



PROFESSIONAL SERVICES AGREEMENT
Design Services
AIRPORT WATER RECLAMATION FACILITY SCADA UPGRADES
Project No. WW2212.201
Council Date: July 20, 2023 **Item No.**

This Agreement ("Agreement") is made and entered into on the ____ day of _____, 2023 ("Effective Date"), by and between City of Chandler, an Arizona municipal corporation, ("City"), and **Jacobs Engineering Group, Inc.**, a Delaware corporation, ("Consultant") (City and Consultant may individually be referred to as "Party" and collectively referred to as "Parties").

RECITALS

- A. City proposes to engage Consultant to provide Design Services for **AIRPORT WATER RECLAMATION FACILITY SCADA UPGRADES** project as more fully described in **Exhibit "A"**, which is attached to and made a part of this Agreement by this reference.
- B. Consultant is ready, willing, and able to provide the services described in **Exhibit "A"** for the compensation and fees set forth and as described in **Exhibit "B"**, which is attached to and made a part of this Agreement by this reference.
- C. City desires to enter into an Agreement with Consultant to provide these services under the terms and conditions set forth in this Agreement.

AGREEMENT

NOW, THEREFORE, in consideration of the premises and the mutual promises contained in this Agreement, City and Consultant agree as follows:

SECTION I--CONSULTANT'S SERVICES

Consultant must perform the services described in **Exhibit "A"** to City's satisfaction within the terms and conditions of this Agreement and within the care and skill that a person who provides similar services in Chandler, Arizona exercises under similar conditions. All work or services furnished by Consultant under this Agreement must be performed in a skilled and workmanlike manner. All fixtures, furnishings, and equipment furnished by Consultant as part of the work or services under this Agreement must be new, or the latest model, and of the most suitable grade and quality for the intended purpose of the work or service.

SECTION II--PERIOD OF SERVICE

Consultant must perform the services described in **Exhibit "A"** for the term of this Agreement. Unless amended in writing by the Parties, the Agreement term expires **706** calendar days after the Notice to Proceed (NTP) Date.

SECTION III--PAYMENT OF COMPENSATION AND FEES

Unless amended in writing by the Parties, Consultant's compensation and fees as more fully described in **Exhibit "B"** for performance of the services approved and accepted by City under this Agreement must not exceed **\$4,048,073** for the full term of the Agreement. Consultant may not increase any compensation or fees under this Agreement without the City's prior written consent. Consultant must submit monthly requests for payment of services approved and accepted during the previous billing period and must include, as applicable, detailed invoices and receipts, a narrative description of the tasks accomplished during the billing period, a list of any deliverables submitted, and any subconsultant's or supplier's actual requests for payment plus similar narrative and listing of their work. Consultant must submit an Application and Certification for Payment Sheet with the monthly request for payment to: CapitalProjects.Payables@chandleraz.gov. Payment for those services negotiated as a lump sum will be made in accordance with the percentage of the work completed during the preceding billing period. Services negotiated as a not-to-exceed fee will be paid in accordance with the work effort expended on the service during the preceding month. All requests for payment must be submitted to City for review and approval. City will make payment for approved and accepted services within 30 calendar days of City's receipt of the request for payment. Consultant bears all responsibility and liability for any and all tax obligations that result from Consultant's performance under this Agreement.

SECTION IV--CITY'S OBLIGATIONS

As part of Consultant's services under this Agreement, City will provide furnished items, services, or obligations as detailed in **Exhibit "D"**.

SECTION V--GENERAL CONDITIONS

5.1 Notices. Unless otherwise provided herein, demands under this Agreement must be in writing and will be deemed to have been duly given and received either (a) on the date of service if personally served on the party to whom notice is to be given, or (b) on the third day after the date of the postmark of deposit by first class United States mail, registered or certified, postage prepaid and properly addressed as follows:

To City:	City of Chandler - Public Works & Utilities Department Attn: CIP City Engineer: Kimberly Moon, P.E. P.O. Box 4008, Mail Stop 407 Chandler, AZ 85244-4008 Phone: 480-782-3349 Email: kimberly.moon@chandleraz.gov																							
With a copy to:	City of Chandler - Public Works & Utilities Department Attn: Sandy Story, Project Manager P.O. Box 4008, Mail Stop 407, Chandler, AZ 85244-4008 Phone: 480-782-3588 Email: Sandra.story@chandleraz.gov																							
To Consultant:	<table border="1"> <tr> <td>LEGAL COMPANY NAME:</td><td>Jacobs Engineering Group Inc.</td></tr> <tr> <td>Mailing Address:</td><td>1501 W. Fountainhead Pkwy, Ste 401 Tempe, AZ 85282</td></tr> <tr> <td>Physical Address:</td><td>1501 W. Fountainhead Pkwy, Ste 401 Tempe, AZ 85282</td></tr> <tr> <td>Statutory Agent Name:</td><td>C T Corporation System</td></tr> <tr> <td>Statutory Agent Mailing Address:</td><td>3800 N. Central Ave, Ste 460 Phoenix, AZ 85012</td></tr> <tr> <td>Statutory Agent Physical Address:</td><td>3800 N. Central Ave, Ste 460 Phoenix, AZ 85012</td></tr> <tr> <td colspan="2">CONSULTANT'S AUTHORIZED PROJECT REPRESENTATIVE</td></tr> <tr> <td>Name:</td><td>Roman Aguirre</td></tr> <tr> <td>Title:</td><td>Vice President</td></tr> <tr> <td>Phone:</td><td>602-402-3494</td></tr> <tr> <td>Email:</td><td>roman.aguirre@jacobs.com</td></tr> </table>		LEGAL COMPANY NAME:	Jacobs Engineering Group Inc.	Mailing Address:	1501 W. Fountainhead Pkwy, Ste 401 Tempe, AZ 85282	Physical Address:	1501 W. Fountainhead Pkwy, Ste 401 Tempe, AZ 85282	Statutory Agent Name:	C T Corporation System	Statutory Agent Mailing Address:	3800 N. Central Ave, Ste 460 Phoenix, AZ 85012	Statutory Agent Physical Address:	3800 N. Central Ave, Ste 460 Phoenix, AZ 85012	CONSULTANT'S AUTHORIZED PROJECT REPRESENTATIVE		Name:	Roman Aguirre	Title:	Vice President	Phone:	602-402-3494	Email:	roman.aguirre@jacobs.com
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5.2 Records/Audit. Records of Consultant's direct personnel payroll, reimbursable expenses pertaining to this Agreement and records of accounts between City and Consultant must be kept on the basis of generally accepted accounting principles and must be made available to City and its auditors for up to three years following City's final acceptance of the services under this Agreement (this requirement is increased to five years if construction of this project is federally funded). City, its authorized representative, or any federal agency, reserves the right to audit Consultant's records to verify the accuracy and appropriateness of all cost and pricing data, including data used to negotiate this Agreement and any amendments. City reserves the right to decrease the total amount of Agreement price or payments made under this Agreement or request reimbursement from Consultant following final Agreement payment on this Agreement if, upon audit of Consultant's records, the audit discloses Consultant has provided false, misleading, or inaccurate cost and pricing data. Consultant will include a similar provision in all of its Agreements with subconsultants who

provide services under the Agreement to ensure that City, its authorized representative, or the appropriate federal agency, has access to the subconsultants' records to verify the accuracy of all cost and pricing data. City reserves the right to decrease Agreement price or payments made on this Agreement or request reimbursement from Consultant following final payment on this Agreement if the above provision is not included in subconsultant agreements, and one or more subconsultants refuse to allow City to audit their records to verify the accuracy and appropriateness of all cost and pricing data. If, following an audit of this Agreement, the audit discloses Consultant has provided false, misleading, or inaccurate cost and pricing data, and the cost discrepancies exceed 1% of the total Agreement billings, Consultant will be liable for reimbursement of the reasonable, actual cost of the audit.

5.3 Alteration in Character of Work. Whenever an alteration in the character of work results in a substantial change in this Agreement, thereby materially increasing or decreasing the scope of services, cost of performance, or Project schedule, the work will be performed as directed by City. However, before any modified work is started, a written amendment must be approved and executed by City and Consultant. Such amendment must not be effective until approved by City. Additions to, modifications, or deletions from this Agreement as provided herein may be made, and the compensation to be paid to Consultant may accordingly be adjusted by mutual agreement of the Parties. It is distinctly understood and agreed that no claim for extra services or materials furnished by Consultant will be allowed by City except as provided herein, nor must Consultant do any work or furnish any materials not covered by this Agreement unless such work is first authorized in writing. Any such work or materials furnished by Consultant without prior written authorization will be at Consultant's own risk, cost, and expense, and Consultant hereby agrees that without written authorization Consultant will make no claim for compensation for such work or materials furnished.

5.4 Termination. City and Consultant hereby agree to the full performance of the covenants contained herein, except that City reserves the right, at its discretion and without cause, to terminate or abandon any service provided for in this Agreement, or abandon any portion of the Project for which services have been performed by Consultant. In the event City abandons or suspends the services, or any part of the services as provided in this Agreement, City will notify Consultant in writing and immediately after receiving such notice, Consultant must discontinue advancing the work specified under this Agreement. Upon such termination, abandonment, or suspension, Consultant must deliver to City all drawings, plans, specifications, special provisions, estimates and other work entirely or partially completed, together with all unused materials supplied by City. Consultant must appraise the work Consultant has completed and submit Consultant's appraisal to City for evaluation. City may inspect Consultant's work to appraise the work completed. Consultant will receive compensation in full for services performed to the date of such termination. The fee will be paid in accordance with Section III of this Agreement, and as mutually agreed upon by Consultant and City. If there is no mutual agreement on payment, the final determination will be made in accordance with the "Disputes" provision in this Agreement. However, in no event may the fee exceed the fee set forth in Section III of this Agreement nor as amended in accordance with Section "Alteration in Character of Work." City will make the final payment within 60 days after Consultant has delivered the last of the partially completed items and the Parties agree on the final fee. If City is found to have improperly terminated the Agreement for cause or default, the termination will be converted to a termination for

convenience in accordance with the provisions of this Agreement.

5.5 Indemnification. To the extent permitted by law, the Consultant ("Indemnitor") must indemnify, save and hold harmless City and its officers, officials, agents and employees ("Indemnitee") from any and all claims, actions, liabilities, damages, losses or expenses (including court costs, attorneys' fees and costs of claim processing, investigation and litigation) ("Claims") caused or alleged to be caused, in whole or in part, by the wrongful, negligent or willful acts, or errors or omissions of Consultant or any of its owners, officers, directors, agents, employees, or subconsultants in connection with this Agreement. This indemnity includes any claim or amount arising out of or recovered under workers' compensation law or on account of the failure of Consultant to conform to any federal, state or local law, statute, ordinance, rule, regulation or court decree. Consultant must indemnify Indemnitee from and against any and all Claims, except those arising solely from Indemnitee's own negligent or willful acts or omissions. Consultant is responsible for primary loss investigation, defense and judgment costs where this indemnification applies. In consideration of the award of this Agreement, Consultant agrees to waive all rights of subrogation against Indemnitee for losses arising from or related to this Agreement. The obligations of Consultant under this provision survive the termination or expiration of this Agreement.

5.6 Insurance Requirements. Consultant must procure insurance under the terms and conditions and for the amounts of coverage set forth in **Exhibit "C"** against claims that may arise from or relate to performance of the work under this Agreement by Consultant and its agents, representatives, employees, and subconsultants. Consultant and any subconsultant must maintain this insurance until all of their obligations have been discharged, including any warranty periods under this Agreement. These insurance requirements are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement. City in no way warrants that the minimum limits stated in **Exhibit "C"** are sufficient to protect Consultant from liabilities that might arise out of the performance of the work under this Agreement by Consultant, Consultant's agents, representatives, employees, or subconsultants. Consultant is free to purchase such additional insurance as may be determined necessary.

5.7 Cooperation and Further Documentation. Consultant agrees to provide City such other duly executed documents as may be reasonably requested by City to implement the intent of this Agreement.

5.8 Successors and Assigns. City and Consultant each bind itself, its partners, successors, assigns, and legal representatives to the other party to this Agreement and to the partners, successors, assigns, and legal representatives of such other party in respect to all covenants of this Agreement. Neither City nor Consultant may assign, sublet, or transfer its interest in this Agreement without the written consent of the other party. In no event may any contractual relation be created between any third party and City.

5.9 Disputes. In any dispute arising out of an interpretation of this Agreement or the duties required not disposed of by agreement between Consultant and City, the final determination at the administrative level will be made by City Engineer.

5.10 Completeness and Accuracy of Consultant's Work. Consultant must be responsible for the completeness and accuracy of Consultant's services, data, and other work prepared or compiled under Consultant's obligation under this Agreement and must correct, at Consultant's expense, all willful or negligent errors, omissions, or acts that may be discovered. Correction of errors disclosed and determined to exist during any construction of the project on architectural or engineering drawings and specifications must be accomplished by Consultant. The cost of the design necessary to correct those errors attributable to Consultant and any damage incurred by City as a result of additional construction costs caused by such engineering or architectural errors will be chargeable to Consultant and will not be considered a cost of the Work. The fact that City has accepted or approved Consultant's work will in no way relieve Consultant of any of Consultant's responsibilities.

5.11 Reporting. Written monthly reports, along with updated work schedules, will be made by Consultant in the format prescribed by City. These reports will be delivered to City per schedule. When requested by City, Consultant will attend Council meetings and provide finished documents including correspondence for Council action, supporting charts, graphs, drawings and colored slides of same.

5.12 Withholding Payment. City reserves the right to withhold funds from Consultant's payments up to the amount equal to the claims City may have against Consultant until such time that a settlement on those claims has been reached.

5.13 City's Right of Cancellation. The Parties acknowledge that this Agreement is subject to cancellation by City under the provisions of Section 38-511, Arizona Revised Statutes (A.R.S.).

5.14 Independent Consultant. For this Agreement Consultant constitutes an independent contractor. Any provisions in this Agreement that may appear to give City the right to direct Consultant as to the details of accomplishing the work or to exercise a measure of control over the work means that Consultant must follow the wishes of City as to the results of the work only. These results must comply with all applicable laws and ordinances.

5.15 Project Staffing. Prior to the start of any work under this Agreement, Consultant must submit to City detailed resumes of key personnel that will be involved in performing services prescribed in the Agreement. City hereby acknowledges its acceptance of such personnel to perform services under this Agreement. At any time hereafter that Consultant desires to change key personnel while performing under the Agreement, Consultant must submit the qualifications of the new personnel to City for prior approval. Key personnel include, but are not limited to, principals-in-charge, project manager, and project Consultant. Consultant will maintain an adequate and competent staff of qualified persons, as may be determined by City, throughout the performance of this Agreement to ensure acceptable and timely completion of the Scope of Services. If City objects, with reasonable cause, to any of Consultant's staff, Consultant must take prompt corrective action acceptable to City and, if required, remove such personnel from the Project and replace with new personnel agreed to by City.

5.16 Consultants or Subconsultants. Prior to beginning the work, Consultant must furnish City for approval the names of consultants or subconsultants to be used under this Agreement. Any subsequent changes are subject to City's written prior approval.

5.17 Force Majeure. If either party is delayed or prevented from the performance of any act required under this Agreement by reason of acts of God or other cause beyond the control and without fault of the Party (financial inability excepted), performance of that act may be excused, but only for the period of the delay, if the Party provides written notice to the other Party within ten days of such act. The time for performance of the act may be extended for a period equivalent to the period of delay from the date written notice is received by the other Party.

5.18 Compliance with Federal Laws. Consultant understands and acknowledges the applicability of the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989 to it. Consultant agrees to comply with these laws in performing this Agreement and to permit City to verify such compliance.

5.19 No Israel Boycott. By entering into this Agreement, Consultant certifies that Consultant is not currently engaged in, and agrees for the duration of the Agreement, not to engage in a boycott of Israel as defined by state statute.

5.20 Legal Worker Requirements. A.R.S. § 41-4401 prohibits City from awarding an Agreement to any consultant who fails, or whose subconsultants fail, to comply with A.R.S. § 23-214(A). Therefore, Consultant agrees Consultant and each subconsultant it uses warrants their compliance with all federal immigration laws and regulations that relate to their employees and their compliance with § 23-214, subsection A. A breach of this warranty will be deemed a material breach of the Agreement and may be subject to penalties up to and including termination of the Agreement. City retains the legal right to inspect the papers of any Consultant's or subconsultant's employee who provides services under this Agreement to ensure that Consultant and subconsultants comply with the warranty under this provision.

5.21 Lawful Presence Requirement. A.R.S. §§ 1-501 and 1-502 prohibit City from awarding an Agreement to any natural person who cannot establish that such person is lawfully present in the United States. To establish lawful presence, a person must produce qualifying identification and sign a City-provided affidavit affirming that the identification provided is genuine. This requirement will be imposed at the time of Agreement award. This requirement does not apply to business organizations such as corporations, partnerships, or limited liability companies.

5.22 Covenant Against Contingent Fees. Consultant warrants that no person has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, and that no member of the Chandler City Council, or any City employee has any interest, financially, or otherwise, in Consultant's firm. For breach or violation of this warrant, City may annul this Agreement without liability or, at its discretion, to deduct from the Agreement price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

5.23 Non-Waiver Provision. The failure of either Party to enforce any of the provisions of this Agreement or to require performance of the other Party of any of the provisions hereof must not be construed to be a waiver of such provisions, nor must it affect the validity of this Agreement or any part thereof, or the right of either Party to thereafter enforce each and

every provision.

5.24 Disclosure of Information Adverse to City's Interests. To evaluate and avoid potential conflicts of interest, Consultant must provide written notice to City, as set forth in this Section, of any work or services performed by Consultant for third parties that may involve or be associated with any real property or personal property owned or leased by City. Such notice must be given 7 business days prior to commencement of the services by Consultant for a third party, or 7 business days prior to an adverse action as defined below. Written notice and disclosure must be sent in accordance with Section 6.7 above. An adverse action under this Agreement includes, but is not limited to: (a) using data as defined in the Agreement acquired in connection with this Agreement to assist a third party in pursuing administrative or judicial action against City; or (b) testifying or providing evidence on behalf of any person in connection with an administrative or judicial action against City; or (c) using data to produce income for Consultant or its employees independently of performing the services under this Agreement, without the prior written consent of City. Consultant represents that except for those persons, entities, and projects identified to City, the services performed by Consultant under this Agreement are not expected to create an interest with any person, entity, or third party project that is or may be adverse to City's interests. Consultant's failure to provide a written notice and disclosure of the information as set forth in this Section constitute a material breach of this Agreement.

5.25 Data Confidentiality and Data Security. As used in the Agreement, "data" means all information, whether written or verbal, including plans, photographs, studies, investigations, audits, analyses, samples, reports, calculations, internal memos, meeting minutes, data field notes, work product, proposals, correspondence and any other similar documents or information prepared by, obtained by, or transmitted to Consultant or its subconsultants in the performance of this Agreement. The Parties agree that all data, regardless of form, including originals, images, and reproductions, prepared by, obtained by, or transmitted to Consultant or its subconsultants in connection with Consultant's or its subconsultant's performance of this Agreement is confidential and proprietary information belonging to City. Except as specifically provided in this Agreement, Consultant or its subconsultants must not divulge data to any third party without City's prior written consent. Consultant or its subconsultants must not use the data for any purposes except to perform the services required under this Agreement. These prohibitions do not apply to the following data provided to Consultant or its subconsultants have first given the required notice to City: (a) data which was known to Consultant or its subconsultants prior to its performance under this Consultant or its subconsultants by a third party, who to the best of Consultant's or its subconsultants' knowledge and belief, had the legal right to make such disclosure and Consultant or its subconsultants are not otherwise required to hold such data in confidence; or (c) data which is required to be disclosed by virtue of law, regulation, or court order, to which Consultant or its subconsultants are subject. In the event Consultant or its subconsultants are required or requested to disclose data to a third party, or any other information to which Consultant or its subconsultants became privy as a result of any other Agreement with City, Consultant must first notify City as set forth in this Section of the request or demand for the data. Consultant or its subconsultants must give City sufficient facts so that City can be given an opportunity to first give its consent or take such action that City may deem appropriate to protect such data or other information from disclosure. All data must continue to be subject to the confidentiality agreements of this Agreement. Consultant or its

subconsultants assume all liability to maintain the confidentiality of the data in its possession and agrees to compensate City if any of the provisions of this Section are violated by Consultant, its employees, agents or subconsultants. Solely for the purposes of seeking injunctive relief, it is agreed that a breach of this Section must be deemed to cause irreparable harm that justifies injunctive relief in court. Consultant agrees that the requirements of this Section must be incorporated into all subagreements entered into by Consultant. A violation of this Section may result in immediate termination of this Agreement without notice.

5.26 Personal Identifying Information-Data Security. Personal identifying information, financial account information, or restricted City information, whether electronic format or hard copy, must be secured and protected at all times by Consultant or its subconsultants. At a minimum, Consultant or its subconsultants must encrypt or password-protect electronic files. This includes data saved to laptop computers, computerized devices, or removable storage devices. When personal identifying information, financial account information, or restricted City information, regardless of its format, is no longer necessary, the information must be redacted or destroyed through appropriate and secure methods that ensure the information cannot be viewed, accessed, or reconstructed. In the event that data collected or obtained by Consultant or its subconsultants in connection with this Agreement is believed to have been compromised, Consultant or its subconsultants must immediately notify City contact. Consultant agrees to reimburse City for any costs incurred by City to investigate potential breaches of this data and, where applicable, the cost of notifying individuals who may be impacted by the breach. Consultant agrees that the requirements of this Section must be incorporated into all subcontracts entered into by Consultant. It is further agreed that a violation of this Section must be deemed to cause irreparable harm that justifies injunctive relief in court. A violation of this Section may result in immediate termination of this Agreement without notice. The obligations of Consultant or its subconsultants under this Section must survive the termination of this Agreement.

5.27 Jurisdiction and Venue. This Agreement is made under and must be construed in accordance with and governed by the laws of the State of Arizona without regard to the conflicts or choice of law provisions thereof. Any action to enforce any provision of this Agreement or to obtain any remedy with respect hereto must be brought in the courts located in Maricopa County, Arizona, and for this purpose, each Party hereby expressly and irrevocably consents to the jurisdiction and venue of such court.

5.28 Survival. All warranties, representations, and indemnifications by Consultant must survive the completion or termination of this Agreement.

5.29 Modification. Except as expressly provided herein to the contrary, no supplement, modification, or amendment of any term of this Agreement will be deemed binding or effective unless in writing and signed by the Parties.

5.30 Severability. If any provision of this Agreement or the application to any person or circumstance may be invalid, illegal or unenforceable to any extent, the remainder of this Agreement and the application will not be affected and will be enforceable to the fullest extent permitted by law.

5.31 Integration. This Agreement contains the full agreement of the Parties. Any prior or

contemporaneous written or oral agreement between the Parties regarding the subject matter is merged and superseded.

5.32 Time is of the Essence. Time of each of the terms, covenants, and conditions of this Agreement is hereby expressly made of the essence.

5.33 Date of Performance. If the date of performance of any obligation or the last day of any time period provided for should fall on a Saturday, Sunday, or holiday for City, the obligation will be due and owing, and the time period will expire, on the first day after which is not a Saturday, Sunday or legal City holiday. Except as may otherwise be set forth in this Agreement, any performance provided for herein will be timely made if completed no later than 5:00 p.m. (Chandler time) on the day of performance.

5.34 Third Party Beneficiary. Nothing under this Agreement will be construed to give any rights or benefits in the Agreement to anyone other than City and Consultant, and all duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of City and Consultant and not for the benefit of any other party.

5.35 Conflict in Language. All work performed must conform to all applicable City of Chandler codes, ordinances, and requirements as outlined in this Agreement. If there is a conflict in interpretation between provisions in this Agreement and those in **Exhibit "A"**, the provisions in this Agreement prevail.

5.36 Document/Information Release. Documents and materials released to Consultant, which are identified by City as sensitive and confidential, are City's property. The document/material must be issued by and returned to City upon completion of the services under this Agreement. Consultant secondary distribution, disclosure, copying, or duplication in any manner is prohibited without City's prior written approval. The document/material must be kept secure at all times. This directive applies to all City documents, whether in photographic, printed, or electronic data format.

5.37 Exhibits. The following exhibits are made a part of this Agreement and are incorporated by reference:

- Exhibit A** - Scope of Services / Schedule
- Exhibit B** - Compensation and Fees
- Exhibit C** - Insurance Requirements
- Exhibit D** - Special Conditions
- Exhibit E** - Subconsultant Documents (if applicable)
- Exhibit F** - Federal Requirements (if applicable)

5.38 Special Conditions. As part of the services Consultant provides under this Agreement, Consultant agrees to comply with and fully perform the special terms and conditions set forth in **Exhibit "D"**, which is attached to and made a part of this Agreement.

5.39 Non-Discrimination and Anti-Harassment Laws. Consultant must comply with all applicable City, state, and federal non-discrimination and anti-harassment laws, rules, and regulations.

5.40 Licenses and Permits. Beginning with the Effective Date and for the full term of this Agreement, Consultant must maintain all applicable City, state, and federal licenses and permits required to fully perform Consultant's services under this Agreement.

5.41 Warranties. Consultant must furnish a one-year warranty on all work and services performed under this Agreement. Consultant must furnish, or cause to be furnished, a two-year warranty on all fixtures, furnishings, and equipment furnished by Consultant, subconsultants or suppliers under this Agreement. Any defects in design, workmanship, or materials that do not comply with this Agreement must be corrected by Consultant (including, but not limited to, all parts and labor) at Consultant's sole cost and expense. All written warranties and redlines for as-built conditions must be delivered to City on or before City's final acceptance of Consultant's services under this Agreement.

5.42 Cooperative Purchasing Agreement (S.A.V.E. – Strategic Alliance for Volume Expenditures). In addition to City of Chandler and with the approval of Consultant, this Agreement may be extended for use by other municipalities, school districts, and government agencies of the State. Any such usage by other entities must be in accordance with the ordinance, charter, or procurement rules and regulations of the respective political entity.

5.43 Budget Approval into Next Fiscal Year. This Agreement will commence on the Effective Date and continue in full force and effect until it is terminated or expires in accordance with the provisions of this Agreement. The Parties recognize that the continuation of this Agreement after the close of the City's fiscal year, which ends on June 30 of each year, is subject to the City Council's approval of a budget that includes an appropriation for this item as an expenditure. The City does not represent that this budget item will be actually adopted. This determination is solely made by the City Council.

5.44 Forced Labor of Ethnic Uyghurs Prohibited. By entering into this Agreement, Contractor certifies and agrees Contractor does not currently use and will not use for the term of this Agreement: (i) the forced labor of ethnic Uyghurs in the People's Republic of China; or (ii) any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; or (iii) any contractors, subcontractors or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China.

5.45 License to City for Reasonable Use. With this Agreement, Consultant and its subconsultants hereby grant a license to City, its agents, employees, and representatives for an indefinite period of time to reasonably use, make copies, and distribute as appropriate the Documents, works or deliverables developed or created as a result of the Project and this Agreement. This license also includes the making of derivative works.

This Agreement will be in full force and effect only when it has been approved and executed by the duly authorized City officials.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

"CITY" CITY OF CHANDLER

"CONSULTANT"

Jacobs Engineering Group, Inc.,



June 26, 2023

MAYOR

Signature

Date

RECOMMENDED BY:

Roman Aguirre

Name

Vice President

Kimberly Moon, P.E.
CIP City Engineer

Title

roman.aguirre@jacobs.com

Signer Email Address

APPROVED AS TO FORM:

City Attorney



ATTEST:

City Clerk

Seal

EXHIBIT "A"
SCOPE OF SERVICES/SCHEDULE



CHANDLER Airport Water Reclamation Facility (AWRF)

SCADA UPGRADES

Scope of Work

June 22, 2023

Project Understanding and Background

The Airport Water Reclamation Facility (AWRF), located at 905 E. Queen Creek Road, was put into service in 1998. The facility operates and controls three sites: the AWRF, the Pecos Surface Water Treatment Plant and the Ocotillo Water Reclamation Facility. Presently, AWRF utilizes three different Supervisory Control and Data Acquisition (SCADA) graphical software packages (Foxboro, iFix, and Wonderware) to monitor and control these onsite and offsite facilities. The City of Chandler's (City) SCADA system requires reliable, robust and efficient communication and operational connection between these sites and other critical facilities and remote sites. SCADA also captures numerous data points for system analysis and regulatory reporting. A SCADA Master Plan was completed for the City in October 2019 as a practical documentation that provides the City with standard and governance documents for water and wastewater facilities communication. This scope of work is for design services to modify and upgrade existing SCADA systems for these locations to Aveva Wonderware platform, and may also include construction management, programming, commissioning and/or other types of related professional services.

AWRF SCADA Upgrade project will modernize and improve the City's existing system and will include upgrades to legacy hardware and software. The project will replace the existing Foxboro I/A Distributed Control System (DCS), GE iFix human machine interface (HMI) and upgrade the existing Wonderware application with Modicon programmable logic controllers (PLCs) and Aveva Wonderware platform. This effort will entail hardware replacement, upgrades to operational technology (OT) (i.e. the systems that control and monitor treatment plant functions), and possible replacement of other obsolete equipment, such as power supplies. The project will include procurement and installation of new virtual machine servers, software packages, Win911 applications with cellular modem and domain servers, and creation of new PLC code and SCADA software screens. No treatment process upgrades are contemplated. The project is anticipated to use a Construction Manager at Risk (CMAR) delivery approach, however, this delivery method still needs to be confirmed, and is expected to be completed on a fixed budget and schedule.

This document describes the scope of work for services to be provided by Jacobs Engineers (ENGINEER) for the City of Chandler (OWNER) for the SCADA Upgrade Project at AWRF. The SCADA services will allow the City to meet its top priorities, including:

1. Migrating from the Foxboro system to the Modicon/Wonderware system at AWRF to prepare for a utility-wide conversion.
2. Updating the control descriptions and HMI programming at the AWRF to be consistent with current desired operations.
3. Adding functionality for process control and collection of operations information throughout the AWRF.
4. Assessing the communications interface at the remote sites with the new Modicon/Wonderware system and upgrading equipment as required for seamless service.
5. Developing more detailed standards for SCADA software and HMI screens for utility with AWRF based on the City SCADA Governance documents, setting the example for the other utility facilities.

The goal is to complete the SCADA upgrade work at AWRF to set the standard for upgrades planned at other OWNER facilities as the utility migrates to the Modicon/Wonderware platform utility-wide and phases out the Foxboro system and other legacy systems. The work will be performed in the following phases:

- Phase 1– Preliminary Design
- Phase 2 – Detailed Design
- Phase 3 – Phased Implementation and Commissioning (not included in this scope of work / to be added by amendment)
- Phase 4 – Project Management

General Assumptions

The following general assumptions are applicable to all tasks:

- i. Budgets will be managed at the Phase and Main Task level. Jacobs will track task budget overruns and underruns and will re-allocate funds as needed within the overall project budget. Any scope changes will be accommodated within the overall project budget to the extent possible; Jacobs will inform the City on any changes that may require additional funds via allowances or a change order.
- ii. To facilitate rapid distribution of information, deliverables will be furnished electronically wherever possible. Unless otherwise indicated, final deliverables will be provided as native electronic files (Microsoft Word®, Microsoft Excel®, Microsoft Access®, and AutoCAD® as appropriate). Reproduction of any additional required copies shall be performed by the OWNER.
- iii. The ENGINEER will use a project site as a repository for all electronic deliverables to be shared with the OWNER via file transfer protocol (FTP), SharePoint, or Microsoft® Teams.
- iv. The Project Manager and/or Design Manager will attend all workshops. Subject matter experts (SMEs) and discipline staff will attend as appropriate for the specific topic.
- v. Interactive workshops will be used to gather information, guide development, and to review draft work products on these products. Workshops will be conducted at City of Chandler's facilities or remotely. Travel for workshops is estimated in the expenses estimate provided with the LOE attached.
- vi. The OWNER will conduct the scheduling and coordination of necessary participants of City staff as well as contract operations staff necessary to have efficient meetings and workshops. The OWNER's Project Manager will coordinate with City's staff to ensure optimal participation at workshops and meetings.
- vii. Unless otherwise noted, where draft work products are delivered to the OWNER, review comments will be furnished to the ENGINEER within 10 working days of receipt of the work product. Comments will be incorporated into the final documents and issued to the OWNER's staff within 10 business days of receiving comments.
- viii. When the OWNER reviews an ENGINEER work product, comments shall be provided as a single electronic file. Prior to furnishing to ENGINEER, the OWNER shall screen and adjudicate all review comments to remove redundant or conflicting comments, or comments that are contrary to the direction of the OWNER's Project Manager..
- ix. The OWNER has not yet confirmed use of CMAR delivery. However, if CMAR delivery is used the OWNER will contract directly with a CMAR contractor and will coordinate with the contractor on their involvement on the project, including but not limited to participation in workshops and meetings, and review of ENGINEER work products in parallel to OWNER reviews. If CMAR delivery is used, the selected CMAR contractor is anticipated to start engaging on the project during the detailed design phase.
- x. The OWNER will provide access to facilities and will assist the ENGINEER with any necessary entry permits, scheduling, notification, and other requirements to gain access to perform work as outlined below.
- xi. No assessments, design, or implementation of radio equipment upgrades will be performed.
- xii. No work is included for wastewater remote facilities.
- xiii. Design for relocation of the network and server room is not included. If desired by the OWNER, this work will be performed in-house by the City staff or under a separate project.
- xiv. No life safety improvements (fire alarm) are required in existing facilities due to this work.
- xv. No physical security systems such as cameras, card swipes, and door actuators are required in existing facilities due to this work.

- xvi. No new end devices such as instrumentation, variable frequency drives (VFDs), motor control centers (MCCs), and valve actuators are required in existing facilities due to this work. All work that will accommodate these types of devices will be for devices that are already existing at the facilities. If a new end device is requested by the OWNER, a formal notification by the OWNER's Project Manager will be required and the fee for this additional work will come from an allowance.
- xvii. The design costs are based on the plant SCADA system requiring approximately 4000 input/output (I/O), which will require up to 700 design drawings including 500 I/O drawings (assuming 8 I/O points per drawing) plus additional 200 miscellaneous drawings required to convey the work to the CMAR and document the installation. This includes the I/O from the existing systems on the Foxboro SCADA (@3,041 I/O points within 19 Foxboro DCS cabinets) and from the existing Wonderware application (@900 I/O points). The 19 Foxboro DCS cabinets that are being redesigned are the following:

Name	Description of process Area	Name	Description of process Area
I/O HW	Odor Control	I/O RW	Filter Backwash
I/O HW2	Headworks Building	I/O AB	Pre-stage Basin 1 Odor control
I/O SC	RAS/WAS Pump Station 2	I/O AB2	Pre-stage Basin 2 Odor control
I/O RW1	Raw Water	I/O BLR	RAS WAS
I/O ADM	Rapid Mix and flocculators	I/O BLR2	
I/O ADM2	Sodium Hypochrite	I/O FCP 1/2	Non-Potable Filters 1&2
I/O EP	EPS Electrical Enclosure	I/O FCP 3/4	Non-Potable Filters 3&4
I/O TF	Blowers	I/O FCP 5/6	Non-Potable Filters 5&6
I/O DW	Belt Fiter Presses	I/O FCP 7/8	Non-Potable Filters 7&8
I/O DW2	Belt Fiter Presses 5/6		

- xviii. No vendor panels or local control panels are included in the design.
- xix. Project costs for for travel, customary reimbursables and software development licenses needed for design are included in the expenses.
- xx. The work is estimated for Phases 1, 2, and 4, only. Phase 3 - Phased Implementation and Commissioning scope and fee will be estimated during detailed design and will be added to the project under a separate contract for construction management services Project Management is estimated only through detailed design and additional effort will be included in the Phase 3 fee..
- xxi. The ENGINEER anticipates Phases 1, 2, and 4 to be completed by July 31, 2025 assuming NTP on or before August 1, 2023, as indicated in the project schedule attached (total duration of 24 months). Phase 3 will be added by amendment and the remaining completion schedule will be determined during design. A more detailed overall project delivery schedule will be developed, working together with the City's personnel, after award of contract as part of the Project Execution Plan and will be updated at key milestones in the project.

1. Phase 1: Preliminary Design

Phase 1 includes conducting a thorough and transparent discovery to best define the work and potential issues for the new SCADA system migration, including software/programming philosophies, communications integrity and security concerns with the existing system.

The scope of work for SCADA Phase 1 includes the following main tasks:

	Phase 1: Preliminary Design
1.1	Existing Documentation Review
1.2	Site Assessments and Evaluation
1.3	Interviews
1.4	Project Definition Validation Summary Workshop
1.5	Consolidate As-Built P&IDs
1.6	Design Drawing and Specification Lists
1.7	Develop Conceptual Network Design
1.8	Preliminary Design Report
1.9	SCADA System Security Workshop
1.10	Technology Trend Workshop
1.11	SCADA HMI Standards and Requirements Briefing/Update

1.1 Existing Documentation Review

The purpose of this task is to document the existing SCADA system and control components from the supervisory control network down to the remote site PLCs to enhance understanding of the OWNERS' existing systems. This initial task inventories the existing SCADA network and equipment, servers and client workstations, SCADA software, communication networks, and remote site controllers (PLCs and/or RTUs). This includes a summary of all major SCADA and communications equipment by type, location, and condition.

During or after the visit, the ENGINEER will debrief Operations, Maintenance, and Engineering Staff to document any relevant knowledge regarding the current condition, configuration, functionality, and adequacy of the existing control systems.

Execution of this task includes:

- Gather Information
 - a) Identify Information Sources.
 - i) Identify documentation required for review.
 - ii) Network Diagrams.
 - iii) Block Diagrams.
 - iv) IP Addressing Information.
 - v) Asset Information.
 - vi) Configuration Information (Hardware/Software, Firmware Versions).
 - vii) Software List (e.g., Security, Management, Monitoring).
 - viii) Physical Network Diagrams.
 - ix) I/O list.
 - x) Service contracts.
 - xi) Vendor/Equipment POC List.
 - xii) Circuit Information.
 - b) Evaluate information accuracy, age, and identify gaps.

- c) Develop plan to obtain missing or required information.
 - d) Prepare "Jacobs Omni" forms for data field collection.
 - e) Review OWNER'S most recent version of the SCADA master plan.
 - f) Studies.
 - g) Specifications.
 - h) SCADA system maintenance and operational procedures.
 - i) Business integration architecture.
 - j) Programming standards.
 - k) Alarm management standards.
 - l) Historian standards.
 - m) Document management procedures.
 - n) Identify capital projects impacting AWRF WTP and the control system at AWRF (current and future).
- Perform Site Visits
 - a) Identify Sites and schedule for site visits.
 - b) Document all control system assets at AWRF.

1.1.1 Deliverables

System listing in Microsoft Excel format that will include the following information:

- a) System Name.
- b) System Description including Software, Controllers.
- c) Current State of Functionality, condition, and adequacy.
- d) Vulnerabilities, including both causal and any mitigating factors found.
- e) Network connectivity, bandwidth, and hardware.
- f) Relevant Unique Features and Details.
- g) Key Contacts for the System (e.g., Plant, Station).

1.2 Site Assessments and Evaluation

The ENGINEER will conduct system assessments for AWRF to enhance understanding of the OWNERS' existing systems: computers, controllers, software, equipment, communications networks, and security provisions.

During or after the visit, the ENGINEER will debrief the wastewater Operations, Maintenance, and Engineering Staff to document any relevant knowledge regarding the current condition, configuration, functionality and adequacy of the existing plant and remote control systems.

1.2.1 Deliverables

- Draft and Final Site Assessment.

1.3 Interviews

Informal interviews during site assessments will provide insight into desired functionality, existing SCADA system idiosyncrasies, history, procedures, and improvement ideas. Formal interviews will also be conducted with functional groups to understand, interactions with other groups, roles and responsibilities, potential improvements, and functional requirements.

1.3.1 Deliverables

- Draft and Final Site Assessment.

1.4 Project Definition Validation Summary Workshop

ENGINEER will conduct a series of workshops with management, operations, Information Technology (IT), and engineering during project definition. These workshops will be designed to build consensus within the City stakeholders on priorities and recommended approaches and strategies for the SCADA Upgrade. Workshops include:

- Approaches for cutting-over the new SCADA system. Topics will include the following:
 - Requirement for a temporary network infrastructure to keep the plant functional.
 - The sequence for cutting over the new SCADA system.
 - The effects to outside agencies.
- Review of procurement strategies for networking and SCADA equipment.
- Identification of additional end devices requested by staff that will be included with the design (see allowances).
- Identification of equipment that will be operated and monitored remotely that is not tied into the existing SCADA system (see allowances).

1.4.1 Assumptions

- Two 2-hour workshops.

1.4.2 Deliverables

- Workshop summary materials and notes.

1.5 Consolidate As-Built P&IDs

In the process of reviewing and collecting existing documentation, ENGINEER will begin collecting all P&IDs that have been used on past projects and begin to assemble a complete P&ID set. This new P&ID set will become the foundation for the design and the new SCADA system implementation. ENGINEER will continue to work with the City's Business System's staff to follow the same P&ID sheet numbering and naming conventions as well as retagging assets to follow the new asset tagging syntax developed by the City

1.5.1 Assumptions

- City will supply all P&IDs that have been used on previous and current projects.

1.5.2 Deliverables

- Complete and current P&ID set

1.6 Design Drawing and Specification Lists

A list of anticipated drawings that will be needed by the time the project reaches 100% complete and a list of technical specifications anticipated to be needed for construction will be generated. Jacobs will review the City's General Conditions and Construction Contract and providing specifications that will work with those documents. The format of the documents will match the standard format for the City specifications, which is the latest version of the CSI specifications.

1.6.1 Deliverables

- Draft and Final Design Drawing List.
- Draft and Final Specifications List.

1.7 Develop Conceptual Network Design

ENGINEER will develop a conceptual SCADA system network architecture to meet the requirements defined by the OWNER'S standards utilizing the latest proven technology. Design will be presented and reviewed at a workshop. To achieve a uniform, fully integrated enterprise-wide SCADA system we employ the following guiding principles:

- Provide a system that is simple to operate and maintain.
- Achieve network infrastructure redundancy and security for high availability.
- Provide O&M staff with visual context for understanding and interpreting data.
- Confirm the new system is fully validated and operational before taking the existing system offline.

The following elements will be considered for the network design:

- Plant to remote site and in-plant communications system architecture.
- Radio communications architecture.
- Assessment of long-term viability of various frequency bandwidths and technologies.
- Reliability, redundancy and configuration assessment, including failure mode analysis and responsiveness criteria.
- Alternative analysis of long-term communications system
- Cyber Security.

1.7.1 Assumptions

- Conceptual schematic drawings in Visio will be developed to convey the design. No specs will be developed at this point

1.7.2 Deliverables

- Draft and Final Conceptual Network Design

1.8 Preliminary Design Report

The above-mentioned design elements, Phase 1 workshop meeting minutes, decisions, and technical assessments and memorandums will be captured in a unified Preliminary Design Report (PDR). This document will be largely based off of the PDR developed for the Pecos WTP SCADA Upgrade project and summarize and memorialize all design decisions and directions for the team and for the City and will be the cornerstone of the remaining design phases/tasks. The PDR will also incorporate the following:

- A discussion of the overall construction phasing and staging plan for each portion of the work.
- Product literature of major components or equipment being proposed.
- List of proposed specifications.
- Preliminary drawing list.
- Design criteria to be used in the development of the design documents.
- Preliminary construction cost opinion.
- Preliminary estimate of construction schedule.

- Identification of allowable outage durations, timing, required advanced notice, and primary and secondary OWNER's point of contact. These constraints will be added to the contractual construction documents as a Special Provision.

Before submitting the report to the OWNER, the ENGINEER will perform a comprehensive QA/QC review of this document. ENGINEER will incorporate OWNER'S comments before finalizing and issuing the final PDR.

ENGINEER will conduct a workshop to review the draft PDR with the City. Documentation of meetings with the City and a summary decision log made during the meetings will be provided with the final report.

1.8.1 Deliverables

- Draft and Final PDR

1.9 SCADA System Security Workshop

ENGINEER will review the City's water SCADA system and compare it to industry cybersecurity best practice and guides, such as NIST SP 800-82, ANSI/ISA 62443, and AWWA G430. A "Defense in Depth" strategy will be employed to maximize the security posture against current threats and develop an overall security posture and planning for the SCADA improvements. Technical items that will be reviewed in the workshop include:

- Redundancy.
- Backup and disaster recovery.
- Asset management.
- Network and system security.
- Logging and monitoring.
- Least privilege access.
- System life cycle.
- Secure procurement.
- Data protection.
- Change management.

We will evaluate and document connectivity and network transports in identified LANs and the overall WAN. Any gaps in those areas will be documented for consideration.

1.9.1 Assumptions

- One 4-hour workshop.
- OWNER will provide access to system as required to perform the assessment.

1.9.2 Deliverables

- Draft and Final Cyber Security Assessment.

1.10 Technology Trend Workshop

There are many SCADA system guidelines and industry trends for optimizing operations. Technology trend workshops will introduce various functionalities and features that AWRf may want to explore and include in the SCADA system functional requirements like Advance Physical Layer (APL), operator mobility, innovative tools, energy management dashboards, high performance graphics, dynamic simulation models connected to the SCADA system to resolve process issues, or alarm management per ISA 18.2.

The purpose of this task is to make sure the team is aware of these technology trends, technology capabilities, technology research, and innovations that may apply to AWRf's SCADA system. A key element of this task is

engagement by industry experts, representing companies with products or services that may meet AWRF's current or future needs. These individuals would discuss or demonstrate technologies or innovations under development.

A workshop conducted as part of this task would be a key collaboration and engagement opportunity.

This task includes the following work activities:

- Work closely with AWRF Staff to document the objectives of the session.
- Schedule and facilitate one 4-8 hour workshop, and possibly additional times for industry presentations and/or demonstrations.
- Prepare advance materials, including workshop agenda, for distribution to attendees.
- Prepare draft and final meeting summary.
- Identify, invite, and coordinate with industry experts.

1.10.1 Deliverables

- Advanced materials.
- Draft and final meeting summary.

1.11 SCADA HMI Standards and Requirements Briefing/Update

The ENGINEER will prepare a revised SCADA HMI standards and requirements document documenting the programming standards and associated control system components. The ENGINEER will facilitate multiple two-hour workshops to present the SCADA standards and requirements document to key stakeholders. This will include a meeting agenda, presentation, and meeting minutes. The SCADA system programming standards would include development of the following elements:

- Unified standard PLC I/O tag format. Define the tag structure so that it meets future expansion needs and in the same time it provides exhaustive information (through encoding) of physical local.
- Standard PLC data sets or function blocks for typical field devices – valve (with discrete and analog positioner), motor with and without VFD, power monitor. Specific needs from each device will be identified such as read signals, alarms with priorities, control capabilities, calculated statistical information, historical tags list.
- Standard object-oriented HMI and OIT graphic. standards defining color conventions based on High Performance Graphics design.
- Standard object-oriented HMI and OIT graphics alarm visualization conventions based on High Performance Graphics design.
- Standard HMI and OIT graphics overview symbol design symbol shape and data presented for individual device at site overview screens, based on High Performance Graphics design.
- Standard object-oriented HMI and OIT graphics faceplate design – content of data presented and structure for presentation. The focus is on alarm control and monitoring, control status and controls input, operations state, historical data and operations notes based on High Performance Graphics design.
- Standard HMI navigation scheme based on High Performance Graphics design, if desired. • Historian configuration scheme review.
- Security Definition: Defining operator login and security groups requirements. Assign to object templates.
- Alarm Definition per ISA 18.2 guidelines to manage and minimize nuisance alarms.
- Scripting: Assessing levels of scripting provided in the existing SCADA. Reviewing scripting methods and make recommendations for standardized approach and implementation.
- Navigation Methods and Graphics: Defining system screen layout and navigation methods, for intuitive oversight and monitoring of the complete AWRF Water Treatment system.

- **Historian Configuration Standards:** This includes data storage requirements, data transfer rates, store and forward requirements, trending and archiving requirements, and a data backup scheme.
- **Interfaces and Custom Applications:** Evaluating other SCADA related applications and interfaces, including Historian, Reporting, Scheduling Tool, Flow and Pressure Tool, weather station, cameras, and particle monitoring. Making recommendations for planning and alignment with overall SCADA improvement project.
- **SCADA System Document Management Procedure:** Maintain the latest files, to track the revisions, and to secure the files. This includes engineering standard specifications, PLC and HMI configuration files, network architecture diagrams, SCADA system standards, network communication diagrams and configurations, and control system hardware inventory.

1.11.1 Assumptions

- Existing programming standards will be provided to Jacobs.

1.11.2 Deliverables

- Revision update to the SCADA HMI Standards document.

2. Phase 2: Detailed Design

Phase 2 includes conducting detailed design for the SCADA Upgrades to produce final 100% design documents. The PDR will be used as the roadmap to develop the detailed design and subsequent construction documents. The concepts and decisions presented and approved from the preliminary design phase will be further developed into drawings and specifications in such detail to communicate the scope of work. During this phase, not all elements and design features will be completely detailed; however, the design will be completed enough to rule out fatal flaws. The objective of this phase is to develop an efficient design re-using existing cabinetry, conduits and wiring where possible to maximize use of the City's investment and minimize plant or process outages and provide the best value GMP.

The scope of work for SCADA Phase 2 includes the following main tasks:

	Phase 2: Detailed Design
2.1	Detailed Design Development
2.2	Migration (Cut Over) Plan and MOPOs
2.3	Final Construction Documents
2.4	City Code Review Coordination
2.5	GMP Cost Tracking and Development by CMAR
2.6	GMP Review (include multiple GMPs – long lead and balance of project)

2.1 Detailed Design Development

The following elements will be evaluated, designed, and illustrated in construction drawings and specifications to progress the design to approximately (80-90%) for draft design documents:

- Network block diagrams, including all PLCs, workstations, servers, operator interface terminals, switches, routers, media converters, and protocol converters.
- System-wide block diagram that includes all servers, switches, routers, and media converters that are used for wide area communications.
- Building, room, and panel/cabinet will be identified for each device.
- Cable layout and network protocols will be identified for each communications path.
- Each strand of multi-strand fiber cable will be detailed in the diagram.
- Internal and external panel elevation drawings for all CMAR contractor-supplied PLC panels and network/server cabinets.
- Control narratives that describe the intended system-wide control features, including inter-facility control, interlocks, permissives, alarming, archiving, and offsite monitoring and control.
- Control strategies will include specification of all control logic, process and instrument set points, and process and instrument alarm conditions based on significant coordination with the SCADA system CMAR contractor.
- PLC I/O summaries include, at a minimum: I/O tag, I/O type, description, PLC, rack, slot, and point.
- Network node summary to include, at a minimum: address and device description.
- New (properly sized) UPS to the server room and new control room ensuring only critical circuits are on UPS/generator power.
- Secure cellular communications for remote facilities
- Single mode fiber within plant

Regular bi-weekly design meetings will be held as design drawings and specifications are developed to obtain OWNER input and direction. Larger review meetings will be held at key milestone submittals.

2.1.1 Assumptions

- Bi-weekly design coordination meetings will be held remotely, up to 2 hours in length, with the OWNER and CMAR.
- Up to 24 bi-weekly coordination meetings will be conducted during the 12 month design duration.
- Rolling design drawing review will be led by the Jacobs team onsite at AWRF with OWNER's plant operations and maintenance staff.

2.1.2 Deliverables

- Draft construction drawings and specifications.

2.2 Migration (Cut Over) Plan and MOPOs

ENGINEER will lead development of the Migration Plan in collaboration with the plant staff and CMAR to confirm the planned cutovers and transitions to the new systems. Preliminary Maintenance of Plant Operations (MOPO) Plans and specifications will be included to document constraints and convey the cut-over intent and plan to the CMAR contractor. The Migration Plan will include:

- A listing of cut-over activities that will affect water production systems operations.
- Allowed lengths of interruption to different unit processes and equipment, such as a given chemical system or pump.
- Limits on the number of process equipment that can be taken out of service at a given time. Diurnal constraints on time may dictate some work be performed at night or a different season.
- Required prerequisite activities be completed and conditionally accepted by OWNER before performing subsequent work.
- Appropriate notice for all work activities.
- Financial penalties should the CMAR not follow the listed construction constraints or cause the production facilities to be inoperable and not serve its designated use.

Regular MOPO coordination meetings will be held as MOPOs are developed to obtain OWNER input and direction. Larger review meetings will be held at key milestone submittals.

2.2.1 Assumptions

- Bi-weekly MOPO coordination meetings will be held remotely, with up to 6 ENGINEER staff attending.
- Up to 4 MOPO workshops, 4 hours each, with up to 6 ENGINEERING staff attending.
- OWNER's plant operations and maintenance staff will be heavily relied upon for input and feedback into the Migration Plan and specific MOPOs developed for the project.

2.2.2 Deliverables

- Draft and Final Migration Plan.

2.3 Final Construction Documents

Construction Documents (100% design drawings and specifications) will be prepared to accurately communicate the scope of work to allow the CMAR to quantify the value of the work and develop the GMP for the project.

- The 100% design construction documents will depict the design of the project to a level sufficient to illustrate necessary details for each network type and service and to support the project's procurement and installation.
- The PDR will be reviewed for compliance and updated if there are differences or additional information.

Regular bi-weekly design meetings will be held as design drawings and specifications are developed to obtain OWNER input and direction. Larger review meetings will be held at key milestone submittals.

2.3.1 Assumptions

- Bi-weekly 2-hour design meetings will be held remotely.

2.3.2 Deliverables

- Final 100 % construction drawings and specifications.

2.4 City Code Review Coordination

ENGINEER will coordinate with the City Development Services Department (DSD) to complete a code review of applicable parts of the design. Construction Documents (100% design drawings and specifications) will be provided to the City DSD for review.

2.4.1 Assumptions

- Documents will be submitted electronically via the City submittal system.
- A pre-application meeting will be held with DSD.
- A review meeting will be held to go over critical comments.
- Changes will be agreed upon and captured in As-built documents.

2.4.2 Deliverables

- Adjudication of DSD review comments.

2.5 Project Cost and GMP Development

If CMAR delivery is used, the CMAR will track changes to cost throughout design as decisions are made, and details become clearer. The GMP will be developed by the CMAR and it is anticipated that the GMP will be developed based on the 90% design documents. An intermediate GMP review workshop will be held, led by the CMAR, if CMAR delivery is used. ENGINEER will review costs and GMP development provided by CMAR throughout design, if CMAR delivery is used. ENGINEER will also provide an independent AACE International (Association for the Advancement of Cost Engineering) Class 2 cost estimate as an opinion of probable construction cost (OPCC) for the project at the 90% design completion stage.

2.5.1 Assumptions

- If CMAR delivery is used, CMAR will track costs and provided cost models for review by ENGINEER and OWNER at key milestones.
- OWNER will contract for and provide an independent cost estimator to review project costs prepared by the ENGINEER or potential CMAR.

2.5.2 Deliverables

- Intermediate GMP Cost review Report
- ENGINEER prepared OPCC provided as a AACE Class 2 estimate..

2.6 GMP Review (include multiple GMPs – long lead and balance of project)

ENGINEER will review the impacts of design changes on the cost throughout design and review the GMP costs, clarifications, and exceptions provided by the potential CMAR contractor. A final GMP review workshop and a GMP reconciliation workshop led by the potential CMAR will be held. This project will have multiple GMPs, one GMP for long lead item procurement and the second GMP for construction and installation activities.

2.6.1 Assumptions

- If CMAR delivery is used, CMAR will provide GMPs for review by ENGINEER and OWNER at key milestones.
- OWNER will contract for and provide an independent cost estimator to review project costs prepared by the ENGINEER or potential CMAR.

2.6.2 Deliverables

- GMP1 Cost Review Report
- GMP2 Cost Review Report
- Final GMP Cost review Report.

3. Phase 3: Phased Implementation and Commissioning (Placeholder)

(Placeholder Scope Outline for Separate Construction Management Contract to be Developed During Detailed Design)

Phase 3 includes Implementing the SCADA migration in phases with digital software validation through Replica model and "process by process" cut-over avoiding shutdowns during critical water production periods

The scope of work for SCADA Phase 3 is anticipated to include the following main tasks:

	Phase 3: Phased Implementation and Commissioning (Placeholder)
3.1	Early Fiber Install and Services During Construction (SDC)
3.2	Detailed Construction-Level Documentation Review
3.3	SCADA Migration Implementation Leadership
3.4	HMI and PLC Programming Validation with Replica Digital Twin
3.5	Control System Testing and Pre-Tuning
3.6	SCADA Training for City Operations
3.7	Electronic O&M Manual
3.8	Process Optimization with Replica/SUMO Digital Twin (blowers and DO)
3.9	Interface the new SCADA system with Lucy

- 3.1 Early Fiber Install and Services During Construction (SDC)
- 3.2 Detailed Construction - Level Documentation Review
- 3.3 SCADA Migration Implementation Leadership
- 3.4 HMI and PLC Programming Validation with Replica Digital Twin
- 3.5 Control System Testing and Pre-Tuning
- 3.6 SCADA Training for City Operations
- 3.7 Electronic O&M Manual
- 3.8 Process Optimization with Replica/SUMO Digital Twin (blowers and DO)
- 3.9 Interface the new SCADA system with Lucy System

4. Phase 4: Project Management

A key element to making the SCADA upgrade project a success involves creating a collaborative partnership with all stakeholders, including the City's Public Works/Engineering and Utility managers, Utility SCADA/OT specialists, plant water quality staff, plant operations staff, plant maintenance staff, City IT, and the selected CMAR. ENGINEER will build cohesion and trust by establishing clear goals, crafting well-designed tasks, facilitating interactive workshops, fostering open communication, and developing transparent expectations with the stakeholder group. We will identify and monitor critical success factors, risk management, change management, decision making process, and stakeholder's alignment. Our project management approach combines world-class management and engineering capabilities with proven budget and schedule controls from extensive SCADA integration experience and the basic steps below:

1. Form the Team. ENGINEER will work closely with OWNER to identify key stakeholders to participate in the project and their specific responsibilities.
2. Charter the Team. Chartering will help define the team's purpose and establish agreement on vision/mission/goals, strategic imperatives, lines of communication, and organizational structure with associated accountabilities. It will be critical to catalog the team's understanding of stakeholder expectations and influences of both internal and external stakeholders.
3. Plan the Project. A well-crafted Project Management Plan (PMP) will be essential to project success. The plan will summarize the understanding, direction, and expectations for the project and identify the delivery approach, critical project success factors, roles and responsibilities, work tasks, deadlines, decision-making process, risks management, change management, document sharing and approval processes, quality plan, and organizational structure. And, it will be critical to define at the onset what the vision is of the SCADA system is in 10 years.
4. Endorse the Plan. Endorsement of the PMP by all stakeholders, including senior management, ensures a high level of commitment and validation. We will request support of the plan and approach during team chartering.
5. Manage Change. Because projects invariably experience change, effective change management practices are critical. Recognizing the different types of changes (i.e., stakeholder impacts, scope changes, cost and schedule impacts) and having defined mechanisms and protocols in place to address them are crucial.

Cost certainty, control, and budget management are critical to project success as well. Open dialog about costs and priorities is essential. Project costs will be developed after site investigations and preliminary engineering. Cost evaluation will be tracked using spreadsheets and logs throughout the project. Prioritizing scope or phasing improvements may be necessary to align with the City's funding. To optimize the project budget, we will try to re-use existing cabinets where possible.

A Quality Control Plan will be part of the PMP, developed early in the project to ensure expert peer review of critical deliverables. ENGINEER SCADA and OT staff will also provide oversight to the CMAR during implementation to ensure quality installation.

With a collaborative team approach, disputes are rare but sometimes do occur. ENGINEER will lead any dispute resolution for the project engaging the City at appropriate levels as required. Our goal will be to resolve any issues at the lowest level as much as possible and to only escalate and involve the City if necessary. includes conduct thorough and transparent discovery to best define the work and potential issues for the new SCADA system migration, including software/programming philosophies, communications integrity and security concerns with existing system.

The scope of work for SCADA Phase 4 includes the following main tasks:

	Project Management
4.1	Project Kickoff
4.2	Project Execution Plan
4.3	Monthly Progress Reports, Schedule Updates, and Invoices
4.4	Progress Meetings/Calls
4.5	QC/QC Senior Review

4.1 Project Kickoff

There are two primary purposes of this task, first to ensure effective initiation of the project, and second to ensure clarity of OWNER'S business objectives for AWRF SCADA system upgrade project.

A workshop will be designed to create commonly understood project purposes and ensure appropriate team member's roles and responsibilities. The workshop will include review of project activities, deliverables, and schedule. In addition, and to create an environment for effective teamwork, this workshop will be used to clearly articulate project goals and critical success factors, understand the project boundaries and challenges, and ensure and document team commitment.

This task includes the following work activities:

- Prepare advance materials, including session agendas, for distribution to attendees.
- Prepare draft and final meeting summary

4.1.1 Assumptions

- One 2-hour project kickoff workshop, attended by up to 8 ENGINEER staff.

4.1.2 Deliverables

- Draft and final meeting agenda.
- Draft and final meeting summary.

4.2 Project Execution Plan

The ENGINEER's Project Manager will issue a Project Execution Plan including task instructions for use by the SCADA System Master Plan team. These instructions will include task background, definition of task requirements, goals, objectives, schedules, budgets, Project Field Safety Instructions and Quality Management Plan.

4.2.1 Assumptions

- The Project Execution Plan will be delivered to the OWNER within 30 working days of receipt of the Notice to Proceed.

4.2.2 Deliverables

- PMP including Quality Control Plan and Project Instructions

4.3 Monthly Progress Reports, Schedule Updates, and Invoices

The ENGINEER's Project Manager will prepare monthly progress reports in memo format for submission to the OWNER's Project Manager by the 15th of each calendar month. The report will contain progress against schedule and scope, as well as relevant budget information. The Project Manager will oversee the preparation and submission of monthly invoices. In addition, the Project Manager will manage the activities of the SCADA Master Plan staff via weekly conference calls.

4.4 Progress Meetings/Calls

The ENGINEER's Project Manager will conduct bi-weekly progress meetings/calls of up to 2 hours in length with the OWNER's staff to discuss any delivery issues that might impact the scope, schedule, or budget of this Project. Notes will be taken during the meeting and posted for the team.

4.5 QA/QC Senior Review

The ENGINEER's Project Manager will oversee the review of project deliverables by Senior Technical staff. This review will take place before submission of draft versions of deliverables to the OWNER's Project Manager.

4.5.1 Assumptions

- QA/QC will be performed according to the established QA/QC plan in the PMP.

4.5.2 Deliverables

- QA/QC reviews and direction incorporated into final deliverables.

5. Allowance Summary

The allowances below are estimates for optional work to be done at the direction and approval of the City:

#	List of Allowances	Allowance Fee (placeholders)
1	Agency Coordination:	\$50,000
2	Procurement of 2 each Dell VxRail servers including software and labor to set up servers	\$165,000
3	Development of Digital Twin AWRF	\$235,000
4	OWNER's Allowance – Unknowns and Additional Work	\$250,000
	TOTAL Allowances	\$700,000

- Allowance Item 1: Coordinate design efforts with the outside agencies. Jacobs will collaborate and inform outside agencies of any improvements to the AWRF SCADA system. This effort will include meetings, assessments at agency sites, and design.
- Allowance Item 2: Procure 2ea. Dell VxRail servers, installation and configuration of server Operating Systems and VMWare, and implementing AVEVA System Platform Framework Environment.
- Allowance Item 3: Jacobs will develop a Digital Twin for AWRF to model hydraulics and control schemes to serve as a means to test SCADA and PLC programming logic ahead of site implementation and be used for operator training ahead of implementation.
- Allowance Item 4: OWNER'S Contingency

Work done under the allowances may require an adjustment to the delivery schedule. It is also assumed that additional scope definition will be necessary to confirm the fee for work under these allowances.

6. Schedule

Work for the SCADA upgrades Phases 1, 2, and 4 will be performed in accordance with the schedule attached. The target NTP is August 1, 2023. Work through detailed design is anticipated to take through July 31, 2025 (total duration of 24 months). The schedule for Phase 3: Implementation and Commissioning is a placeholder estimate of duration and will be refined during detailed design.

7. Compensation

The work will be done on a time and material basis with a not to exceed (NTE) upper limit as indicated in the attached Level of Effort and Fee spreadsheet. The work is currently estimated for Phases 1, 2, and 4. Work for Phase 3 will be estimated and finalized during detailed design and added to the project contract via a separate contract for construction management services. Allowances are provided for optional work to be done at the direction and approval of the City.

EXHIBIT "B"
COMPENSATION AND FEES

Jacobs

Chandler AWRf SCADA Upgrades EXHIBIT "B-1" Time and Materials Cost Per Task

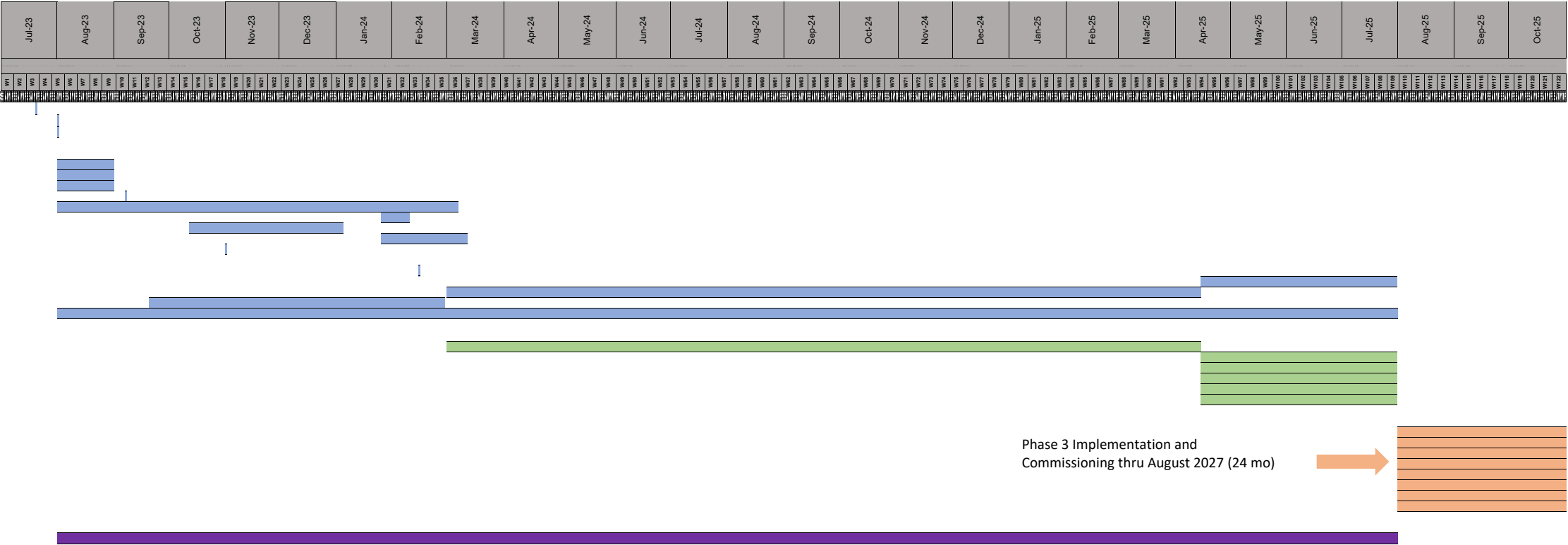
TASK DESCRIPTION		SUBTOTAL
Phase 1: Preliminary Design		\$ 731,500
1.1	Existing Documentation Review	\$ 81,760.00
1.2	Site Assessments and Evaluation	\$ 70,360.00
1.3	Interviews	\$ 22,980.00
1.4	Project Definition Validation Summary Workshop	\$ 23,440.00
1.5	Consolidate As-Built P&IDs	\$ 347,520.00
1.6	Design Drawing and Specification Lists	\$ 17,000.00
1.7	Develop Conceptual Network Design	\$ 84,220.00
1.8	Preliminary Design Report	\$ 32,960.00
1.9	SCADA System Security Workshop	\$ 28,680.00
1.10	Technology Trend Workshop	\$ 10,940.00
1.11	SCADA HMI Standards and Requirements Briefing/Update	\$ 11,640.00
Phase 2: Detailed Design		\$ 2,305,993
2.1	Detailed Design Development	\$ 1,653,012.50
2.2	Migration (Cut Over) Plan and MOPOs	\$ 81,240.00
2.3	Final Construction Documents	\$ 433,840.00
2.4	City Code Review Coordination	\$ 31,900.00
2.5	Project Cost and GMP Development	\$ 53,000.00
2.6	GMP Review (include multiple GMPs - long lead and balance of project)	\$ 53,000.00
Phase 3: Phased Implementation and Commissioning (Placeholder)		\$ -
		\$ -
		\$ -
Phase 4: Project Management		\$ 213,580
4.1	Project Kickoff	\$ 9,840.00
4.2	Project Execution Plan	\$ 19,940.00
4.3	Monthly Progress Reports, Schedule Updates, and Invoices	\$ 67,880.00
4.4	Progress Meetings/Calls	\$ 86,400.00
4.5	QA/QC Senior Review	\$ 29,520.00
Expenses		\$ 97,000
Subconsultants		\$ -
SUBTOTAL COST:		\$ 3,348,073
Allowances		
1	Agency Coordination:	\$ 50,000.00 <i>MCESD and ADEQ</i>
2	Procurement of 2 each Dell VxRail servers	\$ 165,000.00 <i>Equipment and Configuration</i>
3	Development of Digital Twin AWRf	\$ 235,000.00 <i>Based on Pecos Replica Fee</i>
4	Owner's Allowance - Unknowns and Additional Work	\$ 250,000.00
SUBTOTAL ALLOWANCES:		\$ 700,000
TOTAL COST:		\$ 4,048,073

Chandler AWRP SCADA Upgrades EXHIBIT "B-2" Hours and Rates																				
Phase 1: Preliminary Design																				
LEVEL OF EFFORT																				
No.	Task Description	Teresa Smith-Dehesus	Jay Hardison	Laxit Gajjar	Hong Zhang	Nick Edgett	Tyler Nading	Jeff Kanyuch	Josh Blume	Various	Hillary Feier / Will Porter	Brian Pilmer	Mona Metwally	Jess Goldstein	Various - OT and Process	Nav, Talitha, Ryan Wells	Various - Scott Metcalf	Various/ GID	Various	Total
		Principal/ Project Manager	SCADA Design Manager	SCADA Deputy Design Manager	Technical Advisor (Modicon)	Technical Advisor (Wonderware)	Technical Advisor (Digital Twin)	QA/QC	Cybersecurity / Operational Technology	Other Technical Advisors	Process Engineer / Digital Twin	Senior Electrical Engineer	Senior SCADA/ I&C Designer	SCADA/ I&C Designer	Engineer Specialist/ Project Engineer	Staff I&C Engineer	Lead Technician / CAD	Technician / CAD	Office Support	Labor Hours
		Bill Rate	\$ 280.00	\$ 270.00	\$ 225.00	\$ 205.00	\$ 205.00	\$ 280.00	\$ 250.00	\$ 205.00	\$ 150.00	\$ 180.00	\$ 200.00	\$ 150.00	\$ 225.00	\$ 125.00	\$ 150.00	\$ 110.00	\$ 100.00	
1.1	Existing Documentation Review																			
	Subtotal	16	24	40	8	8	8	0	24	0	0	16	40	120	0	160	0	0	20	484
1.2	Site Assessments and Evaluation																			
	Subtotal	16	40	80	0	0	0	0	40	0	0	16	16	40	0	120	0	0	0	368
1.3	Interviews																			
	Subtotal	8	16	16	8	8	4	0	8	0	0	4	8	16	0	16	0	0	0	112
1.4	Project Definition Validation Summary Workshop																			
	Subtotal	8	24	16	8	8	0	4	8	0	0	4	4	8	0	16	0	0	0	108
1.5	Consolidate As-Built P&IDs																			
	Subtotal	24	80	200	40	0		0	0			0	200	400	200	200	200	600		2144
1.6	Design Drawing and Specification Lists																			
	Subtotal	8	12	8	0	0	0	0	8	0	0	4	8	8	0	24	8	0	0	88
1.7	Develop Conceptual Network Design																			
	Subtotal	20	40	12	0	0	0	4	100	0	0	0	20	40	40	40	100	0	0	416
1.8	Preliminary Design Report																			
	Subtotal	8	40	24	8	8	0	4	8	0	0	4	8	0	0	40	0	0	8	160
1.9	SCADA System Security Workshop																			
	Subtotal	8	12	8	0	0	0	0	40	0	0	0	8	8	16	40	0	0	0	140
1.10	Technology Trend Workshop																			
	Subtotal	4	8	8	4	8	0	0	4	0	0	0	4	4	0	8	0	0	0	52
1.11	SCADA HMI Standards and Requirements Briefing/Update																			
	Subtotal	4	4	4	4	24	0	0	4	0	0	0	4	0	0	8	0	0	0	56
TOTAL		124	300	416	80	64	12	12	244	0	0	48	320	644	256	672	308	600	28	4128
Phase 2: Detailed Design																				
LEVEL OF EFFORT																				
No.	Task Description	Principal/ Project Manager	SCADA Design Manager	SCADA Deputy Design Manager	Technical Advisor (Modicon)	Technical Advisor (Wonderware)	Technical Advisor (Digital Twin)	QA/QC	Cybersecurity / Operational Technology	Other Technical Advisors	Process Engineer / Digital Twin	Senior Electrical Engineer	Senior SCADA/ I&C Designer	SCADA/ I&C Designer	Engineer Specialist/ Project Engineer	Staff I&C Engineer	Lead Technician / CAD	Technician / CAD	Office Support	Total
		Bill Rate	\$ 280.00	\$ 270.00	\$ 225.00	\$ 205.00	\$ 205.00	\$ 280.00	\$ 250.00	\$ 205.00	\$ 150.00	\$ 180.00	\$ 200.00	\$ 150.00	\$ 225.00	\$ 125.00	\$ 150.00	\$ 110.00	\$ 100.00	
2.1	Detailed Design Development																			
	Subtotal	140	450	210	150	40	0	100	210	120	0	240	420	1260	1253	1260	1260	3150	100	10363
2.2	Migration (Cut Over) Plan and MOPOs																			
	Subtotal	40	60	80	0	0	0	8	20		0	20	20	40		120	0	0	0	408
2.3	Final Construction Documents																			
	Subtotal	48	120	180	120	0	0	80	150	40	0	60	150	120	120	300	300	750	40	2578
2.4	City Code Review Coordination																			
	Subtotal	40	60	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
2.5	Project Cost and GMP Development																			
	Subtotal	40	80	40	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	200
2.6	GMP Review (include multiple GMPs – long lead and balance of project)																			
	Subtotal	40	80	40	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	200
TOTAL		348	850	570	270	40	0	268	380	160	0	320	590	1420	1373	1680	1560	3900	140	13869
Phase 4: Project Management																				
LEVEL OF EFFORT																				
No.	Task Description	Principal/ Project Manager	SCADA Design Manager	SCADA Deputy Design Manager	Technical Advisor (Modicon)	Technical Advisor (Wonderware)	Technical Advisor (Digital Twin)	QA/QC	Cybersecurity / Operational Technology	Other Technical Advisors	Process Engineer / Digital Twin	Senior Electrical Engineer	Senior SCADA/ I&C Designer	SCADA/ I&C Designer	Engineer Specialist/ Project Engineer	Staff I&C Engineer	Lead Technician / CAD	Technician / CAD	Office Support	Total
		Bill Rate	\$ 280.00	\$ 270.00	\$ 225.00	\$ 205.00	\$ 205.00	\$ 280.00	\$ 250.00	\$ 205.00	\$ 150.00	\$ 180.00	\$ 200.00	\$ 150.00	\$ 225.00	\$ 125.00	\$ 150.00	\$ 110.00	\$ 100.00	
4.1	Project Kickoff																			
	Subtotal	8	8	4	4	4	0	0	4	0	0	0	0	0	4	8	0	0	0	44
4.2	Project Execution Plan																			
	Subtotal	16	16	20	0	8	0	0	0	0	0	0	0	0	0	40	0	0	0	100
4.3	Monthly Progress Reports, Schedule Updates, and Invoices																			
	Subtotal	96	40	0	0	0	0	0	0	0	0	0	0	0	0	96	0	0	182	414
4.4	Progress Meetings/Calls																			
	Subtotal	96	96	96	0	0	0	0	0	0	0	0	0	0	0	96	0	0	0	384
4.5	QA/QC Senior Review																			
	Subtotal	16	16	40	0	0	0	24	0	0	0	0	0	0	0	40	0	0	0	136
TOTAL		232	176	160	4	12	0	24	4	0	0	0	0	0	4	280	0	0	182	1078



Project Start: Sat, 1-Jul-2023

No.	Task	Progress	Start	End
	COUNCIL APPROVAL		20-Jul-23	20-Jul-23
	NOTICE TO PROCEED		1-Aug-23	1-Aug-23
	Project Kickoff and Chartering Session	0%	1-Aug-23	1-Aug-23
	Phase 1: Preliminary Design			
1.1	Existing Documentation Review	0%	1-Aug-23	31-Aug-23
1.2	Site Assessments and Evaluation	0%	1-Aug-23	31-Aug-23
1.3	Interviews	0%	1-Aug-23	31-Aug-23
1.4	Project Definition Validation Summary Workshop	0%	7-Sep-23	7-Sep-23
1.5	Consolidate As-Built P&IDs	0%	1-Aug-23	6-Mar-24
1.6	Design Drawing and Specification Lists	0%	28-Jan-24	9-Feb-24
1.7	Develop Conceptual Network Design	0%	12-Oct-23	4-Jan-24
1.8	Preliminary Design Report	0%	28-Jan-24	11-Mar-24
1.9	SCADA System Security Workshop	0%	1-Nov-23	1-Nov-23
1.10	Technology Trend Workshop	0%	1-Feb-24	15-Jan-24
1.11	SCADA HMI Standards and Requirements Briefing/Update	0%	15-Feb-24	15-Feb-24
	Allowance #1 Agency Coordination:	0%	15-Apr-25	31-Jul-25
	Allowance #2 Procurement of 2 each Dell VxRail servers	0%	1-Mar-24	14-Apr-25
	Allowance #3 Development of Digital Twin AWRP	0%	20-Sep-23	28-Feb-24
	Allowance #4 Owner's Allowance	0%	1-Aug-23	31-Jul-25
	Phase 2: Detailed Design			
2.1	Detailed Design Development	0%	1-Mar-24	14-Apr-25
2.2	Migration (Cut Over) Plan and MOPo's	0%	15-Apr-25	31-Jul-25
2.3	Final Construction Documents	0%	15-Apr-25	31-Jul-25
2.4	City Code Review Coordination	0%	15-Apr-25	31-Jul-25
2.5	Project Cost and GMP Development	0%	15-Apr-25	31-Jul-25
2.6	GMP Review (include multiple GMPs – long lead and balance of project)	0%	15-Apr-25	31-Jul-25
	Phase 3: Phased Implementation and Commissioning (Placeholder)			
3.1	Early Fiber Install and Services During Construction (SDC)	0%	1-Aug-25	1-Aug-27
3.2	Detailed Construction-Level Documentation Review	0%	1-Aug-25	1-Aug-27
3.3	SCADA Migration Implementation Leadership	0%	1-Aug-25	1-Aug-27
3.4	HMI and PLC Programming Validation with Replica Digital Twin	0%	1-Aug-25	1-Aug-27
3.5	Control System Testing and Pre-Tuning	0%	1-Aug-25	1-Aug-27
3.6	SCADA Training for City Operations	0%	1-Aug-25	1-Aug-27
3.7	Electronic O&M Manual	0%	1-Aug-25	1-Aug-27
3.8	Process Optimization with Replica/SUMO Digital Twin (blowers and DO)	0%	1-Aug-25	1-Aug-27
3.9	Interface the new SCADA system with Lucity	0%		
	Project Management	0%	1-Aug-23	31-Jul-25
4.1	Project Kickoff			
4.2	Project Execution Plan			
4.3	Monthly Progress Reports, Schedule Updates, and Invoices			
4.4	Progress Meetings/Calls			
4.5	QC/QC Senior Review			



Phase 3 Implementation and Commissioning thru August 2027 (24 mo)

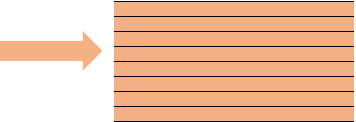


EXHIBIT "C"

INSURANCE REQUIREMENTS

1. General.

- 1.1 At the same time as execution of this Agreement, Consultant must furnish City a certificate of insurance on a standard insurance industry ACORD form. The ACORD form must be issued by an insurance company authorized to transact business in the State of Arizona possessing a current A.M. Best, Inc. rating of A-7, or better and legally authorized to do business in the State of Arizona with policies and forms satisfactory to City. Provided, however, the A.M. Best rating requirement will not be deemed to apply to required Workers' Compensation coverage.
- 1.2 Consultant and any of its subconsultants must procure and maintain, until all of their obligations have been discharged, including any warranty periods under this Agreement are satisfied, the insurances set forth below.
- 1.3 The insurance requirements set forth below are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement.
- 1.4 City in no way warrants that the minimum insurance limits contained in this Agreement are sufficient to protect Consultant from liabilities that might arise out of the performance of the Agreement services under this Agreement by Consultant, its agents, representatives, employees, subconsultants, and Consultant is free to purchase any additional insurance as may be determined necessary.
- 1.5 Failure to demand evidence of full compliance with the insurance requirements in this Agreement or failure to identify any insurance deficiency will not relieve Consultant from, nor will it be considered a waiver of its obligation to maintain the required insurance at all times during the performance of this Agreement.
- 1.6 Use of subconsultants: If any work is subcontracted in any way, Consultant must execute a written Agreement with subconsultant containing the same Indemnification Clause and Insurance Requirements as City requires of Consultant in this Agreement. Consultant is responsible for executing the Agreement with the subconsultant and obtaining Certificates of Insurance and verifying the insurance requirements.

2. Minimum Scope and Limits of Insurance. Consultant must provide coverage with limits of liability not less than those stated below.

- 2.1 *Professional Liability.* If the Agreement is the subject of any professional services or work performed by Consultant, or if Consultant engages in any professional services or work adjunct or residual to performing the work under this Agreement, Consultant must maintain Professional Liability insurance covering errors and omissions arising out of the work or services performed by Consultant, or anyone employed by Consultant, or anyone whose acts, mistakes, errors and omissions Consultant is legally liable, with a liability limit of \$1,000,000 each claim and \$2,000,000 all claims. In the event the Professional Liability insurance policy is written on a "claims made" basis, coverage must extend for 3 years past

completion and acceptance of the work or services, and Consultant, or its selected Design Professional will submit Certificates of Insurance as evidence the required coverage is in effect. The Design Professional must annually submit Certificates of Insurance citing that the applicable coverage is in force and contains the required provisions for a 3 year period.

- 2.2 *Commercial General Liability-Occurrence Form.* Consultant must maintain “occurrence” form Commercial General Liability insurance with a limit of not less than \$2,000,000 for each occurrence, \$4,000,000 aggregate. Said insurance must also include coverage for products and completed operations, independent contractors, personal injury and advertising injury. If any Excess insurance is utilized to fulfill the requirements of this paragraph, the Excess insurance must be “follow form” equal or broader in coverage scope than underlying insurance.
- 2.3 *Automobile Liability-Any Auto or Owned, Hired and Non-Owned Vehicles Vehicle Liability:* Consultant must maintain Business/Automobile Liability insurance with a limit of \$1,000,000 each accident on Consultant owned, hired, and non-owned vehicles assigned to or used in the performance of Consultant’s work or services under this Agreement. If any Excess or Umbrella insurance is utilized to fulfill the requirements of this paragraph, the Excess or Umbrella insurance must be “follow form” equal or broader in coverage scope than underlying insurance.
- 2.4 *Workers Compensation and Employers Liability Insurance:* Consultant must maintain Workers Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Consultant employees engaged in the performance of work or services under this Agreement and must also maintain Employers’ Liability insurance of not less than \$1,000,000 for each accident and \$1,000,000 disease for each employee.
- 2.5 *Cyber Technology Errors and Omissions, Network Security, and Privacy Liability Insurance.* The policy must cover professional misconduct or lack of ordinary skill for those positions defined in the Scope of Services of this Agreement with a limit of not less than \$5,000,000 for each occurrence, \$5,000,000 aggregate. In the event that the professional liability insurance required by this Agreement is written on a claims-made basis, Consultant warrants that any retroactive date under the policy must precede the effective date of this Agreement; and that either continuous coverage will be maintained, or an extended discovery period will be exercised for a period of two (2) years beginning at the time work under this Agreement is completed. If such insurance is maintained on an occurrence form basis, Consultant must maintain such insurance for an additional period of one (1) year following termination of Agreement. If such insurance is maintained on a claims-made basis, Consultant must maintain such insurance for an additional period of three (3) years following termination of the Agreement. If Consultant contends that any of the insurance it maintains pursuant to other sections of this Exhibit C satisfies this requirement (or otherwise insures the risks described in this section), then Consultant must provide proof of same.
- 2.5.1. The insurance must provide coverage for the following risks:
- 2.5.1.1 Liability arising from theft, dissemination, or use of confidential information (a defined term including but not limited to bank account, credit card account, personal information such as name, address, social security

numbers, etc. information) stored or transmitted in electronic form.

2.5.1.2 Network Security Liability arising from the unauthorized access to, use of, or tampering with computer systems including hacker attacks, inability of an authorized third party, to gain access to your services including denial of service, unless caused by a mechanical or electrical failure.

2.5.1.3 Liability arising from the introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network, or similar computer related property and the data, software, and programs thereon.

2.5.2. The policy must provide a waiver of subrogation.

3. Additional Policy Provisions Required.

3.1 *Self-Insured Retentions or Deductibles.* Any self-insured retentions and deductibles must be declared and approved by City. If not approved, City may require that the insurer reduce or eliminate any deductible or self-insured retentions with respect to City, its officers, officials, agents, employees, and volunteers.

3.1.1. Consultant's insurance must contain broad form contractual liability coverage.

3.1.2. Consultant's insurance coverage must be primary insurance with respect to City, its officers, officials, agents, and employees. Any insurance or self-insurance maintained by City, its officers, officials, agents, and employees will be in excess of the coverage provided by Consultant and must not contribute to it.

3.1.3. Consultant's insurance must apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

3.1.4. Coverage provided by Consultant must not be limited to the liability assumed under the indemnification provisions of this Agreement.

3.1.5. The policies must contain a severability of interest clause and waiver of subrogation against City, its officers, officials, agents, and employees, for losses arising from Work performed by Consultant for City. (Does not apply to Professional Liability coverage.)

3.1.6. Consultant, its successors and or assigns, are required to maintain Commercial General Liability insurance as specified in this Agreement for a minimum period of 3 years following completion and acceptance of the Work. Consultant must submit a Certificate of Insurance evidencing Commercial General Liability insurance during this 3-year period containing all the Agreement insurance requirements, including naming City of Chandler, its agents, representatives, officers, directors, officials and employees as Additional Insured as required.

3.1.7. If a Certificate of Insurance is submitted as verification of coverage, City will reasonably rely upon the Certificate of Insurance as evidence of coverage, but this

acceptance and reliance will not waive or alter in any way the insurance requirements or obligations of this Agreement.

3.2. *Insurance Cancellation During Term of Agreement.*

3.2.1. If any of the required policies expire during the life of this Agreement, Consultant must forward renewal or replacement Certificates to City within 10 days after the renewal date containing all the required insurance provisions.

3.2.2. Each insurance policy required by the insurance provisions of this Agreement must provide the required coverage and must not be suspended, voided or canceled except after thirty (30) days prior written notice has been given to City, except when cancellation is for non-payment of premium, then ten (10) days prior notice may be given. Such notice must be sent directly to Chandler Law-Risk Management Department, Post Office Box 4008, Mailstop 628, Chandler, Arizona 85225. If any insurance company refuses to provide the required notice, Consultant or its insurance broker must notify City of any cancellation, suspension, non-renewal of any insurance within seven (7) days of receipt of insurers' notification to that effect.

3.3 *City as Additional Insured.* The policies are to contain, or be endorsed to contain, the following provisions:

3.3.1. The Commercial General Liability and Automobile Liability policies are to contain, or be endorsed to contain, the following provisions: City, its officers, officials, agents, and employees are additional insureds with respect to liability arising out of activities performed by, or on behalf of, Consultant; Products and Completed operations of Consultant; and automobiles owned, leased, hired, or borrowed by Consultant.

3.3.2. City, its officers, officials, agents, and employees must be additional insureds to the full limits of liability purchased by Consultant even if those limits of liability are in excess of those required by this Agreement.

EXHIBIT "D"

SPECIAL CONDITIONS

Standard Details and Specifications. Consultant must be familiar with City's latest revision of the MAG Specifications and MAG Standard Details as amended by City. City's current amendment to the MAG Specifications, part of City's Unified Development Manual, may be found and downloaded from City's website at <http://www.chandleraz.gov/udm>.

City Ownership of Project Documents. All work products (electronically or manually generated) including, but not limited to: plans, specifications, cost estimates, field notes, tracings, studies, investigations, design analyses, original drawings, original mylars, Computer Aided Drafting and Design (CADD) file diskettes which reflect all final drawings, and other related documents which are prepared in the performance of this Agreement (collectively referred to as "Documents") are to be and remain the property of City and are to be delivered to the Project Manager before the final payment is made to Consultant. In the event these Documents are altered, modified or adapted without the written consent of Consultant, which consent Consultant must not unreasonably withhold, City agrees to hold Consultant harmless to the extent permitted by law from the legal liability arising out of City's alteration, modification or adaptation of the Documents.

Re-use of Documents. The parties agree the documents, drawings, specifications and designs, although the property of City, are prepared for this specific project and are not intended nor represented by Consultant to be suitable for re-use for any other project. Any re-use without written verification or adaptation by Consultant for the specific purpose intended will be at City's sole risk and without liability or legal exposure to Consultant.

Documents to Bear Seal. Consultant and its subconsultants must endorse by professional seal all plans, works, and deliverables prepared by each for this Agreement as required by state law.

1. Contract Worker Access Controls, Badge and Key Access Requirements. A Contract Worker from Consultant's firm must not be allowed to begin work in any City facility without: (A) The prior completion and City's acceptance of the required background screening; and (8) when required, the Contract Worker's receipt of a City issued badge. A badge will be issued to a Contract Worker solely for access to City facility(s) to which the Contract Worker is assigned. Each Contract Worker who enters a City facility must use the badge issued to the Contract Worker.
2. Badges. After receipt of the badge application, the Contract Worker will proceed to the Badging Office for processing of the badge application and issuance of the badge. City will not process the badge application until the Contract Worker satisfies the required Background Screening (as defined herein). The Contract Worker must comply with all requirements and furnish all requested information as requested by the Badging Office. Any and all fees associated with security badging will be assessed in compliance with Chandler City Code §4-22.
3. Key Access Procedures. If the Contract Worker's services require keyed access to enter a

City facility(s), a separate key issue/return form must be completed and submitted by Consultant for each key issued.

4. Stolen or Lost Badges or Keys. Consultant must report lost or stolen badges or keys to City immediately. A new badge application or key issue form must be completed and submitted along with payment of the applicable fees prior to issuance of a new badge or key.
5. Return of Badges or Keys. All badges and keys are the property of City and must be returned to City at the Badging Office within one (1) business day of when the Contract Worker's access to a City facility is no longer required to furnish the services under this Agreement. Consultant must collect a Contract Worker's badge and key(s) upon the termination of the Contract Worker's employment; when the Contract Worker's services are no longer required at the particular City facility(s); or upon termination, cancellation or expiration of this Agreement.
6. Consultant's default under this Section must include, but is not limited to the following: (1) Contract Worker gains access to a City facility(s) without the proper badge or key; (2) Contract Worker uses a badge or key of another to gain access to a City facility; (3) Contract Worker commences services under this Agreement without the proper badge, key or Background Screening; (4) Contract Worker or Consultant submits false information or negligently submits wrong information to City to obtain a badge, key or applicable Background Screening; or (5) Consultant fails to collect and timely return Contract Worker's badge or key upon termination of Contract Worker's employment, reassignment of Contract Worker to another City facility or upon the expiration, cancellation or termination of this Agreement. Consultant acknowledges and agrees that the access control, badge and key requirements in this Section are necessary to preserve and protect public health, safety and welfare. Accordingly, Consultant agrees to properly cure any default under this Section within three (3) business days from the date notice of default is sent by City. The parties agree that Consultant's failure to properly cure any default under this Section must constitute a breach of this Section. In addition to any other remedy available to City at law or in equity, Consultant must be liable for and must pay to City the sum of one thousand dollars (\$1,000.00) for each breach by Consultant of this Section. The parties further agree that the sum fixed above is reasonable and approximates the actual or anticipated loss to City at the time and making of this Agreement in the event that Consultant breaches this Section. Further, the parties expressly acknowledge and agree to the fixed sum set forth above because of the difficulty of proving City's actual damages in the event that Consultant breaches this Section. The parties further agree that three (3) breaches by Consultant of this Section arising out of any default within a consecutive period of three (3) months or three (3) breaches by Consultant of this Section arising out of the same default within a period of twelve (12) consecutive months will constitute a material breach of this Agreement by Consultant and City expressly reserves all of its rights, remedies and interests under this Agreement, at law and in equity including, but not limited to, termination of this Agreement.
1. **Consultant and Subconsultant Worker Background Screening.** Consultant agrees that all contract workers and subconsultants (collectively "Contract Worker(s)") that Consultant furnishes to City under this Agreement will be subject to background and security checks

and screening as set forth in this Section (collectively "Background Screening") at Consultant's sole cost and expense. As part of the Background Screening, Consultant must provide to a person designated by the City the name(s), address(es), and phone number(s) of all Contract Workers who will provide any services under this Agreement. All Contract Workers must comply with these Background Screening requirements. All Contract Workers must be able to provide proof of the legal right to work in the United States. The Background Screening provided by Consultant must comply with all applicable laws, rules, and regulations. Consultant further agrees that the Background Screening required in this Section is necessary to preserve and protect public health, safety, and welfare. The Background Screening requirements set forth in this Section are the minimum requirements for this Agreement. City in no way warrants that these minimum requirements are sufficient to protect Consultant from any liabilities that may arise out of Consultant's services under this Agreement or Consultant's failure to comply with this Section. Therefore, in addition to the specific measures set forth below, Consultant and its Contract Workers must take such other reasonable, prudent, and necessary measures to further preserve and protect public health, safety, and welfare when providing services under this Agreement.

2. **Background Screening Requirements and Criteria.** Before offering or scheduling any services under this Agreement, Consultant agrees that all Contract Workers, including the Consultant, if the Consultant is an individual or sole proprietorship, must have successfully passed a Background Screening in accordance with this Section. Consultant warrants that no person will be permitted to substitute for a Contract Worker who has satisfied the Background Screening requirements until the proposed substitute has also satisfied the Background Screening requirements in this Section. For review and approval, Consultant must submit to a person designated by the City proof of a completed Background Screening for each Contract Worker over the age of 18 performing services under this Agreement no fewer than two (2) weeks before the proposed start date of such Contract Worker's services. The Background Screening must have been completed within the 12-month period preceding the Contract Worker's start date under this Agreement and must include the results of a social security (SSN) trace, a national criminal databased check with source verification.
3. **Additional City Rights Regarding Security Inquiries.** In addition to the foregoing, City reserves the rights but not the obligations to: (1) have a Contract Worker be required to provide fingerprints and execute such other documentation as may be necessary to obtain criminal justice information pursuant to A.R.S. § 41-1750(G) (4) or Chandler City Code § 4-22; (2) act on newly acquired information whether or not such information should have been previously discovered; (3) unilaterally change its standards and criteria relative to the acceptability of Contract Workers; and (4) object, at any time and for any reason, to a Contract Worker performing work (including supervision and oversight) under this Agreement.
4. **Consultant Certification.** By executing this Agreement, Consultant certifies that Consultant has read and understands the Background Screening requirements and criteria in this Section and will fully comply with such requirements. Consultant further

certifies that any Background Screening information to be furnished to City related to Consultant or its Contract Workers will be complete, current, and accurate. A Contract Worker rejected for work under this Agreement will not be proposed to perform work under other City contracts or engagements without City's prior written approval.

5. **Terms of This Section Applicable to all of Consultant's Contracts and Subcontracts.** Consultant must include the terms of this Section for Contract Worker Background Screening in all contracts and subcontracts for services furnished under this Agreement including, but not limited to, supervision and oversight services.
6. **Materiality of Background Screening Requirements: Indemnity.** The Background Screening requirements of this Section are material to City's entry into this Agreement and any breach of this Section by Consultant will be deemed a material breach of this Agreement. In addition to the indemnity provisions set forth in this Agreement, Consultant must defend, indemnify, and hold harmless City for any and all Claims arising out of this Background Screening Section including, but not limited to, the disqualification of a Contract Worker by Consultant or City for failure to satisfy this Section.
7. **Continuing Duty, Audit.** Consultant's obligations and requirements that Contract Workers satisfy this Background Screening Section will continue throughout the entire term of this Agreement. Consultant must notify City immediately of any change to a Background Screening of a Contract Worker previously accepted by City. Consultant must maintain all records and documents related to all Background Screenings and City reserves the right to audit Consultant's compliance with this Section under the terms of this Agreement.

EXHIBIT "E"
SUBCONSULTANT DOCUMENTS WITH CONSULTANT

No Subconsultants

Any subconsultant assumptions, clarifications, exclusions, terms & conditions, signature blocks, etc. included are strictly between the Consultant and their subconsultants, and do not apply to the Agreement between the Consultant and the City.

EXHIBIT "F"
FEDERAL REQUIREMENTS

N/A