGINEER and CONTRACTOR approximately 12 months after the coating work has been completed. Inspection, remedial work, if required, and report shall be provided as required by AWWA D102, Section 5.2.

END OF SECTION

DIVISION 13
SPECIAL CONSTRUCTION

SECTION 13208

MISCELLANEOUS WORK ASSOCIATED WITH WELDED STEEL STORAGE RESERVOIR

PART 1 GENERAL

1.01 DESCRIPTION

- A. Scope:
1. Provide all labor, materials, equipment and incidentals as shown on the Drawings, specified or required, to perform repairs and modifications to existing water storage reservoir. Included shall be the design, fabrication, delivery, and installation of required appurtenances as shown on the Drawings and specified herein. Coating is required in accordance with Section 09800.
- B. Related Sections:
1. Division 1 - General Requirements
 2. Section 09800 - Special Coatings
- C. See Drawings.

1.02 QUALITY ASSURANCE

- A. Design and Fabrication Criteria:
1. Except as otherwise shown on the Drawings or specified, all design, materials, joints, workmanship and all other aspects of the reservoir shall conform to AWWA D100.
- B. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
1. ASTM A36, Standard Specification for Carbon Structural Steel.
 2. ASTM A529, Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality.
 3. AWWA D100, Standard for Welded Carbon Steel Tanks for Water Storage.
 4. AWWA D102, Standard for Coating Steel Water-Storage Tanks.
 5. AWWA C652, Standard for Disinfection of Water Storage Facilities.
 6. SSPC-SP3, SSPC Standard for "Power Tool Cleaning".
 7. SSPC-SP6, SSPC Standard for "Commercial Blast Cleaning".
 8. SSPC-SP10, SSPC Standard for "Near-White Metal Blast Cleaning".
 9. SSPC-SP11, SSPC Standard for "Power Tool Cleaning to Bare Metal".
 10. SSPC-VIS 1, Guide and Reference Photographs for Steel Surfaces Prepared By Dry Abrasive Blast Cleaning.
 11. NACE SP0178-2007, Design, Fabrication and Surface Finish Practices, for Tanks and Vessels to Be Lined for Immersion Service.

12. Occupational Safety & Health Administration (OSHA) standards.
 13. ASME Section IX.
- C. Requirements of Regulatory Agencies:
1. All work shall comply with OSHA Confined Space Entry, Arizona Department of Environmental Quality, AWWA, and NSF Regulation for potable water reservoirs.
 2. In accordance with the Arizona Administrative Code (AAC) Section R18-4-213, all materials that may come into contact with drinking water shall conform to NSF International Standard 60 and 61.

1.03 SUBMITTALS

- A. Shop Drawings:
1. Submit shop drawings for the following in accordance with Section 01340:
 - a. Roof ventilation manway.
 - b. Safety climb "D" Rings.
 - c. Roof hatch.
 - d. Rafter replacement.
 - e. Rafter tie rods.
- B. Certificates:
1. Welder Qualification Certifications
- C. Welding Procedures.
- D. Product Data:
1. Submit Product Data Sheets, MSDS, and descriptions as appropriate of the following for review:
 - a. Gaskets.
 - b. Welding rods.

1.04 OWNER'S RESPONSIBILITIES

- A. See Section 01030.
- B. Isolation of the reservoir shall be performed by the OWNER. The CONTRACTOR shall coordinate with the OWNER and the ENGINEER to schedule the isolation and draining of the reservoir.
- C. Potable water shall be furnished by the OWNER for the following services:
1. Initial reservoir disinfection and filling.
 2. Water for any additional disinfection; if required, during the initial disinfection procedure to obtain satisfactory bacteriological samples.
 3. If the reservoir must be emptied, re-sprayed, flushed and refilled to obtain satisfactory bacteriological samples, or because of extensive leakage, the OWNER will furnish additional water for the Work at the expense of

CONTRACTOR. CONTRACTOR shall also pay for the additional chlorine required.

- D. See Drawings.
- E. When CONTRACTOR has cleaned the reservoir floor after draining of reservoir, ENGINEER will conduct non-destructive testing to check floor plate thickness. CONTRACTOR shall schedule his Work to accommodate the testing. The testing is anticipated to take one day.

PART 2 PRODUCTS AND MODIFICATIONS

2.01 GASKET MATERIALS

- A. For manways that use a flat style gasket, the gasket shall be 1/4-inch thick and either of a Neoprene or an EPDM material with a durometer hardness of 50 on the Shore A scale.

2.02 ACCESSORIES AND MODIFICATIONS

- A. Roof Ventilation Manway
 1. Provide new roof ventilation manway, see Drawings.
 2. Shop prepare and prime the interior and exterior surface per Section 09800. Field apply the finish coats per Section 09800.
- B. External Water Level Gauge
 1. Remove and replace the existing 16 feet high external water level gauge board facing (sticker) with a new vinyl facing (sticker) of one foot level markings.
- C. Roof Hatch
 1. Remove and replace existing 24"x24" roof hatch with new roof hatch, see Drawings.
 2. Shop prepare and prime the interior and exterior surface Section 09800. Field apply the finish coats per Section 09800.
- D. Safety Climb 'D' Rings
 1. Shall meet OSHA Personal fall arrest systems requirements.
 2. Tensile Strength: Minimum of 5,000 pounds. D-ring shall be proof-tested to a minim tensile load of 3,600 pounds.
 3. Material
 - a. Anchorage Plate: Hot rolled steel, ASTM A36 or ASTM A529.
 - b. D-ring: Cadmium plated alloy steel.
 4. Apply shop prime and field finish coats to anchorage plates per Specification Section 09800. D-rings shall not be coated.

5. Model and Manufacturer
 - a. Model No. 2101634, DBI Sala.
 - b. Or pre-approved equal.

2.03 CONTINGENCY ITEMS

- A. The CONTRACTOR shall perform the following Work on the reservoir on a unit price basis if authorized by the OWNER:
 1. Contingency Item No. 1
 - a. Remove and replace up to twenty C8x11.5 existing outer rafters and associated bolted connections and clips with in kind rafters and carbon steel bolted connections and clips. CONTRACTOR to field verify dimensions.
 - b. The rafters shall be A36 steel.
 2. Contingency Item No. 2
 - a. Remove and replace up to twenty C8x11.5 existing inner rafters and associated bolted connections and clips with in kind rafters and carbon steel bolted connections and clips. CONTRACTOR to field verify dimensions.
 - b. The rafters shall be A36 steel.
 3. Contingency Item No. 3
 - a. Furnish and install up to one hundred 4-inch diameter, 1/4" thick A36 steel plates on floor (to cover deep pits).
 - b. The welding around these plates shall be 1/4 inch thick fillet weld.
 4. Contingency Item No. 4
 - a. For the interior of the reservoir, all existing weld spatter and defects shall be removed and repaired by welding and grinding in conformance with the requirements of NACE SP0178 for NACE Weld Preparation Designation "C". Included in this work but not limited to the radius grinding of all sharp edges on the overflow weir box, fill line, discharge line, manway curbs, covers, column base supports and any repair plates on the reservoir floor.
 - b. The unit price for surface repairs shall include all costs for labor, materials, and equipment to properly complete all work as described above, or otherwise required to complete the work. Measurement of the 2 man crew-hours required to complete the surface repairs shall include each hour of labor performed to physically repair by welding or grinding existing surface defects to the required condition. Such measurements of surface repair 2 man crew-hours will be recorded by the ENGINEER and all decisions will be final. All work incidental to performing these surface repairs, including but not limited to rigging, blasting and surface preparation, or otherwise required to complete the work shall be included in the unit price for the work. The services of a person on the ground (ground man), as required by OSHA, during times when surface repair work is being performed, shall also be considered incidental work, and expenses for such work or services shall be included in the unit price for the work. Hours for a ground

man will not be included in the measurement of the surface repair
2 man crew-hours.

- c. One 2 man crew-hour represents the unit cost basis for this bid item.

5. Contingency Item No. 5

- a. Remove and replace twenty existing 1/2-inch diameter, 5-foot long tie rods between outer rafters. CONTRACTOR to field verify dimensions.
- b. These tie rods are connected to the outer rafters via bolts and nuts.
- c. The tie rods shall be A36 steel.
- d. The tie rods shall be shop prepared and primed.
- e. Shop prepare and prime per Section 09800. Field apply the finish coats per Section 09800.

6. Contingency Item No. 6

- a. Remove and replace up to forty existing inner and/or outer rafter clips. The various sizes of rafter clips that may need to be replaced are 4"x8", 6"x8", 10"x10". For bidding purposes use 10"x10" rafter clips. CONTRACTOR to field verify dimensions.
- b. The rafter clips shall be 1/4 – inch thick A36 steel plates.
- c. The rafter clips shall be welded (1/4-inch thick fillet) on both sides.

- B. For bidding purposes, the amount of work necessary to perform the work has been estimated herein. Contingency items shall not be performed unless authorized by OWNER. This work will be monitored and verified by the ENGINEER in the field.

2.04 REPAIR AND MODIFICATIONS WORK

- A. Areas to be repaired and modified are described in Paragraphs 2.01, 2.02 and 2.03 (if needed) above, and as shown on Drawings.
- B. These shall be welded by a skilled, certified welder under the direction of the ENGINEER. The welders shall be certified in conformance with ASME Section IX and shall submit current copies of the welders certificates to the ENGINEER and the OWNER. All repairs by welding shall be ground smooth or radiused in conformance with the requirements of NACE Standard SP0178 and as directed by the ENGINEER. The repaired areas shall conform to the surface preparation requirements of Section 4, NACE Standard SP0178, NACE Weld Preparation Designation "C".
- C. No welding over coated steel surfaces is permissible. The CONTRACTOR shall adequately remove all coatings before welding. All areas that require welding shall be power tool cleaned before any welding is started.

- D. Welding Procedures:
1. All field welding shall be in accordance with Division 1 and AWWA D100.
 2. The location, type, size, and length of all welds shall be as shown on approved shop drawings. All field welds shall be of the manual shielded metal arc type. Welding shall not be done when the surface temperature is lower than 35 degrees Fahrenheit, when surfaces are wet, or when welders are exposed to inclement conditions.
 3. The CONTRACTOR shall submit all welding procedures to the ENGINEER for review four weeks prior to starting reservoir work.
 4. The CONTRACTOR can use alternate design details to those shown in the Drawings. However, the CONTRACTOR must submit all shop drawings to the ENGINEER for review.
 5. Certification and Tests:
 - a. CONTRACTOR shall, upon request from OWNER, provide certification in writing that all welds are in conformance with this specification and that any weld failure, defect and/or all damage relating therefrom will be repaired or replaced to the satisfaction of OWNER at no cost to OWNER. OWNER reserves the right to have all welds tested. Tests will be paid for by OWNER; however, in the event that work is defective, CONTRACTOR shall pay for the tests and shall replace all faulty work with work that complies with this Specification.
 6. Any additional repair work, uncovered by the CONTRACTOR or ENGINEER, during reconditioning shall not be initiated until duly authorized and executed change orders issued and signed by the OWNER and accepted and signed by the CONTRACTOR are completed. Refer to General Terms and Conditions for details involving increases or decreases in the amount of work.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Except as otherwise shown on the Drawings or specified, repairs shall be performed in accordance with the requirements of AWWA D100.

3.02 FIELD QUALITY CONTROL

- A. Qualifications of Welders and Welding Procedures:
1. Welding shall be performed only by welders qualified in accordance with AWWA D100.
 2. Welding shall be performed in accordance with AWWA D100.

B. Inspections:

1. The OWNER'S personnel and the ENGINEER shall at all times have access to the work, and the CONTRACTOR shall provide proper facilities for such access and inspection.
2. The ENGINEER reserves the right to inspect the work at any time for compliance with all requirements of the specifications.
3. The ENGINEER reserves the right to approve each phase of the Work before further work may be done, to halt all work deemed to be improper or not in compliance with the Specifications, and to require the CONTRACTOR to promptly correct all improper practices or deficient work.
4. Inspections may include wet and/or dry film thickness gauging, visual surface inspection by the naked eye and/or a suitable magnifying instrument to detect runs, sags, drips, cracks or other defects in the coating system.
5. Inspections may also include any other examination of the prepared surfaces or coating system, deemed necessary by the ENGINEER, including random destructive film thickness and coating adhesion checks. The interior wet area of the reservoirs shall be tested and inspected by the ENGINEER to ensure a holiday free surface. Interior wet area of the reservoir shall be tested and inspected by the ENGINEER to ensure that the coating has cured in accordance with the manufacturer's recommendations.
6. The CONTRACTOR shall provide all necessary inspection equipment (at the discretion of the ENGINEER), labor, rigging, rolling scaffolding, lighting, ventilation and other equipment to facilitate these inspections.
7. Any expenses incurred for corrective measures required as the result of improper practices and/or defective or deficient work shall be borne by the CONTRACTOR and the extent of these corrective measures shall be at the discretion of the ENGINEER. This includes costs for the ENGINEER to perform repeated and excessive re-inspection of defective or deficient work performed by the CONTRACTOR.
8. Such inspection shall not relieve the CONTRACTOR from any obligation to construct the Work strictly in accordance with the Drawings and Specifications. Work not so constructed shall be removed and replaced by the CONTRACTOR at his own expense.

3.03 CLEANING

- A. Exposed concrete surfaces shall be protected from blemishes and stains during reservoir coating. If discoloration of exposed concrete results from coating, rusting or any other aspects of reservoir work, it shall be removed to the satisfaction of ENGINEER.

- B. Adjacent painted surfaces shall be protected from discoloration, scratching or other damage. Any touch-up painting required to damaged areas prior to project completion and acceptance belongs to CONTRACTOR.
- C. On completion of the Work on the interior of the reservoir, the CONTRACTOR shall remove all dirt, litter and leave all surfaces in clean condition, scrubbing the same with water and approved soap or other cleaning agent. Cleaning and rinsing shall be performed by the CONTRACTOR using a power or jet truck with a minimum 2-inch diameter sanitary hose. When this has been completed, inspected and approved by the OWNER or ENGINEER, the final sterilization of said interior shall be done by the CONTRACTOR at no cost to the OWNER.
- D. The CONTRACTOR shall, at all times, keep the premises free from accumulations of waste material or rubbish caused by his employees or work. He shall clean-up abrasive material or rubbish on a daily regular schedule. All unneeded construction equipment shall be removed from the site and all damages repaired expeditiously so that the adjacent property is inconvenienced as little as possible.
- E. During exterior surface preparation and coating operations, the CONTRACTOR shall provide adequate protection and containment to prevent damage to adjacent structures and property by his operations. The CONTRACTOR shall also perform intermittent or periodic clean up of adjacent grounds to prevent the accumulation of sandblast sand and debris caused by his operations. This shall include but not be limited to, sidewalks, streets, driveways, yards, and rooftops.
- F. The CONTRACTOR shall be responsible for compliance with local, state and federal regulations concerning emissions or disposal of solid, particulate, liquid or gaseous matter as a result of the cleaning, painting or other operations. Compliance with this provision shall be accomplished without direct supervision from the ENGINEER or OWNER. The OWNER shall not grant additional compensation for changes in the law, regulations or interpretations of said laws or regulations. The burning of trash, paper or wood on the job site is not permitted. Unless otherwise provided by these specifications, the CONTRACTOR is responsible for all containing, shielding, waste retrieval or other precautions required by any regulatory agency at no additional cost to the OWNER. Any fines imposed on the OWNER or ENGINEER by any regulatory agency because of the CONTRACTOR's non-compliance with Environmental Regulations shall be paid or reimbursed by the CONTRACTOR.
- G. On or before the completion of work, the CONTRACTOR shall, unless otherwise directed in writing, remove all temporary works, tools and machinery or other construction equipment placed by him. He shall remove all rubbish from any grounds that he has occupied and shall leave all of the premises and adjacent

property affected by the operation in a neat and restored condition satisfactory to the ENGINEER.

3.04 DISINFECTION

- A. CONTRACTOR shall be responsible for disinfection. Disinfection shall conform to all applicable requirements of AWWA C652, and as specified below.
- B. After the reservoir has been coated and interior surfaces have thoroughly and properly cured, the inside of the reservoir shall be thoroughly cleaned in accordance with Paragraph 3.03. Interior of the reservoir shall be disinfected by spraying all surfaces, including underside of roof and roof support members, and inlet and outlet pipes, with a 200 ppm available chlorine solution. Solution shall remain in contact with surfaces for a minimum of 30 minutes. Technique shall be such that a sterile reservoir will result. After spray disinfection, the reservoir shall be filled to its overflow level. Following this procedure and subject to satisfactory bacterial testing and acceptable aesthetic quality, the water shall be delivered to the distribution system.
- C. The OWNER shall take a bacteria test of the water after disinfecting. If the water is considered not safe after testing, additional disinfecting and testing shall be performed by the CONTRACTOR at his expense until the reservoir is tested safe for use as part of a potable water supply system.
- D. The OWNER shall take a taste and odor test of the water after disinfecting to detect the presence of any volatile organic compounds (VOC's) imparted by the coating. If the water is not considered safe or acceptable after testing, further work shall be performed by the CONTRACTOR at his expense until the reservoir is tested safe and acceptable for use as part of a potable water supply system.
- E. Water for initial disinfection and for filling and for any additional disinfection during the initial disinfection procedure if required to obtain satisfactory bacteriological samples, will be furnished by the OWNER, to the site boundary. Responsibility belongs to CONTRACTOR for pumps, hoses and other temporary equipment required to fill the reservoir, all chlorine required, and for obtaining proper disinfection as determined by bacteriological tests made by the testing laboratory.
- F. If the reservoir must be emptied, re-sprayed, flushed and refilled to obtain satisfactory bacteriological samples, or because of extensive leakage, the OWNER will furnish additional water for the Work at the expense of CONTRACTOR. Additional chlorine required costs shall belong to CONTRACTOR.
- G. Supply all necessary pumps, hoses and other required equipment each time the reservoir need to be emptied.

3.05 AREAS TO PROTECT

- A. Do not coat over vent and overflow screens
- B. The entrance of dirt, sediment, blast media, and other debris into the discharge line, as well as the entrance of residual water into the reservoir area from a faulty valve is to be prevented by the CONTRACTOR. To prevent this and protect the piping, the CONTRACTOR shall, prior to any surface preparation work, insert into the inlet/outlet pipe a heavy duty, inflatable flex-plug, such as those manufactured by Peterson Products Company, P.O. Box 340, Fredonia, WI 53021-0340, 1-800-926-1926 or rubber plugs such as those manufactured by Vanderlans and Sons, Inc., 1320 South Sacramento Street, Lodi, CA 95240, 1-800-452-4902.

3.06 RESERVOIR INTERIOR INSPECTIONS

- A. CONTRACTOR, ENGINEER and OWNER will perform the reservoir inspections as specified below:
 - 1. Interior inspection after cleaning and prior to surface preparation of the reservoir. After this inspection, and if needed, ENGINEER will authorize the Contingency Items under Paragraph 2.03.
 - 2. Interior inspection after blasting interior surface of the reservoir. This inspection will be performed to confirm the prior inspection findings.
 - 3. CONTRACTOR shall provide safe access (confined space entry) and necessary equipment to perform the inspections. The equipment includes rolling scaffolding to access shell, roof rafters and dollar plate, lighting and forced ventilation (if required).
- B. Prior to any of the above inspections, CONTRACTOR shall clean reservoir interior shell and floor surfaces to remove any dirt, oil, grease and sediments, and the floor to be relatively dry.

END OF SECTION

DIVISION 15
MECHANICAL

SECTION 15115

GATE VALVES AND APPURTENANCES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Scope:
1. Provide all labor, materials, equipment and incidentals required to furnish and install all gate valves and appurtenances complete and operational as shown on the Drawings and as specified.
 2. The Work includes installation of one 20 inch diameter gate valve on the reservoir fill line.
- B. Coordination:
1. Review installation procedures under other Sections and coordinate with the Work which is related to this Section.
- C. Related Sections: CONTRACTOR shall coordinate the requirements of the Work in this Section along with the requirements of the Sections listed below which includes, but is not necessarily limited to:
1. Division 1 - General Requirements
 2. Section 09800 - Special Coatings.
 3. Section 13208 - Miscellaneous Work Associated with Welded Steel Storage Reservoir.
- D. See Drawings.

1.02 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
1. Manufacturer shall have a minimum of five years experience of producing substantially similar equipment, and shall be able to show evidence of at least five installations in satisfactory operation for at least five years.
 2. Gate valves shall be the product of one manufacturer.
- B. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
1. ANSI B16.1, Cast Iron Pipe Flanges and Flanged Fittings
 2. AWWA C 110, Ductile-Iron and Gray-Iron Fittings.
 3. ASTM A 48, Specification for Gray Iron Castings.
 4. ASTM A 126, Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

5. ASTM A 307, Specification for Carbon Steel Bolts, Studs and Thread Rod 60,000 psi minimum Tensile Strength.
6. ASTM A 354, Specification for Quenched and Tempered Alloy Steel Bolts, Studs and Other Externally Threaded Fasteners.
7. ASTM A 436, Specification for Austenitic Gray Iron Castings.
8. ASTM A 536, Specification for Ductile Iron Castings.
9. ASTM B 62, Specification for Composition Bronze or Ounce Metal Castings.
10. AWWA C111, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
11. AWWA C515, Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service.
12. AWWA C550, Protective Interior Coatings for Valves and Hydrants.
13. AGMA Standards.
14. NEMA, National Electrical Manufacturer's Association.
15. NSF 61, Drinking Water System Components-Health Effects.

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
 1. Manufacturer's literature, illustrations, paint certifications, specifications, detailed drawings, data and descriptive literature on all valves and appurtenances.
 2. Deviations from Contract Documents.
 3. Engineering data including dimensions, materials, size and weight.
 4. Fabrication, assembly, and installation diagrams.
 5. Certificates of compliance with AWWA Standards, where applicable.
 6. Corrosion resistance information to confirm suitability of the valve materials for the application. Information on chemical resistance of elastomers shall be furnished from the elastomer manufacturers.
 7. Complete nameplate data of valves.
 8. Special tools list.
 9. C_v values and headloss curves.
- B. Operation and Maintenance Manuals:
 1. Submit complete installation, operation and maintenance manuals including test reports, maintenance data and schedules, description of operation, and spare parts information.
 2. Furnish Operation and Maintenance Manuals in conformance with the requirements of Section 01340.
- C. Shop Tests:
 1. Hydrostatic tests shall be performed, when required by the valve specifications included herein.
- D. Certificates: Where specified or otherwise required by ENGINEER, submit test certificates.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the site to ensure uninterrupted progress of the Work.
- B. All boxes, crates and packages shall be inspected by CONTRACTOR upon delivery to the site. CONTRACTOR shall notify ENGINEER if any loss or damage exists to equipment or components. Replace loss and repair damage to new condition, in accordance with manufacturer's instructions.
- C. Store materials to permit easy access for inspection and identification. Keep all material off the ground, using pallets, platforms or other supports. Protect steel members and packaged materials from corrosion and deterioration.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. Valves shall have manufacturer's name and working pressure cast in raised letters on valve body.
 - 2. Manual valve operators shall turn clockwise to close, unless otherwise specified. Valves shall indicate the direction of operation.
 - 3. Manually operated valves, with or without extension stems, shall require not more than a 40-pound pull on the manual operator to open or close a valve against the specified criteria. The gear actuator and the valve components shall be able to withstand a minimum pull of 200 pounds on the manual operator and an input torque of 300 foot pounds to an actuator nut. Manual operators include handwheel, chain, crank, lever and a T-handle wrench.
 - 4. Buried valves shall have mechanical joint ends. All bolts shall be Type 316 stainless steel.
 - 5. Buried valves shall be provided with adjustable two piece valve boxes and provided with extension stems, operating nuts and covers, unless otherwise shown on the Drawings or specified. Extension stems shall terminate 12-inches below finished grade.
 - 6. Iron body valves shall be provided with screwed-on seat rings. Buried or submerged gate valves shall be of the non-rising stem type. Exposed gate valves shall be rising stem type. Rising stem valves and brass non-rising stem valves shall be provided with O-ring stem seals.
 - 7. All bolts, nuts and studs on or required to connect buried or submerged valves shall be Type 316 stainless steel.
 - 8. For stainless steel bolting, except where Nitronic-60 nuts are required, use anti-seize compound, graphite free, to prevent galling. Strength of the joint shall not be affected by the use of anti-seize compound.
 - 9. All other bolts, nuts and studs shall, unless otherwise approved, conform to ASTM A 307, Grade B; or ASTM A 354.

10. Bolts and nuts shall have hexagon heads and nuts.
11. All materials of construction of the valves shall be suitable for the applications as shown on the Drawings.
12. Protect wetted parts from galvanic corrosion due to contact of two different metals.
13. Buried service valves shall be provided with grease filled actuators with position indicators.
14. Gasket material and installation shall conform to manufacturer's recommendations.
15. Identification: Identify each valve 4-inches and larger with a stainless steel nameplate stamped with the approved designation. Nameplate shall be permanently fastened to valve body at the factory. Stenciled designations are acceptable for buried valves.
16. All valves shall meet NSF 61 requirements.

B. Gate Valves:

1. Buried, 3-inch Diameter and Larger:
 - a. Standard: AWWA C515.
 - b. Type: Resilient seat, nonrising stem.
 - c. Construction:
 - 1) Body and Bonnet: Ductile Iron, ASTM A 536, coated inside and out with fusion bonded epoxy.
 - 2) Gate: Ductile Iron, ASTM A 536, symmetrically and fully encapsulated with an elastomer having a minimum 1/8-inch thickness suitable for the service intended.
 - 3) Stem: Stainless Steel, Type 316.
 - 4) Stem Seal: "O"-Ring.
 - 5) All internal and external bolting and other hardware including pins, set screws, plug, studs, bolts, nuts and washers: Type 316 stainless steel.
 - 6) Provide position indicators for non-rising stem valves.
 - d. Pressure Rating: Gate valves shall have the following minimum pressure ratings unless otherwise specified in the Valve Schedule.
 - 1) 3-inch through 16-inch diameter valves: 250 pounds per square inch.
 - 2) 16-inch and larger diameter valves: 150 pounds per square inch.
 - e. End Connection: Unless otherwise shown on the Drawings or specified, valves shall be mechanical joint ends conforming to AWWA C111.
 - f. Interior Coating:
 - 1) All valves shall be coated inside. The steel, cast-iron and ductile iron surfaces, except machined surfaces, shall be epoxy coated in accordance with AWWA C550.
 - g. Testing:
 - 1) Test all valves in conformance with AWWA C515.

- h. Gear Actuators for Manually Operated Valves:
 - 1) Provide valves with gear actuators conforming to AWWA C500.
 - 2) Size gear actuators for the following maximum differential pressures:
 - a) Maximum Differential Pressure Across Closed Valve: 100 psi.
- i. Product and Manufacturer: Provide one of the following:
 - 1) Mueller Company.
 - 2) American Flow Control, American-Darling, Series 2500.
 - 3) Or pre-approved equal.

2.02 APPURTENANCES FOR BURIED VALVES

- A. Wrench Nuts:
 - 1. Provide wrench nuts on all buried valves of nominal 2-inch size conforming to AWWA C500.
 - 2. Arrow indicating direction of opening the valve shall be cast on the nut along with the word "OPEN".
 - 3. Material: Ductile iron.
 - 4. The nut shall be secured to the stem by mechanical means.
- B. Extension Stems for Non-Rising Stem Valves and Quarter Turn Buried Valves:
 - 1. Provide extension stems to bring the operating nut to 6-inches below the valve box cover.
 - 2. Minimum Size and Material: Same as valve stem.
 - 3. Maximum Unsupported Length: Three feet.
 - 4. Provide top nut and bottom coupling of ductile iron with pins and set screws of Type 316 stainless steel.
- C. Valve Boxes:
 - 1. Valve boxes shall be as shown on the Drawings and as required.
 - 2. Type: Heavy duty, suitable for highway loading, 2-piece telescopic, and adjustable. Lower section shall enclose operating nut and stuffing box and rest on bonnet.
 - 3. Material: Cast or ductile iron.
 - 4. Coating: Two coats of asphalt varnish conforming to Federal Specification TT-C-494.
 - 5. Marking: As required for service.

2.03 ANCHOR AND MISCELLANEOUS MOUNTING BOLTS

- A. Provide anchor bolts for stem guides of required strength to prevent twisting or sagging of the guides under load.

- B. Provide bolts and washers of Type 316 stainless steel and nuts of Nitronic 60. The bolts shall have rolled threads and both bolts and nuts shall be electropolished to remove burrs.
- C. Minimum Size of Anchor Bolts: 5/8-inch.

2.04 TOOLS AND SPARE PARTS

- A. Provide the following T-Handle Operating Wrenches for Buried Valves:
 - 1. T-handle operating wrench of suitable length and size for each valve that is not readily accessible to direct operation.
 - 2. Quantity: Provide one of each length and size required.

2.05 SURFACE PREPARATION AND PAINTING

- A. Valves, appurtenances, etc., shall receive shop primer and shop finish coating conforming to the requirements of Section 09800, Special Coatings. If any damage to the paint system occurs, the equipment shall be repainted as directed by the OWNER.
- B. Surface preparation and painting shall conform to the requirements of Section 09800, Special Coatings.
- C. All gears, bearing surfaces, machined surfaces and other surfaces which are to remain unpainted shall receive a heavy application of grease or other rust-resistant coating. This coating shall be maintained during storage and until the equipment is placed into operation.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install all valves and appurtenances in accordance with the manufacturer's instructions and recommendations.
- B. Conform to appendices of AWWA Standards, where applicable.
- C. For buried valve installations, set valve boxes plumb and centered, with soil carefully tamped to a lateral distance of four feet on all sides of the box, or to the undisturbed trench face if less than four feet.

3.02 FIELD TESTS AND ADJUSTMENTS

- A. Adjust all parts and components as required to provide correct operation of the valves.

- B. Conduct a functional field test on each valve in the presence of the ENGINEER to demonstrate that each valve operates correctly.
- C. Demonstrate satisfactory opening and closing of valves at the specified criteria requiring not more than 40 pounds effort on the manual actuators.
- D. Test ten percent valves of each type by applying 200 pounds effort on the manual operators. There shall be no damage to the gear actuator or the valve.

3.03 MANUFACTURER'S SERVICE

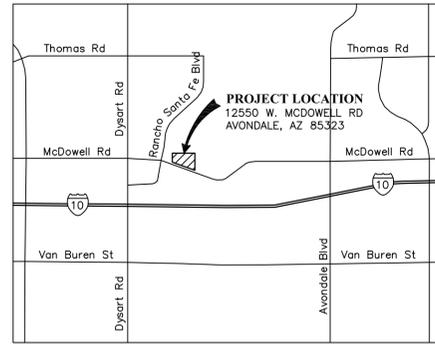
- A. A factory trained representative shall be provided for installation supervision, start-up and test services and operation and maintenance personnel training services. The representative shall make a minimum of one visit, eight hours on site for each visit, to the site. Manufacturer's representative shall test operate the system in the presence of the ENGINEER and verify that the valves conform to requirements. Manufacturer's representative shall revisit the job site as often as necessary until all trouble is corrected and the installation is entirely satisfactory.
- B. All manufacturer service costs, including travel, lodging, meals and incidentals, shall be considered as included in CONTRACTOR's bid price.

END OF SECTION

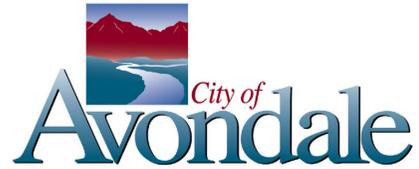
Rancho Santa Fe Reservoir Modifications and Coating

PW17-010

Plans



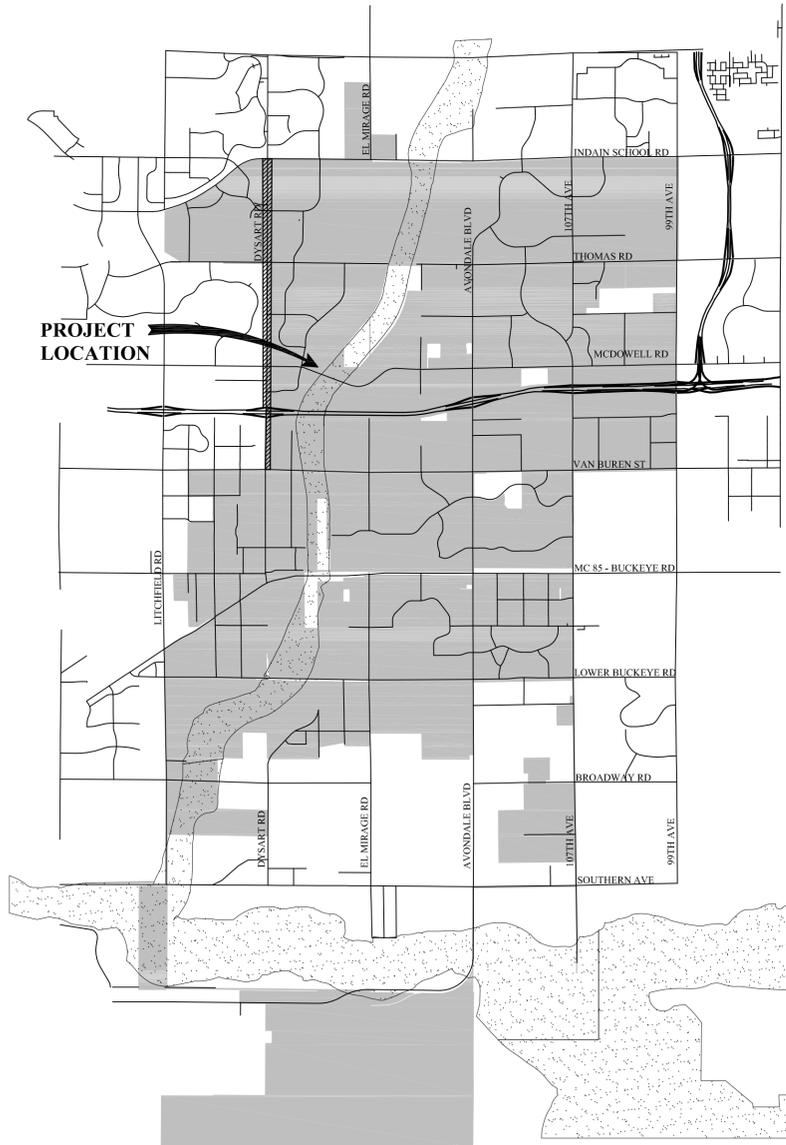
VICINITY MAP



**RANCHO SANTA FE RESERVOIR
MODIFICATIONS AND COATING
CITY PROJECT NO. PW17-010
SECTION 2, TOWNSHIP 1N & RANGE 1W
BID DOCUMENTS**

SHEET INDEX

SHEET	DESCRIPTION
1	COVER SHEET
2	SITE PLAN, GENERAL SYMBOLS, MARKERS AND ABBREVIATIONS
3	RESERVOIR REMOVALS PLAN
4	RESERVOIR IMPROVEMENTS PLAN
5	RESERVOIR ROOF STRUCTURAL PLAN AND DETAILS
6	TYPICAL DETAILS



AREA MAP

CITY OF AVONDALE

MAYOR
KENNETH WEISE

VICE MAYOR
STEPHANIE KARLIN

COUNCIL MEMBERS

SANDI NIELSON
JIM MCDONALD
BRYAN KILGORE
DAVID IWANSKI
LORENZO SIERRA

CITY MANAGER

DAVID FITZHUGH

CITY CLERK

CARMEN MARTINEZ

ENGINEER

NCS ENGINEERS
RAMESH NARASIMHAN
202 E. EARLL DR., SUITE 110
PHOENIX, AZ 85012
PHONE: (602) 629 - 0206
FAX: (602) 629 - 0223

OWNER

CITY OF AVONDALE
CINDY BLACKMORE P.E., PUBLIC WORKS DIRECTOR
399 E. LOWER BUCKEYE ROAD
AVONDALE, ARIZONA 85323
PHONE: (623) 333-4460
FAX: (623) 333-0440

SURVEYOR

NOT APPLICABLE

BENCHMARK

NOT APPLICABLE

APPROVALS

Michael M. Smith _____ DATE 09/06/2016
CITY PUBLIC WORKS DEPARTMENT

THE CITY APPROVES THESE PLANS FOR CONCEPT ONLY
AND ACCEPTS NO LIABILITY FOR ERRORS OR OMISSIONS

Approval Not Needed _____ DATE _____
MARICOPA COUNTY ENVIRONMENTAL SERVICES
1101 N CENTRAL #150
PHOENIX, AZ 85334

"AS-BUILT CERTIFICATION"

I HEREBY CERTIFY THAT THE "AS-BUILT" INFORMATION SHOWN HEREON
WAS OBTAINED UNDER MY DIRECT SUPERVISION AND IS CORRECT AND
COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

REGISTERED ENGINEER _____ DATE _____
REGISTRATION NUMBER _____
COMPANY NAME: _____
ADDRESS: _____
PHONE NUMBER: _____

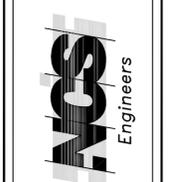


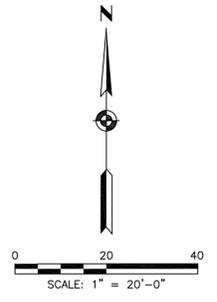
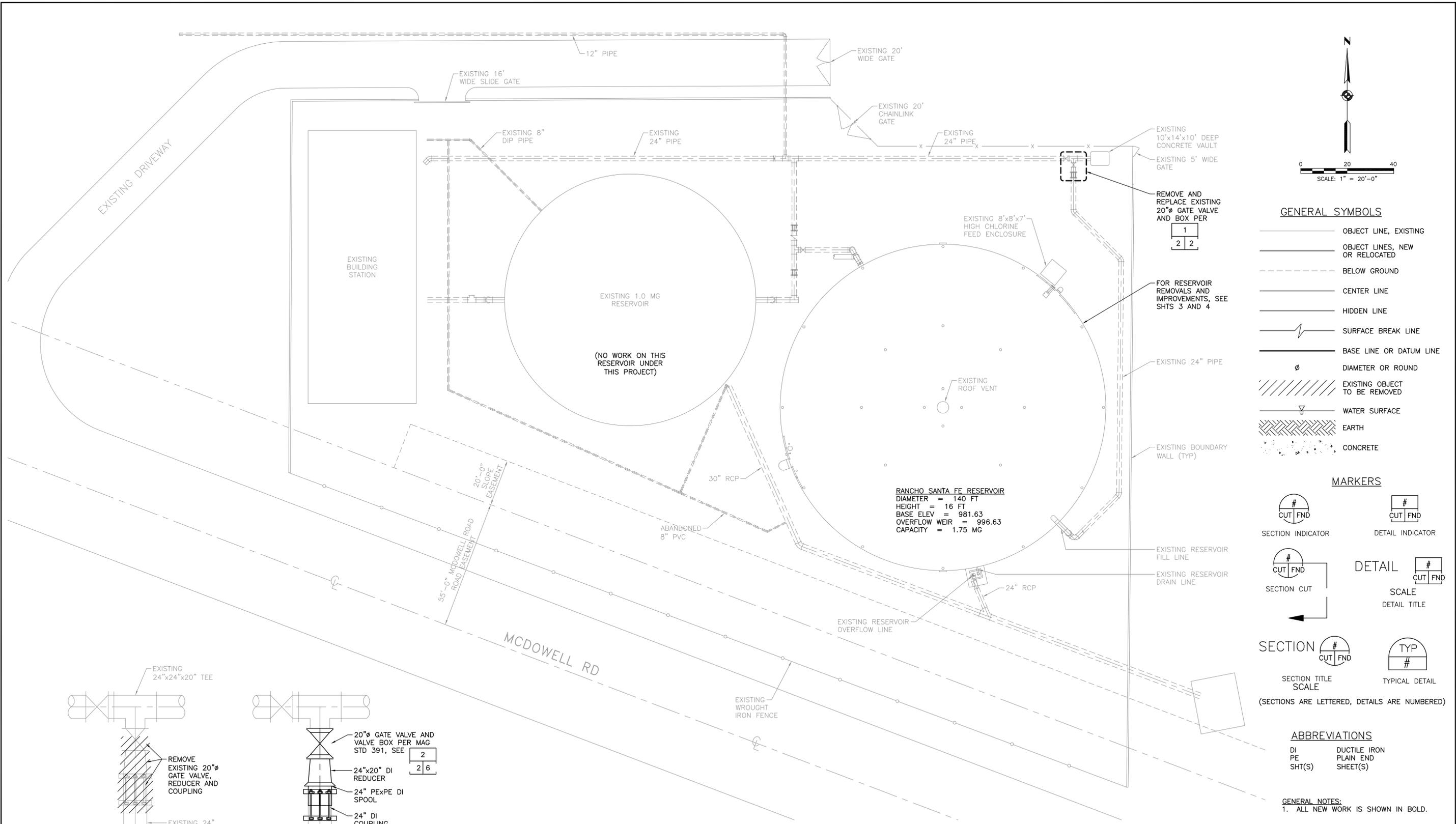
NOTE:
ALL CONSTRUCTION SHALL BE IN ACCORDANCE
WITH THE MOST RECENT EDITION OF THE CITY OF
AVONDALE'S SUPPLEMENT TO M.A.G.
SPECIFICATIONS AND STANDARD DETAILS
CURRENTLY ON FILE AND AVAILABLE AT THE CITY
OF AVONDALE'S ENGINEERING DEPARTMENT OR
ONLINE AT THE CITY OF AVONDALE'S WEBSITE.

PROJECT TYPE: CAPITAL IMPROVEMENTS PROJECT
PROJECT NAME: RANCHO SANTA FE RESERVOIR MODIFICATIONS AND COATING
PROJECT NUMBER: PW17-010
SHEET NAME: COVER SHEET

SEAL: [Professional Engineer Seal]
EXP. DATE: 09/30/18
ORIGINAL PLAN DATE: SEPTEMBER 2016
LATEST REVISION DATE: _____
SHEET NUMBER: 1 OF 6
PROJECT NUMBER: PW17-010

NCS ENGINEERS
202 E. EARLL DR., SUITE 110
PHOENIX, AZ 85012
(602) 629-0206



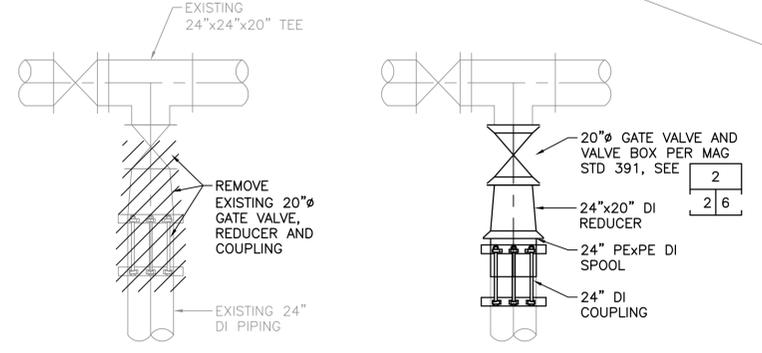


- GENERAL SYMBOLS**
- OBJECT LINE, EXISTING
 - OBJECT LINES, NEW OR RELOCATED
 - - - BELOW GROUND
 - CENTER LINE
 - HIDDEN LINE
 - SURFACE BREAK LINE
 - BASE LINE OR DATUM LINE
 - ∅ DIAMETER OR ROUND
 - /// EXISTING OBJECT TO BE REMOVED
 - ▽ WATER SURFACE
 - ▨ EARTH
 - ▩ CONCRETE

- MARKERS**
- # CUT FND SECTION INDICATOR
 - # CUT FND DETAIL INDICATOR
 - # CUT FND SECTION CUT
 - # CUT FND DETAIL SCALE
 - # CUT FND SECTION TITLE SCALE
 - # TYP DETAIL TITLE
 - # TYP SECTION TITLE SCALE
 - # TYP TYPICAL DETAIL
- (SECTIONS ARE LETTERED, DETAILS ARE NUMBERED)

- ABBREVIATIONS**
- DI DUCTILE IRON
 - PE PLAIN END
 - SHT(S) SHEET(S)

GENERAL NOTES:
1. ALL NEW WORK IS SHOWN IN BOLD.



VALVE REMOVAL PLAN

VALVE REPLACEMENT PLAN

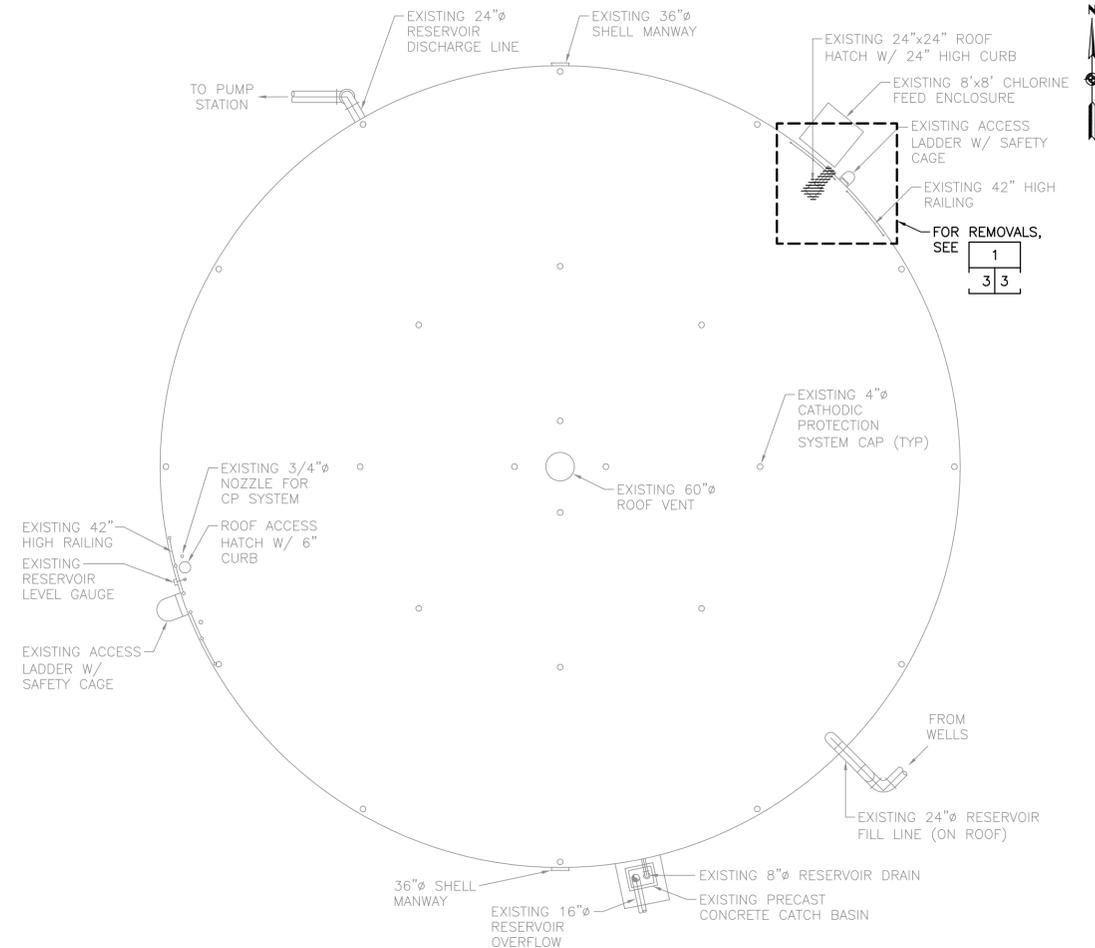
DETAIL 1
SCALE: 1"=1'-0" 2 2

SITE AND YARD PIPING PLAN

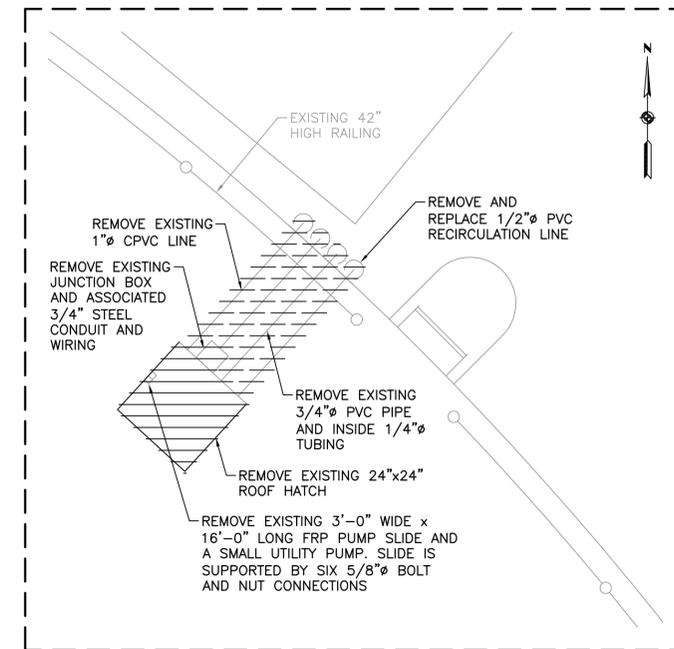
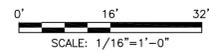
INFORMATION ON THIS SHEET IS FOR GENERAL REFERENCE PURPOSES. INFORMATION DOES NOT REPRESENT A FIELD SURVEY.

- NOTES:**
1. FOR BIDDING PURPOSES, CONSIDER THE EXISTING VALVE IS 5 FEET DEEP, AND EXISTING WATER MAIN PIPE IS DI PIPE.
 2. EXCAVATION LIMITS SHALL BE DETERMINED BY THE CONTRACTOR.
 3. CITY WILL ISOLATE THE LINE FOR 8 HOURS TO ACCOMMODATE THE GATE VALVE REMOVAL AND REPLACEMENT.

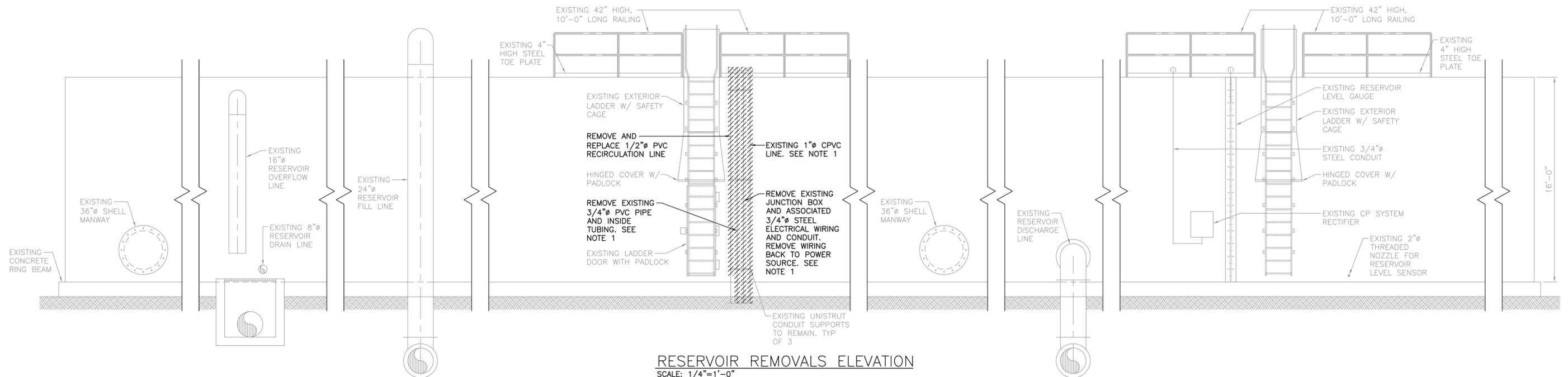
PROJECT TYPE: CAPITAL IMPROVEMENTS PROJECT
 PROJECT NAME: RANCHO SANTA FE RESERVOIR MODIFICATIONS AND COATING
 SHEET NUMBER: 2 OF 6
 PROJECT NUMBER: PW17-010
 SHEET NAME: SITE PLAN, GENERAL SYMBOLS, MARKERS AND ABBREVIATIONS
 NCS ENGINEERS
 202 E. EARLL DR., SUITE 110
 PHOENIX, AZ 85012
 (602) 629-0206
 EXP. DATE: 09/30/18
 ORIGINAL PLAN DATE: SEPTEMBER 2016
 LATEST REVISION DATE:
 SHEET NUMBER: 2 OF 6
 PROJECT NUMBER: PW17-010



RESERVOIR REMOVALS ROOF PLAN
SCALE: 1/16"=1'-0"

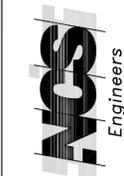


DETAIL
SCALE: 1/2"=1'-0"



RESERVOIR REMOVALS ELEVATION
SCALE: 1/4"=1'-0"

- NOTES:**
1. REMOVE CONDUIT OR PIPING TO 6" BELOW GRADE AND BACKFILL.



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CAPITAL IMPROVEMENTS PROJECT
RANCHO SANTA FE RESERVOIR MODIFICATIONS AND COATING
RESERVOIR REMOVALS PLAN
PW17-010

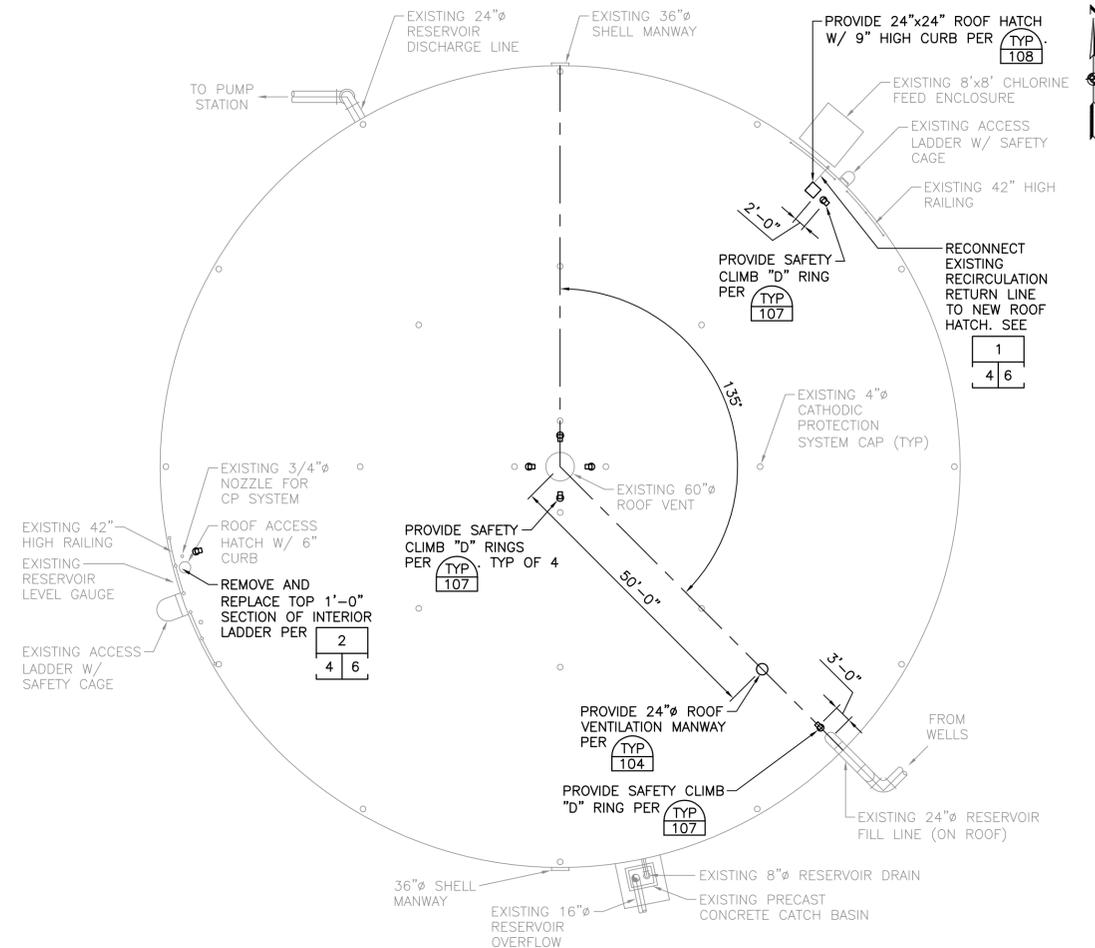


EXP. DATE: 09/30/18

ORIGINAL PLAN DATE: SEPTEMBER 2016

LATEST REVISION DATE:

SHEET NUMBER
3 OF **6**
PROJECT NUMBER
PW17-010



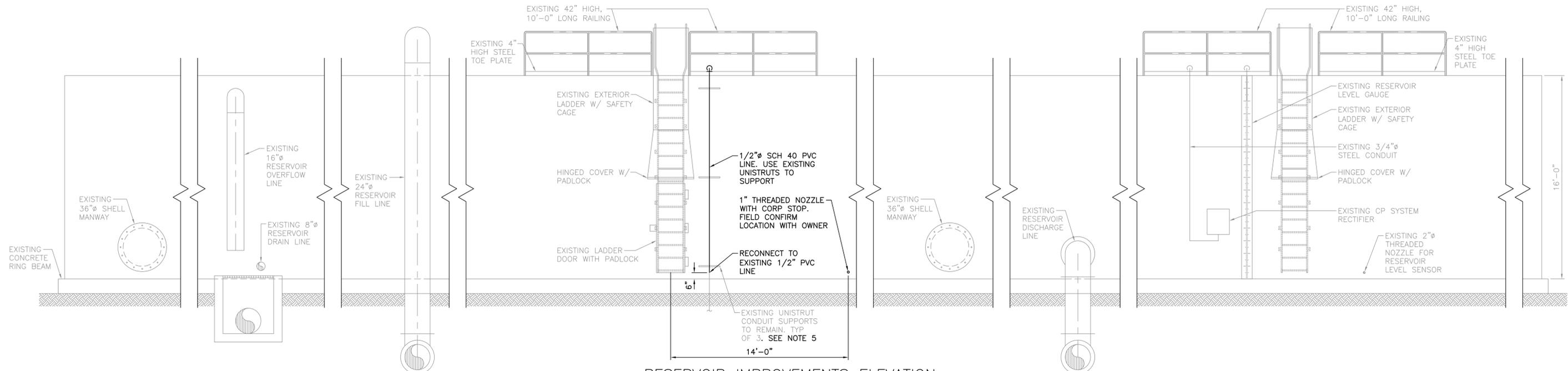
RESERVOIR IMPROVEMENTS ROOF PLAN

SCALE: 1/16"=1'-0"



CONSTRUCTION NOTES:

1. REMOVE AND REINSTALL CONDUIT(S) AND PIPING ON RESERVOIR ROOF AND SHELL TO ACCOMMODATE COATING.
2. REMOVE AND REPLACE EXISTING SHELL MANWAY GASKETS WITH NEW 36"Ø SHELL FLANGE MANWAY GASKETS.
3. PERFORM RESERVOIR INTERIOR SURFACE PREPARATION AND COATING PER SPECIFICATION SECTION 09800.
4. PERFORM RESERVOIR EXTERIOR SURFACE PREPARATION AND OVERCOATING PER SPECIFICATION SECTION 09800.
5. REMOVE EXISTING COATING ON APPROXIMATELY 3" WIDE AREA AROUND THE EXISTING UNISTRUT SUPPORTS BY POWER TOOL CLEANING TO BARE METAL AND RECOAT PER SPECIFICATION SECTION 09800, SYSTEM NO. 3.
6. REMOVE RUSTING ON THE OVERFLOW PIPE EDGE BY POWER TOOL CLEANING AND RECOAT PER SPECIFICATION SECTION 09800, SYSTEM NO. 3.
7. REMOVE AND REINSTALL SCREEN TO ACCOMMODATE CLEANING AND COATING.
8. SEE SPECIFICATIONS FOR EXISTING SYSTEMS TO BE REMOVED AND REINSTALLED BY CITY TO ACCOMMODATE WORK.
9. PIPING AND CONDUIT LOCATED ON RESERVOIR SHALL RECEIVE SURFACE PREPARATION AND COATING PER SPECIFICATION SECTION 09800.
10. FOR NUMBER OF RUST SPOTS TO RECEIVE SURFACE PREPARATION AND COATING, SEE COATING SPECIFICATION SECTION 09800.



RESERVOIR IMPROVEMENTS ELEVATION

SCALE: 1/4"=1'-0"

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CAPITAL IMPROVEMENTS PROJECT
RANCHO SANTA FE RESERVOIR MODIFICATIONS AND COATING
RESERVOIR IMPROVEMENTS PLAN
SHEET NUMBER: PW17-010

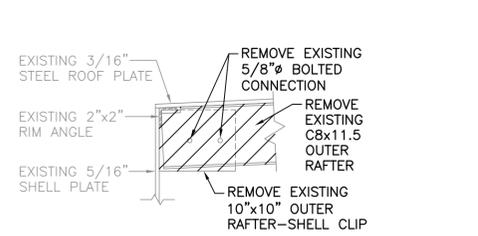


EXP. DATE: 09/30/18

ORIGINAL PLAN DATE: SEPTEMBER 2016

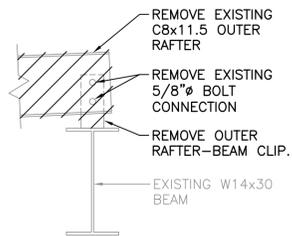
LATEST REVISION DATE:

SHEET NUMBER
4 OF 6
PROJECT NUMBER
PW17-010



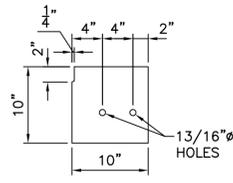
OUTER RAFTER-SHELL CONNECTION REMOVAL DETAIL
SCALE: NTS

1
5 5



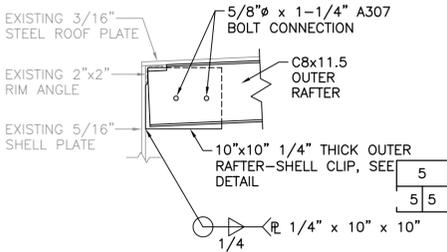
OUTER RAFTER-BEAM CONNECTION REMOVAL DETAIL
SCALE: 1"=1'-0"

3
5 5



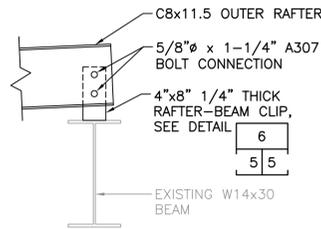
10"x10"x1/4" THICK OUTER RAFTER-SHELL CLIP
SCALE: 1"=1'-0"

5
5 5



OUTER RAFTER-SHELL CONNECTION REPLACEMENT DETAIL
SCALE: NTS

2
5 5



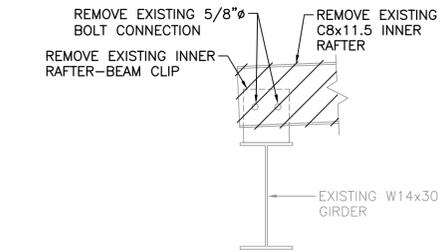
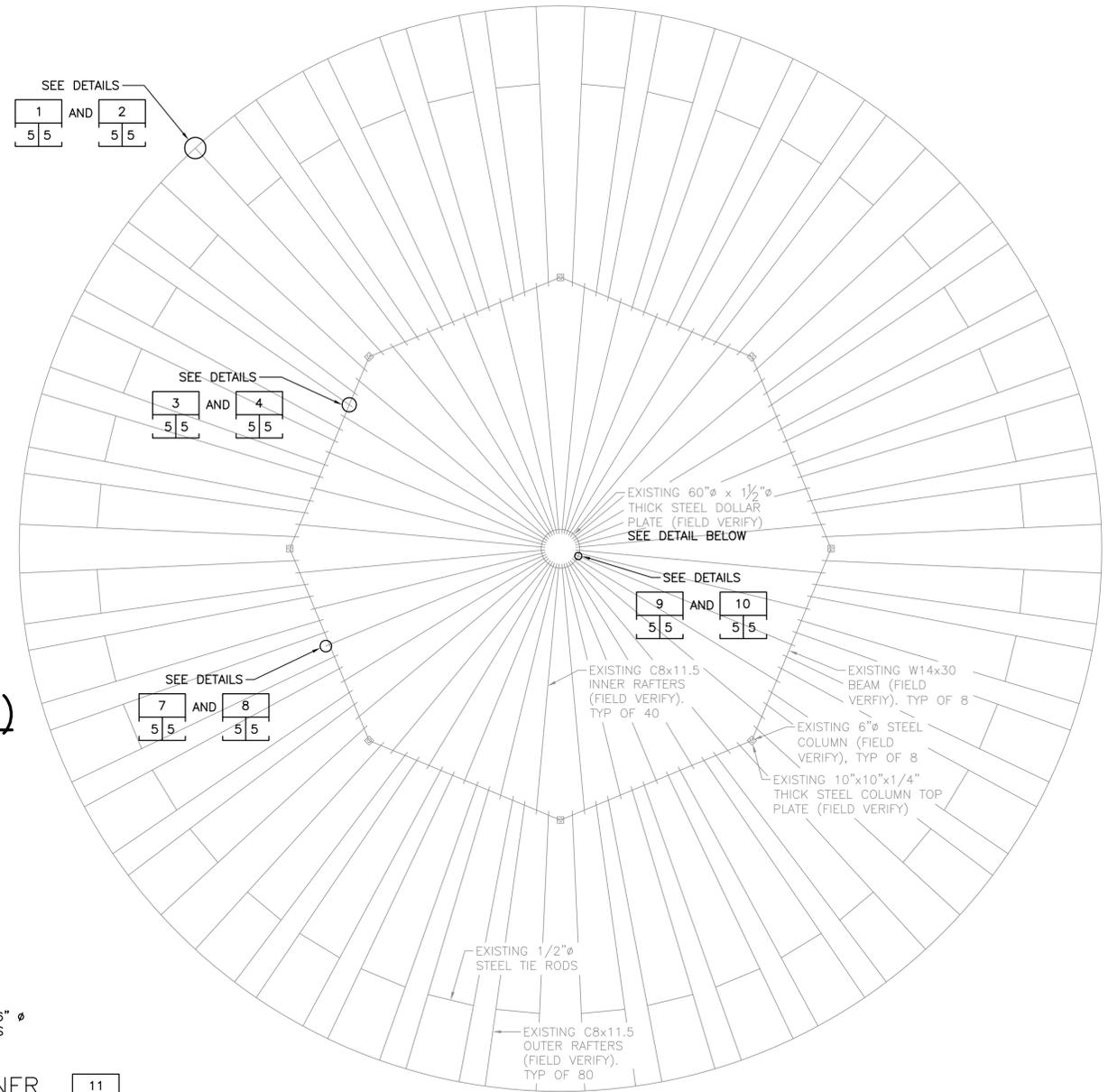
OUTER RAFTER-BEAM CONNECTION REPLACEMENT DETAIL
SCALE: 1"=1'-0"

4
5 5

4"x8"x1/4" THICK OUTER RAFTER-BEAM CLIP
SCALE: 1"=1'-0"

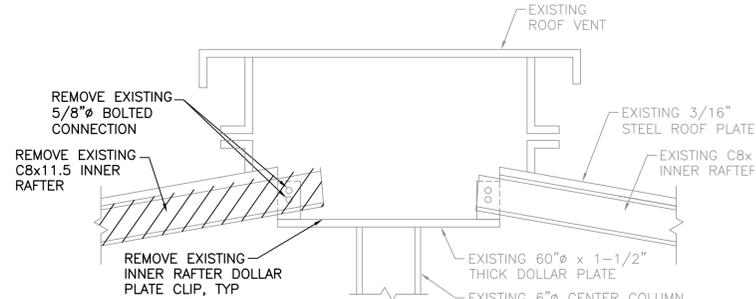
6
5 5

OUTER RAFTER REMOVAL AND REPLACEMENT DETAILS (CONTINGENCY ITEM NO. 1)



INNER RAFTER-BEAM CONNECTION REMOVAL DETAIL
SCALE: 1"=1'-0"

7
5 5

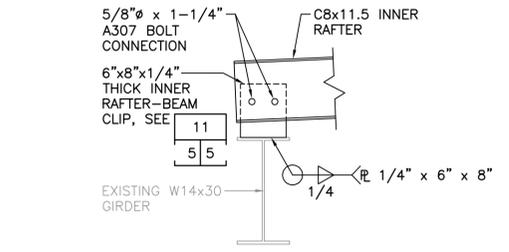


INNER RAFTER-DOLLAR PLATE CONNECTION REMOVAL DETAIL
SCALE: NTS

9
5 5

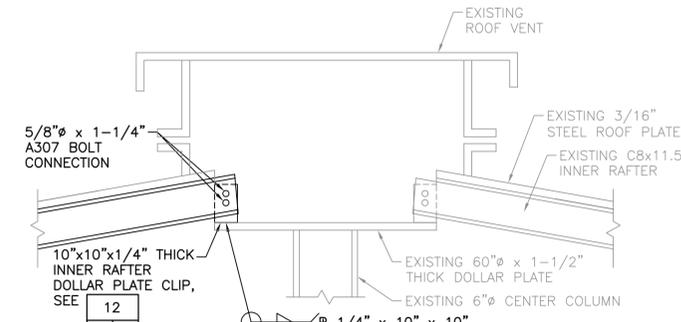
10"x10"x1/4" THICK INNER RAFTER-DOLLAR PLATE CLIP
SCALE: 1"=1'-0"

11
5 5



INNER RAFTER-BEAM CONNECTION REPLACEMENT DETAIL
SCALE: 1"=1'-0"

8
5 5



INNER RAFTER-DOLLAR PLATE CONNECTION REPLACEMENT DETAIL
SCALE: NTS

10
5 5

6"x8"x1/4" THICK INNER RAFTER-BEAM CLIP
SCALE: 1"=1'-0"

12
5 5

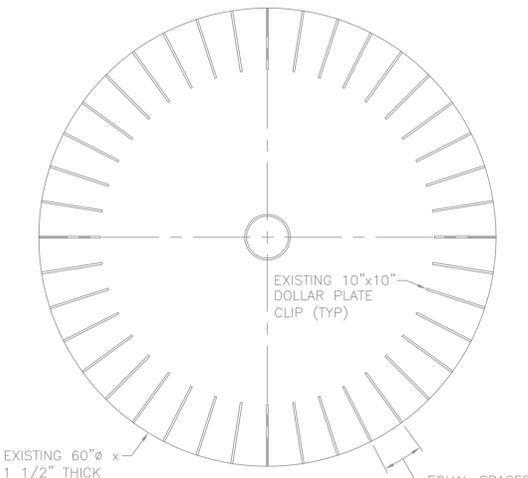
INNER RAFTER REMOVAL AND REPLACEMENT DETAILS (CONTINGENCY ITEM NO. 2)

RESERVOIR STRUCTURAL PLAN

SCALE: 3/32"=1'-0"

- NOTES:**
1. THE RESERVOIR STRUCTURAL PLAN SHOWS ONLY THE BEAM AND RAFTERS CONFIGURATION. ACTUAL INNER AND OUTER RAFTERS AND TIE RODS THAT NEED TO BE REPLACED, WILL BE FIELD DETERMINED BY THE ENGINEER.
 2. FOR NEW INNER AND OUTER RAFTERS AND TIE RODS COATING, SEE SPECIFICATIONS SECTIONS 09800 AND 13208.
 3. CONTRACTOR SHALL FIELD VERIFY INNER RAFTER, OUTER RAFTER, TIE RODS, RAFTER CLIPS, DOLLAR PLATE, COLUMN TOP PLATES, AND COLUMNS' SIZES. SIZES SHOWN ARE FOR BIDDING PURPOSES ONLY.

THE DETAILS SHOWN ON THIS SHEET WERE DEVELOPED FOR BIDDING PURPOSES BASED ON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN. ADJUSTMENTS AND MODIFICATIONS TO THESE DETAILS MAY OCCUR BASED ON ACTUAL FIELD CONDITIONS.



DOLLAR PLATE PLAN
SCALE: 1"=1'-0"

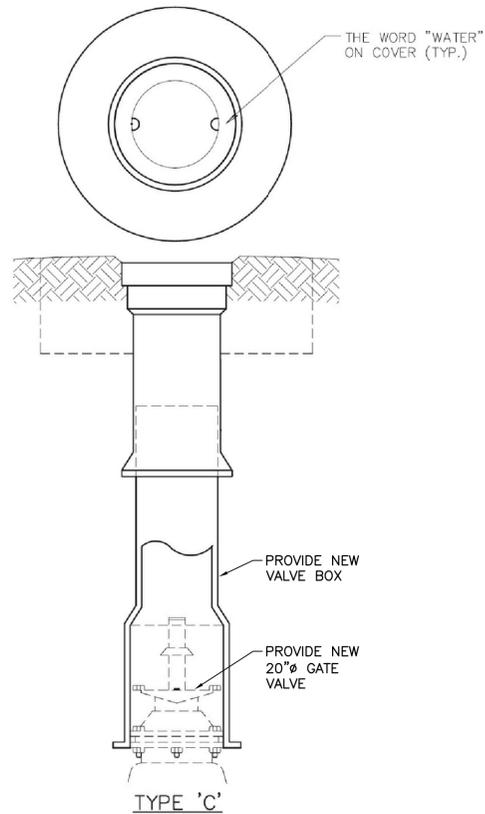
PROJECT TYPE: CAPITAL IMPROVEMENTS PROJECT
PROJECT NAME: RANCHO SANTA FE RESERVOIR MODIFICATIONS AND COATING
PROJECT NUMBER: PW17-010
SHEET NUMBER: 5 OF 6
PROJECT NUMBER: PW17-010

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(602) 629-0206

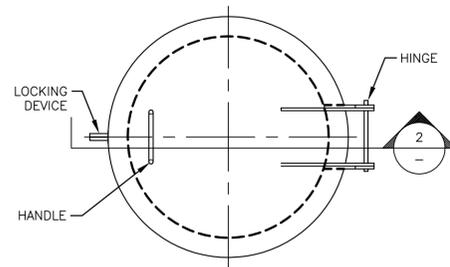
NCS Engineers

RESERVOIR STRUCTURAL ROOF PLAN AND DETAILS

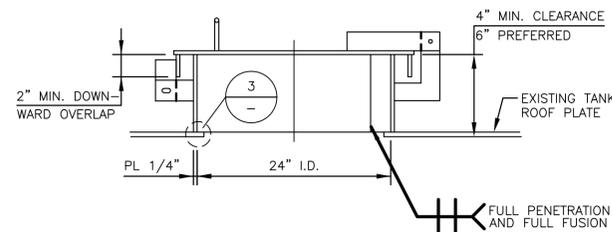
EXP. DATE: 09/30/18
ORIGINAL PLAN DATE: SEPTEMBER 2016
LATEST REVISION DATE:
SHEET NUMBER: 5 OF 6
PROJECT NUMBER: PW17-010



GATE VALVE AND VALVE BOX INSTALLATION DETAIL
 SCALE: NTS



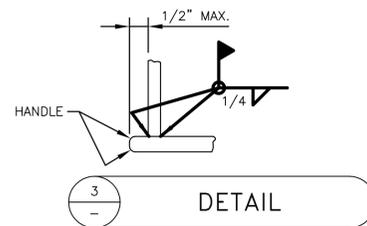
1 PLAN VIEW



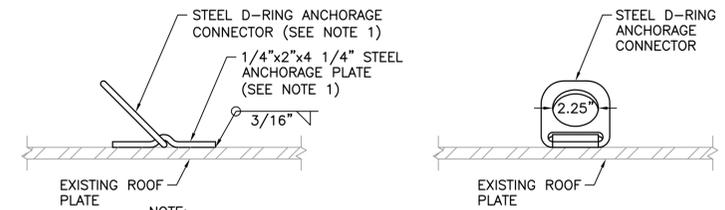
2 SECTIONAL ELEVATION

24"Ø VENTILATION ROOF MANWAY
 SCALE: NTS

- NOTES:**
- METHOD AND MATERIALS OF CONSTRUCTION ARE AT CONTRACTOR'S OPTION, BUT MUST MEET REQUIREMENTS OF LATEST EDITION OF AWWA.
 - ALL WELDING TO BE DONE WITH E70XX ELECTRODES.
 - ALL WELDING SHOWN IS TO BE DONE BY CONTRACTOR.
 - PROVIDE PADLOCK AND LOCK VENTILATION MANWAY AFTER CONSTRUCTION.

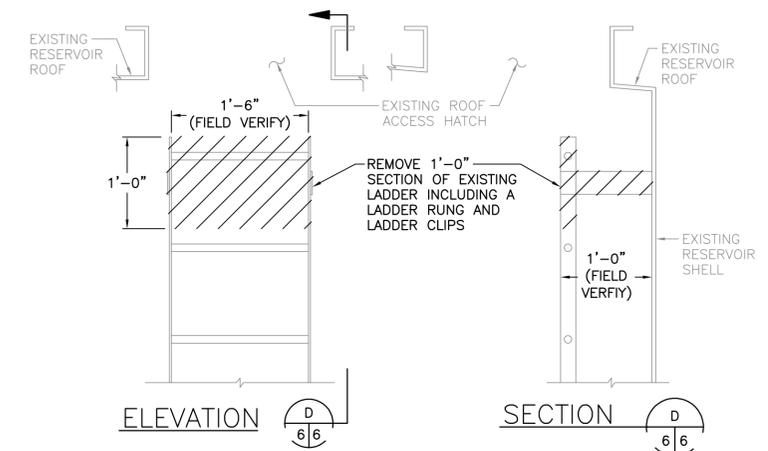


3 DETAIL

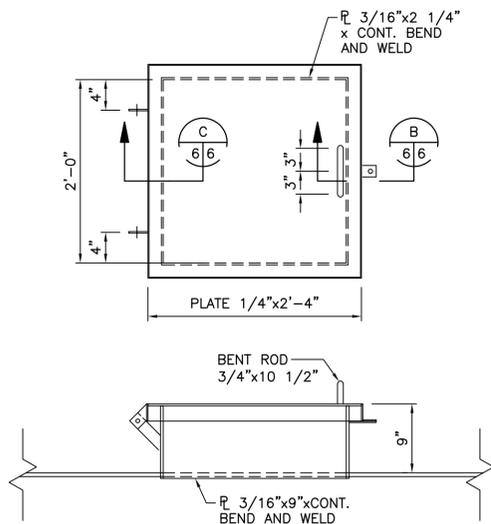


- NOTE:**
- THE D-RING SHALL ROTATE FREELY AND SHALL NOT BE WELDED TO THE RESERVOIR OR ANCHORAGE PLATE.

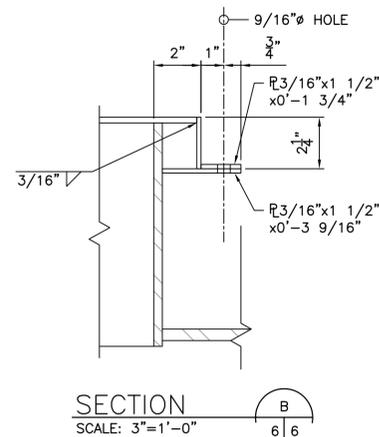
SAFETY "D" RING DETAIL
 SCALE: NTS



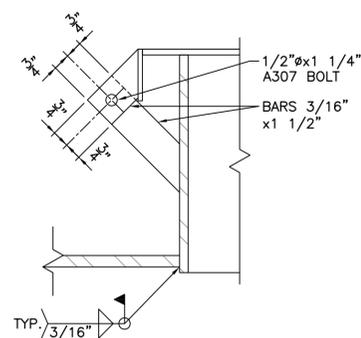
EXISTING INTERIOR LADDER SECTION REMOVAL DETAIL



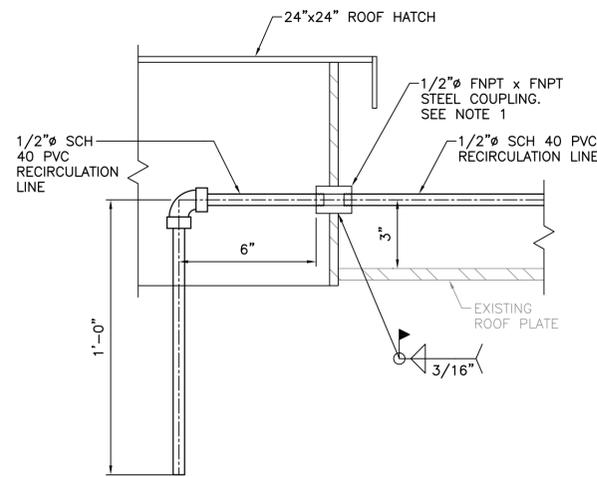
24"X24" ROOF MANWAY
 SCALE: 1"=1'-0"



SECTION B
 SCALE: 3"=1'-0"

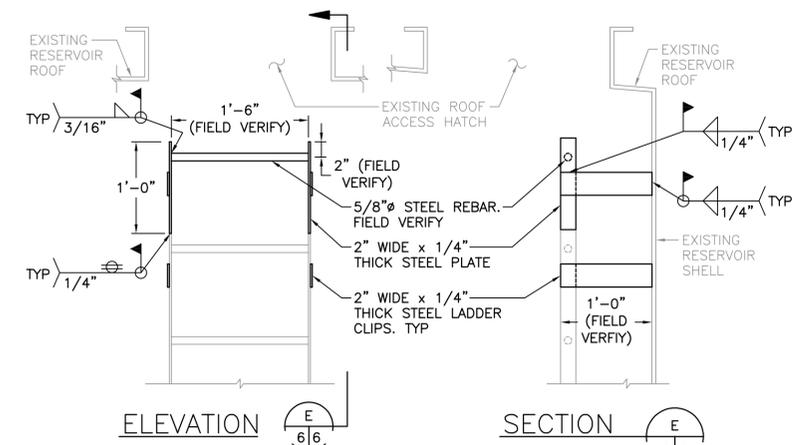


SECTION C
 SCALE: 3"=1'-0"



RECIRCULATION LINE CONNECTION DETAIL
 SCALE: 3"=1'-0"

- NOTES:**
- PROVIDE 1 1/4"Ø HOLE IN ROOF HATCH CURB TO ACCOMMODATE 1/2"Ø STEEL COUPLING.



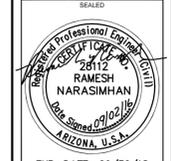
EXISTING INTERIOR LADDER SECTION REPLACEMENT DETAIL

EXISTING INTERIOR LADDER SECTION REMOVAL AND REPLACEMENT DETAIL
 SCALE: NTS

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 202 E. EARL DR., SUITE 110
 PHOENIX, AZ 85012
 (602) 629-0206



CAPITAL IMPROVEMENTS PROJECT
 PROJECT NAME: RANCHO SANTA FE RESERVOIR MODIFICATIONS AND COATING
 SHEET NUMBER: PW17-010
 TYPICAL DETAILS



EXP. DATE: 09/30/18
 ORIGINAL PLAN DATE: SEPTEMBER 2016
 LATEST REVISION DATE:
 SHEET NUMBER: 6 OF 6
 PROJECT NUMBER: PW17-010

Rancho Santa Fe Reservoir Modifications and Coating

PW17-010

Reference Materials

The Conditional Assessment Report, dated July 21, 2015, and the Legend Technical Services laboratory report, dated September 7, 2016, may be accessed on the City's FTP site as follows:

<ftp://ftp.avondale.org>

→UserName: ProcurementFTP

→Password: P7ocu7e@FTP!

→Once logged in, choose: "IFB PW 17-010_Rancho Santa Fe Reservoir"

EXHIBIT B
TO
INVITATION FOR BIDS NO. PW17-010

[Substitution/Equal Request Form]

See following pages.

SUBSTITUTION/EQUAL REQUEST FORM

Rancho Santa Fe Reservoir Modifications and Coating
PW17-010

Bidder _____ hereby submits for City's consideration the following product, instead of the specified item, for the above Project.

<u>Section</u>	<u>Page</u>	<u>Paragraph/Line</u>	<u>Specified Item</u>
_____	_____	_____	_____

Proposed Substitution: _____

(NOTE: See Article II – Bid Process; Bid Award, Section 2.4(C), Approval of Substitutions, or Section 2.4(D), Use of Equals, as applicable, for additional criteria concerning prior approval for substitutions or use equals of material and equipment.)

Attach complete product description, drawings, photographs, performance and test data, and other information necessary for evaluation, indicating by highlighting all comparable data between specified item and proposed substitution or equal. Identify specific model numbers, finishes, options, etc.

A. Will changes be required to Project design (architecturally, structurally, mechanically or electrically) in order to properly install proposed substitution? Yes ____ No ____ . If Yes, explain:

B. Will the undersigned pay for changes to the Project design, including engineering and drawing costs, caused by requested substitution? Yes ____ No ____

C. List differences between proposed substitution and specified item.

<u>Specified Item</u>	<u>Proposed Substitution</u>
_____	_____
_____	_____

D. Does substitution affect Drawing dimensions? Yes ____ No ____ If Yes, explain:

E. What effect does substitution have on other trades? _____

F. Does manufacturer's warranty of proposed substitution differ from that specified?
Yes ____ No ____ . If Yes, explain: _____

G. Will substitution affect progress schedule? Yes ____ No ____ . If Yes, explain:

H. Will substitution require more license fees or royalties than specified product?
Yes ____ No ____ . If Yes, explain: _____

I. Will maintenance and service parts be locally available for substitution?
Yes ____ No ____ . If Yes, explain: _____

J. Will substitution be compatible with all adjacent material and/or applications to or on the proposed substitution? Yes ____ No ____ . If no, explain what material substitutions will be required to make your proposed substitution compatible: _____

List materials that will be required to provide compatibility: _____

The undersigned hereby assumes all responsibility for all provisions indicated herein and agrees that, if adequate comparable information is not provided as required by Section 2.4(C), Approval of Substitutions, or Section 2.4(D), Use of Equals, as applicable, and this Form, the proposed substitution or equal shall be subject to rejection.

The undersigned understands and agrees that the substitution requested, including all supporting data, must be submitted to and be in the possession of the City 10 full calendar Days prior to the Bid Deadline, to be considered, including all supporting data for the substitution. Telegraphic (facsimile) or electronic (email) copies will not be considered.

Submitted by: _____

Signature

Print Name

Title

Company Name

Address

City, State, Zip Code

Date

Telephone No.

For City's Use Only:

Accepted: _____

Accepted: _____

By: _____ Date: _____

Remarks: _____

EXHIBIT C
TO
INVITATION FOR BIDS NO. PW17-010

[Price Sheet]

See following pages.

PRICE SHEET

Rancho Santa Fe Reservoir Modifications and Coating
PW17-010

NOTE: The items on this Price Sheet correspond to Technical Specifications Section 01450, Part 3. All pricing blanks must be filled in. Empty or unfilled spaces in the Bid Price Sheet shall result in a determination that a Bid is non-responsive.

Item No.	Description of Material and/or Services	Quantity	Unit	Unit Price	Extended Price
1.	All Work As Defined in Drawings and Specifications Complete Except Item Nos. 2 and 3 below	1	LS	\$	\$
2.	Remove and Replace 20-inch Gate Valve As Defined in Drawings and Specifications Complete	1	LS	\$	\$
3.	Furnish and Install Decomposed Granite (DG) as Defined in Drawings and Specifications Complete	1	Ton	\$	\$
4.	Contingency Item No. 1 – Remove and Replace Outer Rafter	20	Each	\$	\$
5.	Contingency Item No. 2 – Remove and Replace Inner Rafter	20	Each	\$	\$
6.	Contingency Item No. 3 – Floor Weld Plate Installation	100	Each	\$	\$
7.	Contingency Item No. 4 – 2 Man Weld Crew Hour	16	Hour	\$	\$
8.	Contingency Item No. 5 – Remove and Replace Tie Rods	40	Each	\$	\$
9.	Contingency Item No. 6 – Remove and Replace Rafter Clips	40	Each	\$	\$
10.	Contingency Item No. 7 – Dehumidification and Ventilation System	1	LS	\$	\$
TOTAL BID AMOUNT*					\$

*** ALL BIDS ARE PRESUMED TO INCLUDE ALL APPLICABLE TAXES. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL WORK CONTEMPLATED BY THE PLANS FOR THE PROJECT IS BID ON THE PRICE SHEET.**

EXHIBIT D
TO
INVITATION FOR BIDS NO. PW17-010

[Federal Requirements]

See following page.

Not applicable to this Project.

EXHIBIT E
TO
INVITATION FOR BIDS NO. PW17-010

[Licenses; DBE/WBE Status]

See following page.

LICENSES; DBE/WBE STATUS

Rancho Santa Fe Reservoir Modifications and Coating
PW17-010

Attach a copy of your Contractor's License to your bid submittal.

Attach a copy of your Business License to your bid submittal.

* Business License must be either a City of Avondale Privilege Tax Business License or an Arizona Transaction Tax (sales) Privilege Tax License

Has your firm been certified by any jurisdiction in Arizona as a minority or woman owned business enterprise? Yes_____, No_____.

If yes, please provide details and documentation of the certification.

EXHIBIT F
TO
INVITATION FOR BIDS NO. PW17-010

[References]

See following pages.

REFERENCES

Rancho Santa Fe Reservoir Modifications and Coating
PW17-010

Provide the following information for three clients for whom Bidder has successfully completed similar projects as set forth in Section 2.15 within the past 60 months. Failure to provide three accurate and suitable references will result in disqualification. Bidder may also attach another sheet with additional references.

- 1. Company: _____
Address _____
City/State/Zip Code _____
Contact: _____
Telephone Number: _____
Date of Contract Initiation: _____
Date of Contract Expiration: _____
Final Project Cost: _____
Project Description: _____

- 2. Company: _____
Address _____
City/State/Zip Code _____
Contact: _____
Telephone Number: _____
Date of Contract Initiation: _____
Date of Contract Expiration: _____
Final Project Cost: _____
Project Description: _____

- 3. Company: _____
Address _____
City/State/Zip Code _____
Contact: _____
Telephone Number: _____
Date of Contract Initiation: _____
Date of Contract Expiration: _____
Final Project Cost: _____
Project Description: _____

EXHIBIT G
TO
INVITATION FOR BIDS NO. PW17-010

[Bid Bond]

See following page.

BID BOND

Rancho Santa Fe Reservoir Modifications and Coating
PW17-010

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, _____ (hereinafter called Principal), as Principal, and _____, a corporation organized and existing under the laws of the State of _____ with its principal office in the City of _____, (hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Avondale, (hereinafter called the Obligee) in the penal sum of Ten Percent (10%) of Bid Amount, _____ (Dollars) (\$_____) lawful money of the United States of America, to be paid to the order of the City of Avondale, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents and in conformance with A.R.S. Section 34-201.

WHEREAS, the Principal has submitted a bid/proposal for:_____.

NOW, THEREFORE, if the Obligee accepts the proposal of the Principal and the Principal enters into a Contract with the Obligee in accordance with the terms of the proposal and gives the Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient surety for the faithful performance of the Contract and for the prompt payment of labor and materials furnished in the prosecution of the Contract, or in the event of the failure of the Principal to enter into the Contract and give the Bonds and Certificates of Insurance, if the Principal pays to the Obligee the difference not to exceed the penalty of the Bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by the proposal then this obligation is void. Otherwise it remains in full force and effect provided, however, that this Bond is executed pursuant to the provisions of Section 34-201, Arizona Revised Statutes, and all liabilities on this Bond shall be determined in accordance with the provisions of the section to the extent as if it were copied at length herein.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the Court.

Witness our hands this _____ day of _____ 20____.

Principal Seal

By: _____

Surety Seal

By: _____

Agency of Record

EXHIBIT H
TO
INVITATION FOR BIDS NO. PW17-010

[Key Personnel/Subcontractor Listing]

See following page.

EXHIBIT I
TO
INVITATION FOR BIDS NO. PW17-010

[Safety Plan]

See following pages.

EXHIBIT J
TO
INVITATION FOR BIDS NO. PW17-010

[Performance Bond]

See following page.

PERFORMANCE BOND

Rancho Santa Fe Reservoir Modifications and Coating
PW17-010

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, _____ (hereinafter called Principal), as Principal, and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Avondale (hereinafter called the Obligee) in the amount of _____ (Dollars) (\$_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____ 20____, for the material, service or construction described as _____ is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of the Contract during the original term of the Contract and any extension of the Contract, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and also performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications of the Contract that may hereafter be made, notice of which modifications to the surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, however, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the Court.

Witness our hands this _____ day of _____ 20____.

Principal Seal

By: _____

Surety Seal

By: _____

Agency of Record

EXHIBIT K
TO
INVITATION FOR BIDS NO. PW17-010

[Payment Bond]

See following page.

PAYMENT BOND

Rancho Santa Fe Reservoir Modifications and Coating
PW17-010

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, _____ (hereinafter called Principal), as Principal, and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Avondale (hereinafter called the Obligee) in the amount of _____ (Dollars) (\$_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____ 20____, for the material, service or construction described as _____ which Contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's Subcontractors in the prosecution of the Work provided for in the Contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, however, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if they were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as a part of the judgment reasonable attorney fees that may be fixed by a judge of the Court.

Witness our hands this _____ day of _____, 20____.

Principal Seal

By: _____

Surety Seal

By: _____

Agency of Record

EXHIBIT L
TO
INVITATION FOR BIDS NO. PW17-010

[Acknowledgments of Addenda received]

See following page(s).