



PROFESSIONAL SERVICES AGREEMENT
Design Services
PECOS SURFACE WATER TREATMENT PLANT SCADA UPGRADE
Project No. WA2103.201
Council Date: July 15, 2021 Item No.

THIS AGREEMENT ("Agreement") is made and entered into on the ____ day of _____, 2021 ("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 **PECOS SURFACE WATER TREATMENT PLANT SCADA UPGRADE** 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 contract 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 **495** 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 **\$4,142,272** 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 P.O. Box 4008, Mail Stop 407 Chandler, AZ 85244-4008 Phone: 480-782-3343 Email: andrew.goh@chandleraz.gov
With a Copy to:	Gina Ishida-Raybourn, Project Manager City of Chandler Public Works & Utilities Department P.O. Box 4008, Mail Stop 407 Chandler, AZ 85244-4008 Phone: 480-782-3584 Email: gina.ishida-raybourn@chandleraz.gov
To Consultant:	Jacobs Engineering Group Inc. 101 N. 1st Ave., Ste. 2600, Phoenix, AZ 85003 Statutory Agent Name: C T Corporation System Statutory Agent Physical Address: 3800 N. Central Ave., Ste. 460 Phoenix, AZ 85012 Statutory Agent Mailing Address: (if different from Physical) Consultant's Authorized Project Representative: Name: Roman Aguirre Title: Vice President Physical Address: 1501 W. Fountainhead Pkwy., Ste. 401 Tempe, AZ 85282 Mailing Address: Phone: 602-402-3494 Email: roman.aguirre@jacobs.com

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 contract 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 contracts 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 Contract 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 a contract 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 a contract 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 contract 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 contract 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 - 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.

SIGNATURE PAGE TO FOLLOW

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

MAYOR

Recommended By:

Andrew Goh, P.E.
CIP City Engineer

APPROVED AS TO FORM:

City Attorney

[Handwritten Signature]

ATTEST:

City Clerk

Seal

"CONSULTANT"

Jacobs Engineering Group Inc.

[Handwritten Signature]

Signature

6-29-21

Date

Roman J. Aguirre

Print Name

Vice President

Title

Roman.Aguirre@jacobs.com

Signer Email Address

EXHIBIT "A"
SCOPE OF SERVICES/SCHEDULE



CHANDLER PECOS SURFACE WATER TREATMENT PLANT
SCADA UPGRADES

Scope of Work

June 21, 2021

Project Understanding and Background

The City of Chandler Pecos Surface Water Treatment Plant (Pecos SWTP), located at 1475 East Pecos Road, was put into service in 1989. Pecos SWTP produces drinking water for the City's residents and businesses. Additionally, the control of the City's water distribution network is also housed at Pecos SWTP. In order to protect the health and safety of the water customers, City staff relies heavily on automation to reliably communicate with water facilities. This automation is in the form of the Supervisory Control and Data Acquisition (SCADA) system. SCADA controls and monitors Pecos SWTP and several remote facilities. Beyond system control, SCADA also captures numerous data points for system analysis and regulatory reporting. The City's 2019 SCADA Master Plan identified a project to replace the existing Foxboro system.

Pecos SWTP 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) with Modicon PLCs and Wonderware HMI. This effort will entail hardware replacement, upgrades to operational technology (OT) (i.e. the systems that control and monitor treatment plant functions), and integration with remote facilities and possible replacement of other obsolete equipment, such as power supplies or radio components. 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 SCADA software screens. No treatment process upgrades are contemplated. The project will use a Construction Manager at Risk (CMAR) delivery approach 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 (City and OWNER) for the SCADA Upgrade Project at Pecos SWTP. 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 Pecos SWTP to prepare for a utility-wide conversion.
2. Updating the control descriptions and HMI programming at the Pecos SWTP to be consistent with current desired operations.
3. Adding functionality for process control and collection of operations information throughout the Pecos SWTP.
4. Assessing the communications interface at the water 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 Pecos SWTP 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 Pecos SWTP 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. The work will be performed in the following phases:

- Phase 1 – Project Definition
- Phase 2 – Preliminary Design
- Phase 3 – Detailed Design
- Phase 4 – Phased Implementation and Commissioning (not included in this scope of work / to be added by amendment)
- Phase 5 – 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 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 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 set up 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 Pecos SWTP 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. The exception to this would be review comments from Development Services which will be provided directly from the review department.
- ix. 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.
- 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. All assessments, design, and implementation of radio equipment upgrades will be performed under the CMAR contract.
- xii. No life safety improvements (fire alarm) are required in existing facilities due to this work.
- xiii. No physical security systems such as cameras, card swipes, and door actuators are required in existing facilities due to this work.
- xiv. No new end devices such as instrumentation, VFDs, 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.

- xv. The design costs are based on the plant SCADA system requiring approximately 3200 input/output (I/O), which will require up to 500 design drawings including 400 I/O drawings (assuming 8 I/O points per drawing) plus additional 100 miscellaneous drawings required to convey the work to the CMAR and document the installation. This includes the I/O for existing systems on the Foxboro SCADA indicated in the 2005 plant expansion specifications for both the conventional and Actiflo trains, and areas of the plant that are currently operating but not on Foxboro SCADA system, but that will be added to the new Wonderware system (Preseds, Conventional Basins, Gravity Thickener, Belt Press, and High PSI Pump Station). This does not include vendor panels, which are covered with an allowance.
- xvi. The work is estimated for Phases 1, 2, 3 and 5, only. The rough estimated fees for Phases 2 and 3 are assumed to be conservative; it is anticipated that the scope for Phases 2 and 3 will be refined during initial delivery under Phase 1. The Phase 2 and 3 budgets will be revised as necessary. Phase 4 scope and fee will be estimated during detailed design and may be added via amendment. Project Management is estimated only through detailed design and additional effort will be included in the Phase 4 amendment.
- xvii. The ENGINEER anticipates Phases 1, 2, 3 and 5 to be completed by November 30, 2022 assuming an August 1, 2021 NTP, as indicated in the project schedule attached (total duration of 16 months). Phase 4 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: Project Definition

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: Project Definition
1.1 - Existing Documentation Review
1.2 - Site Assessments and Evaluation
1.3 - Interviews
1.4 - Project Definition Development Workshops
1.5 - SCADA System Security Workshop
1.6 - Preliminary Cost Estimates, Prioritization and Budget Reconciliation
1.7 - Project Definition Report/Summary Workshop
1.8 - Control Room Relocation Collaboration
1.9 - SCADA HMI Standards and Requirements Development

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 Pecos WTP and the control system at Pecos (current and future).
- Perform Site Visits
 - a) Identify Sites and schedule for site visits.
 - b) Document all control system assets at Pecos and each of 66 remote water sites.

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 assessment for Pecos SWTP and all water remote facilities 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 water/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 Development Workshops

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:
 - o Requirement for a temporary network infrastructure to keep the plant functional.
 - o The sequence for cutting over the new SCADA system.
 - o 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 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.

1.5.1 Assumptions

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

1.5.2 Deliverables

- Draft and Final Cyber Security Assessment.

1.6 Preliminary Cost Estimates, Prioritization and Budget Reconciliation

An Association for the Advancement of Cost Engineering (AACE) Class 5 cost estimate will be prepared for the desired upgrades. Based on budget guidelines from the City, the team will prioritize project elements and reconcile needs. The project definition that meets the OWNER'S budgetary constraints will go forward.

1.6.1 Assumptions

- Develop Engineer's Opinion of Probable Construction Costs based on an AACE Class 5 cost estimate.

1.6.2 Deliverables

- AACE Class 5 cost estimate.
- Prioritization of Items and Final Project Definition.

1.7 Project Definition Summary Workshop

A workshop presentation will be prepared to document the findings and decisions of this phase of the work to be used as a framework for design.

1.7.1 Deliverables

- Project Definition Presentation.

1.8 Control Room Relocation Collaboration

ENGINEER will coordinate with OWNER'S architectural consultant (ARCHITECT) to collaborate on requirements for relocating the plant control room within the existing Operations Building. The ENGINEER will participate in a workshop led by the ARCHITECT, and review concept design prepared by the ARCHITECT. Server room HVAC system specifications and requirements for UPS will be included in the review.

1.8.1 Assumptions

- One workshop, 2 hours in length, attended by up to 4 ENGINEER staff.
- Review of Conceptual Design from ARCHITECT.

1.8.2 Deliverables

- Participation in collaborative workshops.
- Review comments.

1.9 SCADA HMI Standards and Requirements Development

The ENGINEER will prepare a draft and final 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 Pecos 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.

1.9.1 Assumptions

- Existing programming standards will be provided to Jacobs.

1.9.2 Deliverables

- Draft and Final SCADA HMI Standards document.

2. Phase 2: Preliminary Design

Phase 2 includes conducting preliminary design (approximately 30% concepts) for the SCADA upgrades to do the important research to ensure that the concepts of the detailed design are feasible and have been fully vetted. The objective of this phase is to develop preliminary design in collaboration with CMAR to ensure the plan is constructible, efficient and thorough.

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

Phase 2: Preliminary Design
2.1 - Design Drawing and Specification Lists
2.2 - Preliminary Design Report
2.3 - Develop Conceptual Network Design
2.4 - CMAR Construction Planning Workshops
2.5 - Cost Estimates Review and Tracking

2.1 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.

2.1.1 Deliverables

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

2.2 Preliminary Design Report

The above-mentioned design elements, Phase 1 workshop meeting minutes, decisions, and technical memorandums will be captured in a unified Preliminary Design Report (PDR). This document will 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. 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.

Prior to submitting the report to the OWNER, the ENGINEER will perform a comprehensive QA/QC review of this document. ENGINEER will incorporate OWNER'S comments prior to 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.

2.2.1 Deliverables

- Draft and Final PDR.

2.3 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 prior to 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.
- Secure cellular network for remote facilities.

2.3.1 Assumptions

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

- Draft and Final Conceptual Network Design.

2.4 CMAR Construction Planning Workshops

ENGINEER will coordinate with the CMAR on developing the best approach to implement the work. Specific approaches for how to best approach constructability, sequencing, and maintaining plant operations will be addressed. Four CMAR workshops are assumed for this preliminary design phase.

During this phase, our design team will again confirm the planned switchovers and transitions to the new systems. The ENGINEER will develop a summary of work specifications to provide the appropriate constraints to convey the switchover intent and plan to the contractor. The specification will accomplish the following tasks:

- Provide a listing of switchover activities that will affect production systems operations. The CMAR Contractor will need to consider these when developing their construction schedule.
- Prescribe the length of interruption to different processes, such as a given well or pump.
- Provide the 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.
- Require prerequisite activities be completed and conditionally accepted by OWNER prior to performing subsequent work.
- Specify appropriate notice for all work activities.

2.4.1.1 Assumptions

- Up to 4 CMAR workshops, 4 hours each.

2.4.1.2 Deliverables

- Meeting Agendas.
- Meeting Minutes.
- Preliminary Concepts for Phased Implementation and MOPOs.

2.5 Cost Estimates Review and Tracking

Preliminary costs will be updated by the CMAR using a cost model. ENGINEER will collaborate with CMAR and review their cost model at key milestones. ENGINEER and CMAR will develop preliminary concepts for phased Guaranteed Maximum Prices (GMPs) and implementation.

2.5.1 Assumptions

- CMAR will provide detailed market pricing as available.

2.5.2 Deliverables

- Review comments on CMAR Cost Model.
- Preliminary Concepts for Phased GMP Development.

3. Phase 3: Detailed Design

Phase 3 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 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 3 includes the following main tasks:

Phase 3: Detailed Design
3.1 - Detailed Design Development
3.2 - Migration (Cut Over) Plan and MOPOs
3.3 - Final Construction Documents
3.4 - City Code Review Coordination
3.5 - GMP Cost Tracking and Development by CMAR
3.6 - GMP Review

3.1 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.

3.1.1 Assumptions

- Bi-weekly design meetings will be held remotely, up to 2 hours in length.

- Up to 7 bi-weekly meetings will be conducted during the 3 month design duration (as noted in the schedule).

3.1.2 Deliverables

- Draft construction drawings and specifications.

3.2 Migration (Cut Over) Plan and MOPOs

ENGINEER will lead development of the Migration Plan in collaboration with the 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 prior to 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.

3.2.1 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.

3.2.2 Deliverables

- Draft and Final Migration Plan.

3.3 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.

3.3.1 Assumptions

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

3.3.2 Deliverables

- Final 100 % construction drawings and specifications.

3.4 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.

3.4.1 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.

3.4.2 Deliverables

- Adjudication of DSD review comments.

3.5 GMP Cost Tracking and Development by CMAR

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 can be finalized when desired by the City, as early as 60% design. ENGINEER will review costs provided by CMAR at key milestones throughout design. An intermediate GMP review workshop will be held.

3.5.1 Assumptions

- CMAR will track costs and provided cost models for review by ENGINEER and OWNER at key milestones.

3.5.2 Deliverables

- Intermediate GMP Cost review Report.

3.6 GMP Review

ENGINEER will review impacts of design changes to the cost throughout design and perform a review of the GMP costs, clarifications, and exceptions. A final GMP review workshop and a GMP reconciliation workshop will be held.

3.6.1 Deliverables

- Final GMP Cost review Report.

4. Phase 4: Phased Implementation and Commissioning (Placeholder)

(Placeholder Scope Outline for Amendment to be Developed During Detailed Design)

Phase 4 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 4 is anticipated to include the following main tasks:

Phase 4: Phased Implementation and Commissioning
4.1 - Detailed Construction-Level Documentation Review
4.2 - SCADA Migration Implementation Leadership
4.3 - HMI Programming Validation with Replica Digital Twin
4.4 - Control System Testing and Pre-Tuning
4.5 - SCADA Training for City Operations

- 4.1 Detailed Construction - Level Documentation Review
- 4.2 SCADA Migration Implementation Leadership
- 4.3 HMI Programming Validation with Replica Digital Twin
- 4.4 Control System Testing and Pre - Tuning
- 4.5 SCADA Training for City Operations

5. Phase 5: 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. **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.
3. **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.
4. **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. Baseline costs will be developed after site investigations and preliminary engineering, and cost evolution 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 5 includes the following main tasks:

Phase 5: Project Management
5.1 – Project Kickoff
5.2 – Project Execution Plan
5.3 – Monthly Progress Reports, Schedule Updates, and Invoices
5.4 – Progress Meetings/Calls
5.5 – QC/QC Senior Review

5.1 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 Pecos WTP SCADA system upgrades project.

A workshop will be designed to create a commonly understood project purpose, ensure appropriate team members, and clear 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

5.1.1 Assumptions

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

5.1.2 Deliverables

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

5.2 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.

5.2.1 Assumptions

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

5.2.2 Deliverables

- PMP including Quality Control Plan and Project Instructions

5.3 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.

5.4 Progress Meetings/Calls

The ENGINEER's Project Manager will conduct bi-weekly progress meetings/calls of up to 2 hours 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.

5.5 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 prior to submission of draft versions of deliverables to the OWNER's Project Manager.

5.5.1 Assumptions

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

5.5.2 Deliverables

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

6. 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: SRP, Santan Vista, MCESD	\$50,000
2	Design of Vendor panels for: flocc, polymer blend, high pressure pump station, onsite chlorine generation, blowers, thickened sludge pumps, power monitors on switchgear and MCCs	\$100,000
3	Consolidate As-Built P&IDs and O&M manuals	\$250,000
4	Additional Optional Design for (1) Wireless Access points for full plant coverage (2) Existing Electrical Buckets in MCCs to provide for Remote control (3) Additional End Devices based upon Owners request (e.g., Bisulfite system, Surge Tank)	\$150,000
	TOTAL Allowances	\$550,000

- Allowance Item 1: Coordinate design efforts with the SRP, SANTAN Vista, and MCESD agencies. Jacobs will collaborate and inform outside agencies of any improvements to the Pecos WTP SCADA system. This effort will include meetings, assessments at agency sites, and design.
- Allowance Item 2: Design new controls for listed Pecos WTP Vendor package control systems that will meet the City of OWNER'S SCADA standards. This effort will allow a more complete standardized control system throughout Pecos WTP.
- Allowance Item 3: Jacobs will create new As-Built P&IDs and develop updated O&M manuals for the new SCADA system to document changes to equipment and controls after the SCADA upgrade installation is complete
- Allowance Item 4: In addition to designing the new SCADA system at Pecos WTP, Jacobs will design a wireless network system that will give network coverage throughout the plant, design new motor controls for equipment that is currently not tied into SCADA, and provide design for additional end devices such as flow meters, level meters, and analytical meters identified by plant staff that will provide additional information and control in areas that are currently not monitored or controlled.

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.

7. Schedule

Work for the SCADA upgrades Phases 1, 2, 3, and 5 will be performed in accordance with the schedule attached. The target NTP is August 1, 2021. Work through detailed design is anticipated to take through November 30, 2022 (total duration of 16 months). The schedule for Phase 4: Implementation and Commissioning is a placeholder estimate of duration and will be refined during detailed design.

8. 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, 3 and 5.. Work for Phase 4 will be estimated and finalized during detailed design and added to the project contract via an amendment. Allowances are provided for optional work to be done at the direction and approval of the City.

Jacobs

Chandler Pecos SCADA Upgrades

Project Start:

Thu, 1-Apr-2021

Task	Start	End
SELECTION NOTICE	1-Apr-21	1-Apr-21
SCOPING AND CONTRACT NEGOTIATIONS	1-Apr-21	1-Aug-21
COUNCIL APPROVAL	15-Jul-21	15-Jul-21
NOTICE TO PROCEED	1-Aug-21	1-Aug-21
Project Kickoff and Chartering Session	2-Aug-21	16-Aug-21
Phase 1: Project Definition		
1.1 - Existing Documentation Review	2-Aug-21	3-Oct-21
1.2 - Site Assessments and Evaluation	2-Aug-21	2-Nov-21
1.3 - Interviews	2-Aug-21	2-Nov-21
1.4 - Project Definition Development Workshops	2-Aug-21	2-Jan-22
1.5 - SCADA System Security Workshop	2-Sep-21	2-Nov-21
1.6 - Preliminary Cost Estimates, Prioritization and Budget Reconciliation	2-Nov-21	16-Feb-22
1.7 - Project Definition Report/Summary Workshop	2-Jan-22	16-Feb-22
1.8 - Control Room Relocation Collaboration	2-Jan-22	16-Feb-22
1.9 - SCADA HMI Standards and Requirements Development	2-Sep-21	16-Feb-22
Phase 2: Preliminary Design		
2.1 - Design Drawing and Specification Lists	16-Feb-22	3-May-22
2.2 - Preliminary Design Report	16-Feb-22	3-May-22
2.3 - Develop Conceptual Network Design	16-Feb-22	3-May-22
2.4 - CMAR Construction Planning Workshops	3-May-22	3-Jul-22
2.5 - Cost Estimates Review and Tracking	3-May-22	3-Jul-22
Phase 3: Detailed Design		
3.1 - Detailed Design Development	2-Jul-22	30-Sep-22
3.2 - Migration (Cut Over) Plan and MOPOs	2-Jul-22	30-Sep-22
3.3 - Final Construction Documents	30-Sep-22	30-Nov-22
3.4 - City Code Review Coordination	31-Jul-22	30-Nov-22
3.5 - GMP Cost Tracking and Development by CMAR	31-Jul-22	30-Nov-22
3.6 - GMP Review	30-Sep-22	30-Nov-22
Phase 4: Phased Implementation and Commissioning (Placeholder)		
4.1 - Detailed Construction-Level Documentation Review	2-Nov-22	3-Jul-23
4.2 - SCADA Migration Implementation Leadership	2-Nov-22	3-Jul-23
4.3 - HMI Programming Validation with Replica Digital Twin	2-Nov-22	3-Jul-23
4.4 - Control System Testing and Pre-Tuning	2-Nov-22	3-Jul-23
4.5 - SCADA Training for City Operations	2-Jun-23	3-Jul-23
Project Management	2-Aug-21	2-Aug-23
Plant Operations Constraints		
SRP Annual Canal Dry-up 2021/2022	15-Nov-21	1-Feb-22
Pecos WTP Shutdown 2021	15-Nov-21	1-Feb-22
SRP Annual Canal Dry-up 2022	15-Nov-22	1-Feb-23
Pecos WTP Shutdown 2022	15-Nov-22	1-Feb-23
High Water Demand/No Shutdowns 2022	1-Apr-22	1-Aug-22
Limited Shutdowns Allowed 2022	1-Aug-22	30-Nov-22
High Water Demand/No Shutdowns 2023	1-Apr-23	1-Aug-23

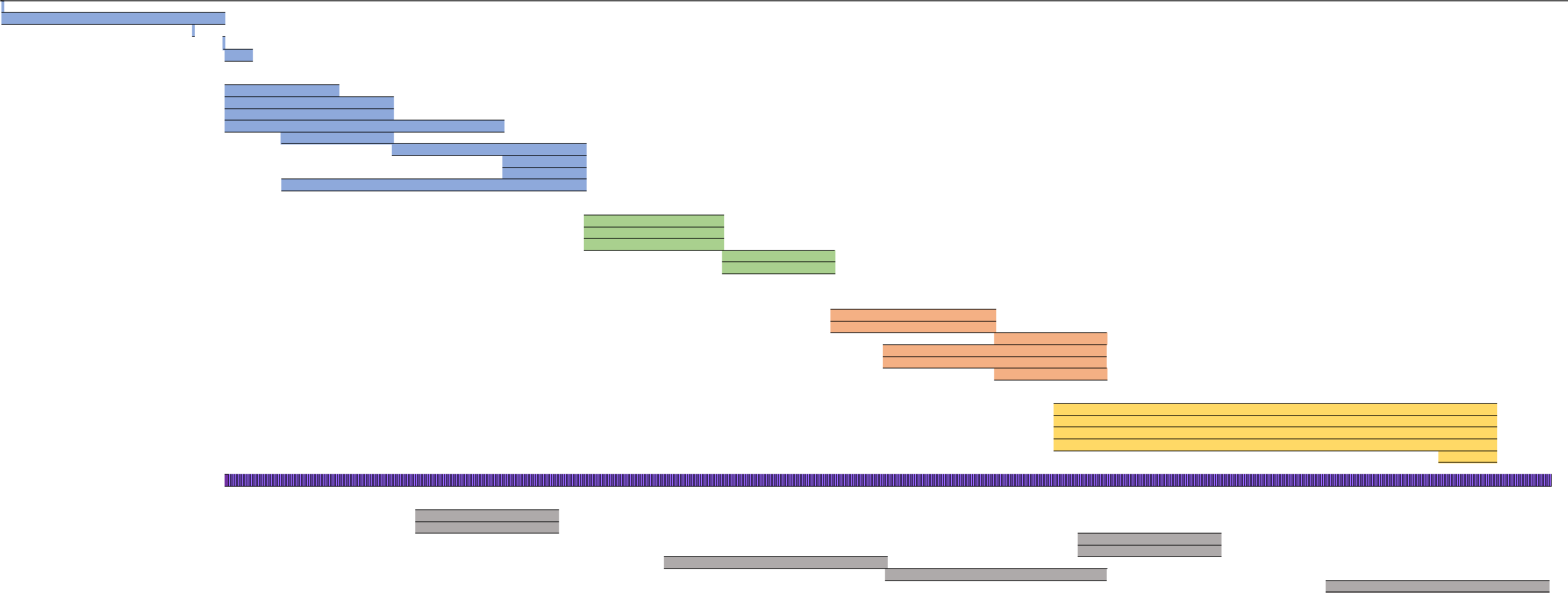
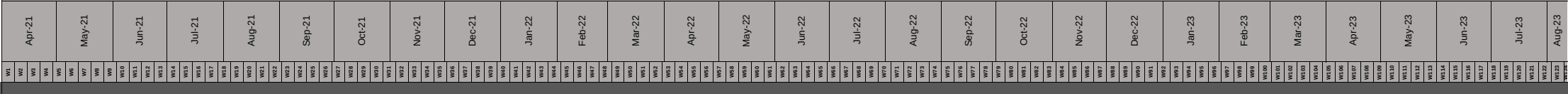


EXHIBIT "B"
COMPENSATION AND FEES

Jacobs

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

TASK DESCRIPTION		SUBTOTAL
Phase 1: Project Definition		\$ 599,660.00
1.1	Existing Documentation Review	\$ 89,520.00
1.2	Site Assessments and Evaluation	\$ 101,760.00
1.3	Interviews	\$ 39,840.00
1.4	Project Definition Development Workshops	\$ 87,550.00
1.5	SCADA System Security Workshop	\$ 56,120.00
1.6	Preliminary Cost Estimates, Prioritization and Budget Reconciliation	\$ 63,720.00
1.7	Project Definition Report/Summary Workshop	\$ 70,220.00
1.8	Control Room Relocation Collaboration	\$ 12,440.00
1.9	SCADA HMI Standards and Requirements Development	\$ 78,490.00
Phase 2: Preliminary Design		\$ 447,230.00
2.1	Design Drawing and Specification Lists	\$ 22,820.00
2.2	Preliminary Design Report	\$ 282,470.00
2.3	Develop Conceptual Network Design	\$ 81,080.00
2.4	CMAR Construction Planning Workshops	\$ 38,800.00
2.5	Cost Estimates Review and Tracking	\$ 22,060.00
Phase 3: Detailed Design		\$ 2,074,282.00
3.1	Detailed Design Development	\$ 1,358,070.00
3.2	Migration (Cut Over) Plan and MOPOs	\$ 188,900.00
3.3	Final Construction Documents	\$ 309,812.00
3.4	City Code Review Coordination	\$ 60,600.00
3.5	GMP Cost Tracking and Development by CMAR	\$ 73,600.00
3.6	GMP Review	\$ 83,300.00
Phase 4: Phased Implementation and Commissioning (Placeholder)		\$ -
		\$ -
		\$ -
Phase 5: Project Management		\$ 115,800.00
5.1	Project Kickoff	\$ 4,800.00
5.2	Project Execution Plan	\$ 16,400.00
5.3	Monthly Progress Reports, Schedule Updates, and Invoices	\$ 48,400.00
5.4	Progress Meetings/Calls	\$ 32,400.00
5.5	QA/QC Senior Review	\$ 13,800.00
Expenses		\$ 55,300.00
Subconsultants		\$ -
SUBTOTAL COST:		\$ 3,292,272.00
Allowances		
1	Agency Coordination: SRP, Santan Vista, MCESD	\$ 50,000.00
2	Design of Vendor Panels	\$ 100,000.00
3	Consolidate As-Built P&IDs and O&M Manuals	\$ 250,000.00
4	Additional Optional Design	\$ 150,000.00
5	Owner's Allowance	\$ 300,000.00
SUBTOTAL ALLOWANCES:		\$ 850,000.00
TOTAL COST:		\$ 4,142,272.00

Chandler Pecos SCADA Upgrades

Phase 1: Project Definition

LEVEL OF EFFORT

No.	Task Description	Teresa Smith-Dehesus	Jay Hardison	Jeff Kanyuch	Ed McDaniel	Nick Edgett	Tyler Nading	Chris Dermody	Tony Stewart	TBD	Hillary Feier / Will Porter	Johnathan James	Adrea Ellis	Jonathan Castanos	Various	Various	Various	Various	Scott Palmer	Various	Various		Total	Subtotal
		Principal/ Project Manager	SCADA Design Manager	Principal/ Technical Advisor (Implementation)	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	Scheduler / Project Controls	Senior Cost Estimator	Office Support		Labor Hours	Labor
		Bill Rate	\$ 280.00	\$ 270.00	\$ 280.00	\$ 205.00	\$ 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	\$ 220.00	\$ 220.00	\$ 100.00		
1.1	Existing Documentation Review																							
	Subtotal	16	24	4	8	8	8	0	24	8	0	16	40	120	40	200	0	0	0	0	20	0	536	\$89,520
1.2	Site Assessments and Evaluation																							
	Subtotal	24	60	24	0	0	0	0	40	0	0	24	24	120	80	120	0	0	0	0	20	0	536	\$101,760
1.3	Interviews																							
	Subtotal	24	24	2	8	8	8	0	8	8	0	4	24	24	24	24	0	0	0	0	0	0	190	\$39,840
1.4	Project Definition Development Workshops																							
	Subtotal	24	40	24	24	24	24	4	40	30	24	16	24	40	40	40	0	0	0	0	0	0	418	\$87,550
1.5	SCADA System Security Workshop																							
	Subtotal	16	24	4	0	0	0	4	100	4	0	0	8	40	20	40	0	0	0	0	0	0	260	\$56,120
1.6	Preliminary Cost Estimates, Prioritization and Budget Reconciliation																							
	Subtotal	24	40	8	8	8	8	8	8	0	0	0	0	40	40	0	0	0	0	90	0	0	282	\$63,720
1.7	Project Definition Report/Summary Workshop																							
	Subtotal	30	40	8	8	8	8	16	24	8	8	8	8	40	16	40	0	0	45	0	30	0	345	\$70,220
1.8	Control Room Relocation Collaboration																							
	Subtotal	12	12	0	0	0	0	0	0	8	0	0	12	12	0	0	0	0	0	0	0	0	56	\$12,440
1.9	SCADA HMI Standards and Requirements Development																							
	Subtotal	24	42	8	18	18	8	8	0	8	16	8	16	100	50	80	0	0	0	0	20	0	424	\$78,490
TOTAL		194	306	82	74	74	64	40	244	74	48	76	156	536	310	544	0	0	45	90	90	0	3047	\$599,660

Chandler Pecos SCADA Upgrades

Phase 2: Preliminary Design

LEVEL OF EFFORT

No.	Task Description	Teresa Smith-Dehesus	Jay Hardison	Jeff Kanyuch	Ed McDaniel	Nick Edgett	Tyler Nading	Chris Dermody	Tony Stewart	TBD	Hillary Feier / Will Porter	Johnathan James	Adrea Ellis	Jonathan Castanos	Various	Various	Various	Various	Scott Palmer	Various	Various		Total	Subtotal
		Principal/ Project Manager	SCADA Design Manager	Principal/ Technical Advisor (Implementation)	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	Scheduler / Project Controls	Senior Cost Estimator	Office Support		Labor Hours	Labor
		Bill Rate	\$ 280.00	\$ 270.00	\$ 280.00	\$ 205.00	\$ 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	\$ 220.00	\$ 220.00	\$ 100.00		
2.1	Design Drawing and Specification Lists																							
	Subtotal	8	16	8	0	0	0	0	8	0	0	4	8	40	0	20	8	0	0	0	0	0	120	\$22,820
2.2	Preliminary Design Report																							
	Subtotal	68	128	20	45	45	45	37	67	25	45	33	149	292	185	145	29	45	16	0	45	0	1464	\$282,470
2.3	Develop Conceptual Network Design																							
	Subtotal	20	40	12	0	0	0	4	60	0	0	0	60	120	40	40	8	0	0	0	0	0	404	\$81,080
2.4	CMAR Construction Planning Workshops																							
	Subtotal	20	20	30	0	0	0	0	20	20	0	8	8	20	0	20	0	0	8	0	0	0	174	\$38,800
2.5	Cost Estimates Review and Tracking																							
	Develop Preliminary Cost Table																							
	Preliminary Concepts for Phased GMP Development																							
	Subtotal	8	16	16	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	45	0	0	89	\$22,060
TOTAL		124	220	86	45	45	45	45	155	45	45	45	225	472	225	225	45	45	24	45	45	0	2251	\$447,230

Chandler Pecos SCADA Upgrades

Phase 3: Detailed Design

LEVEL OF EFFORT

No.	Task Description	Teresa Smith-Dehesus	Jay Hardison	Jeff Kanyuch	Ed McDaniel	Nick Edgett	Tyler Nading	Chris Dermody	Tony Stewart	TBD	Hillary Feier / Will Porter	Johnathan James	Adrea Ellis	Jonathan Castanos	Various	Various	Various	Various	Scott Palmer	Various	Various		Total	Subtotal
		Principal/Project Manager	SCADA Design Manager	Principal/Technical Advisor (Implementation)	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	Scheduler / Project Controls	Senior Cost Estimator	Office Support		Labor Hours	Labor
	Bill Rate	\$ 280.00	\$ 270.00	\$ 280.00	\$ 205.00	\$ 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	\$ 220.00	\$ 220.00	\$ 100.00			
3.1	Detailed Design Development																							
	Subtotal	140	360	24	72	80	100	116	140	120	160	192	336	1008	1002	1008	1008	2520	20	0	100	0	8506	\$1,358,070
3.2	Migration (Cut Over) Plan and MOPOs																							
	Subtotal	100	120	120	0	0	0	40	40	40	0	40	40	100	100	0	0	0	40	0	40	0	820	\$188,900
3.3	Final Construction Documents																							
	Subtotal	38	96	24	48	20	0	48	48	40	40	48	120	101	101	240	240	600	20	0	60	0	1932	\$309,812
3.4	City Code Review Coordination																							
	Subtotal	40	80	20	0	0	0	0	0	0	0	40	0	40	40	0	0	0	0	0	0	0	260	\$60,600
3.5	GMP Cost Tracking and Development by CMAR																							
	Subtotal	60	100	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	290	\$73,600
3.6	GMP Review																							
	Subtotal	60	100	20	0	0	0	20	0	20	0	0	0	0	0	0	0	0	10	100	0	0	330	\$83,300
TOTAL		438	856	228	120	100	100	224	228	220	200	320	496	1249	1243	1248	1248	3120	100	200	200	0	12138	\$2,074,282

Chandler Pecos SCADA Upgrades

Phase 5: Project Management

LEVEL OF EFFORT

No.	Task Description	Teresa Smith-Dehesus	Jay Hardison	Jeff Kanyuch	Ed McDaniel	Nick Edgett	Tyler Nading	Chris Dermody	Tony Stewart	TBD	Hillary Feier / Will Porter	Johnathan James	Adrea Ellis	Jonathan Castanos	Various	Various	Various	Various	Scott Palmer	Various	Various		Total	Subtotal
		Principal/Project Manager	SCADA Design Manager	Principal/Technical Advisor (Implementation)	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	Scheduler / Project Controls	Senior Cost Estimator	Office Support		Labor Hours	Labor
	Bill Rate	\$ 280.00	\$ 270.00	\$ 280.00	\$ 205.00	\$ 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	\$ 220.00	\$ 220.00	\$ 100.00			
5.1	Project Kickoff																							
	Subtotal	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	20	\$4,800
5.2	Project Execution Plan																							
	Subtotal	20	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	\$16,400
5.3	Monthly Progress Reports, Schedule Updates, and Invoices																							
	Subtotal	80	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	0	20	0	200	\$48,400
5.4	Progress Meetings/Calls																							
	Subtotal	80		0	0	0	0	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	160	\$32,400
5.5	QA/QC Senior Review																							
	Subtotal	0	20	0	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	\$13,800
TOTAL		188	108	0	0	0	0	30	0	0	0	0	0	0	0	80	0	0	60	0	24	0	490	\$115,800

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 contract 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 shall 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 shall 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 shall 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 shall provide proof of same.

2.5.1. The insurance shall provide coverage for the following risks:

(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 against City, its officers, officials, agents, and employees, for losses arising from Work performed by Consultant for City.

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 Contract/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.

Patent Fees and Royalties. Consultant must pay all license fees and royalties and assume all costs incidental to the use, in the performance of the work or the incorporation in the work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Agreement for use in the performance of the work and if, to the actual knowledge of City, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed by City in the Agreement. Consultant must defend, indemnify and hold harmless City and anyone directly or indirectly employed by City from and against all claims, damages, losses, and expenses (including attorneys' fees) arising out of any infringement of patent rights or copyrights incidental to the use in the performance of the work, or resulting from the incorporation in the work of any invention, design, process, product, or device not specified in the Agreement, and must defend all such claims in connection with any alleged infringement of such rights.

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.

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.