



BOARD OF SUPERVISORS AGENDA ITEM REPORT AWARDS / CONTRACTS / GRANTS

☐ Award ☒ Contract ☐ Grant

Requested Board Meeting Date: 08/21/23

* = Mandatory, information must be provided

or Procurement Director Award: ☐

***Contractor/Vendor Name/Grantor (DBA):**

Kiewit Infrastructure West Co. (Headquarters: Omaha, NE)

***Project Title/Description:**

Design-Build Services: Sidestream Anitamox Process (3ANOMX)

***Purpose:**

Award: Contract No. CT-WW-23-455. This award is recommended to the highest qualified Design-Build Team in the amount of \$1,150,652.68 for a contract term from 08/21/23 to 02/20/27 for Design and Pre-Construction Services for the Sidestream Anitamox Process at the Tres Rios Wastewater Reclamation Facility. County intends to negotiate with Design-Builder regarding scope, schedule, general conditions, construction fees and other elements of the Guaranteed Maximum Price (GMP) for construction services and incorporate into this Contract by amendment. Administering Department: Regional Wastewater Reclamation.

***Procurement Method:**

Solicitation for Qualifications No. SFQ-PO-2300014 was conducted in accordance with A.R.S. § 34-603 and Pima County Board of Supervisors Policy D29.1. One (1) responsive statement of qualifications was received and evaluated by a seven (7) member committee using qualifications and experience-based selection criteria. Based upon the evaluation of the respondent's written representation of their qualifications and necessary due diligence, a short list of one (1) respondent was invited to interview. As a result of the combined scoring of the written statement of qualifications and interview, the highest qualified design-builder is recommended for award. This project is expected to have multiple GMP's for construction services. The Design-Builder's construction budget is set to not exceed \$4,868,453.32.

Board of Supervisors to authorize the Procurement Director to execute all modifications, including one or more Guaranteed Maximum Price (GMP) packages, provided that the cumulative total of all GMPs, Design and Pre-Construction Services does not exceed \$6,019,340.00 and the contract expiration date does not exceed 02/20/27, which allows for all contract close-out activities and final submittals.

Attachments: Notice of Recommendation for Award and Contract.

***Program Goals/Predicted Outcomes:**

Recent advances in emerging deammonification processes targeted at sidestream treatment of wastes resulting from dewatering of biosolids have proved extremely economical for the removal of total nitrogen and ammonia from wastewater. Anaerobic deammonification is attractive compared to traditional nitrification and denitrification processes because it requires decreased aeration energy, requires no external source of carbon and results in decreased solids production.

***Public Benefit:**

Incorporation of a sidestream Anitamox deammonification process at Tres Rios can result in both operational benefits and energy savings while simultaneously reducing both ammonia and total nitrogen. The reduction in aeration demand will result in significant energy cost savings to the County and ratepayers as well as reduction of biomass and associated processing costs.

***Metrics Available to Measure Performance:**

The Design-Builder's performance will be measured using the contractor evaluation process as outlined in BOS Policy D29.1 (E).

***Retroactive:**

No.

THE APPLICABLE SECTION(S) BELOW MUST BE COMPLETED

Click or tap the boxes to enter text. If not applicable, indicate "N/A". Make sure to complete mandatory (*) fields

Contract / Award Information

Document Type: CT Department Code: WW Contract Number (i.e., 15-123): 23-455
 Commencement Date: 08/21/23 Termination Date: 02/20/27 Prior Contract Number (Synergen/CMS): _____
☒ Expense Amount \$ 1,150,652.68 * ☐ Revenue Amount: \$ _____

***Funding Source(s) required: Regional Wastewater Reclamation Department Obligations**

Funding from General Fund? ☐ Yes ☒ No If Yes \$ _____ % _____

Contract is fully or partially funded with Federal Funds? ☐ Yes ☒ No

If Yes, is the Contract to a vendor or subrecipient? _____

Were insurance or indemnity clauses modified? ☐ Yes ☒ No

If Yes, attach Risk's approval.

Vendor is using a Social Security Number? ☐ Yes ☒ No

If Yes, attach the required form per Administrative Procedure 22-10.

Amendment / Revised Award Information

Document Type: _____ Department Code: _____ Contract Number (i.e., 15-123): _____

Amendment No.: _____ AMS Version No.: _____

Commencement Date: _____ New Termination Date: _____

Prior Contract No. (Synergen/CMS): _____

☐ Expense ☐ Revenue ☐ Increase ☐ Decrease

Amount This Amendment: \$ _____

Is there revenue included? ☐ Yes ☐ No If Yes \$ _____

***Funding Source(s) required: _____**

Funding from General Fund? ☐ Yes ☐ No If Yes \$ _____ % _____

Grant/Amendment Information (for grants acceptance and awards)

☐ Award ☐ Amendment

Document Type: _____ Department Code: _____ Grant Number (i.e., 15-123): _____

Commencement Date: _____ Termination Date: _____ Amendment Number: _____

☐ Match Amount: \$ _____ ☐ Revenue Amount: \$ _____

***All Funding Source(s) required: _____**

*Match funding from General Fund? ☐ Yes ☐ No If Yes \$ _____ % _____

*Match funding from other sources? ☐ Yes ☐ No If Yes \$ _____ % _____

*Funding Source: _____

*If Federal funds are received, is funding coming directly from the Federal government or passed through other organization(s)? _____

Contact: Procurement Officer: James Johnson Digitally signed by James Johnson Date: 2023.08.04 11:48:39 -07'00' Division Manager: Scott Loomis Digitally signed by Scott Loomis Date: 2023.08.04 11:50:38 -07'00'

Department: Procurement Director: Terri Spencer Digitally signed by Terri Spencer Date: 2023.08.07 09:51:36 -07'00' Telephone: 520-724-7465

Department Director Signature: Jackson Jenkins Digitally signed by Jackson Jenkins Date: 2023.08.07 10:15:24 -07'00'

Deputy County Administrator Signature: _____ Date: 8/7/2023

County Administrator Signature: _____ Date: 8/7/2023



NOTICE OF RECOMMENDATION FOR AWARD

Date of Issue: August 3, 2023

The Pima County Procurement Department hereby issues formal notice to respondents to Solicitation No. SFQ-PO-2300014 for Design-Build Services: Sidestream Anitamox Process (3ANOMX) that the following listed respondent will be recommended for award as indicated below. The award action is scheduled to be performed by the Board of Supervisors on or after August 21, 2023.

Award is recommended to the most qualified Respondent.

AWARDEE NAME

Kiewit Infrastructure West Co. with Hazen and Sawyer, P.C.

OTHER RESPONDENT NAMES

N/A

NOTE: Pursuant to A.R.S. §34-603(H), only the names of the firms on the final list may be disclosed.

Issued by: James Johnson, Procurement Officer

Telephone Number: 520-724-7465

This notice is in compliance with Pima County Procurement Code §11.12.010(C) and §11.20.010(C).

Copy to: Pima County SBE via e-mail at SBE@pima.gov.

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT

PROJECT: Design-Build Services: Sidestream Anitamox Process (3ANOMX)

CONTRACTOR: Kiewit Infrastructure West Co.
3888 E. Broadway Rd.
Phoenix, AZ 85040

CONTRACT NO.: CT-WW-23-455

AMOUNT: \$1,150,652.68

FUNDING: Regional Wastewater Reclamation Department Obligations

DESIGN-BUILD CONTRACT

1. Parties, Background and Purpose.

- 1.1. Parties. This Contract is between Pima County, a body politic and corporate of the State of Arizona ("County"), and Kiewit Infrastructure West Co. County and Design-Builder may also be individually referred to as a "Party" or collectively as the "Parties."
- 1.2. History. County previously issued Solicitation for Qualifications (SFQ) No. SFQ-PO-2300014 (hereinafter referred to as the "Solicitation") seeking a Design-Build services provider; the documents, amendments, requirements and specifications of which are all incorporated into this Contract by reference.
- 1.3. Design-Builder Selection. Design-Builder was selected by County through the evaluation process described in the Solicitation in accordance with A.R.S. § 34-603.
- 1.4. Purpose. The Parties desire to enter into this Contract to effect the completion of the Project on a Guaranteed Maximum Price ("GMP") basis.

2. Effective Date, Term, and Schedule.

- 2.1. The effective date of this Contract is the date last signed below.
- 2.2. Unless otherwise terminated or extended, in writing, pursuant to other provisions of this Contract, the term of this Contract shall commence on 08/21/23 and terminate on 02/20/27 (the "Term").
- 2.3. Design-Builder provided County with a preliminary schedule covering the planning, design, and construction of the Project which is included in Appendix D - Design and Preconstruction Services Fee Proposal (18 pages). The schedule complies with County's goal of having Design-Builder complete the Project within 36 months of Design-Builder receiving the notice to proceed from County.

3. Scope of Services.

- 3.1. This is a Design-Build Contract for architectural, engineering, and construction services (collectively, the "Services") for Project, as more fully set forth in the following documents attached this Contract: Appendix A – Project Scope of Work (96 pages); Appendix B – Supplemental Provisions – Construction Costing (5 pages); Appendix C – Design-Builder General Conditions (46 pages); and Appendix D – Design and Preconstruction Services Fee Proposal (18 pages).

- 3.2. Design-Builder will proceed with the Work in two phases: Phase 1 - Design and Preconstruction Services; and Phase 2 – Construction Services. This Contract covers only Phase 1 as that is defined in the Scope. Prior to any Design-Builder work on Phase 2, Design-Builder must deliver to County a proposed GMP, or multiple GMPs, if construction is divided into multiple phases.
- 3.3. With respect to Phase 2 – Construction Services, the Parties acknowledge that the Construction Documents may be incomplete at the time Design-Builder delivers the GMP proposal to County, and that Design-Builder may not complete the Construction Documents until after Design-Builder begins work on Phase 2. Nevertheless, Design-Builder's GMP proposal shall include all anticipated costs for the Work required for Phase 2. If County accepts Design-Builder's GMP proposal, Design-Builder will not be entitled to any increase in the GMP unless the Work required by the completed Construction Documents: (i) is required by this Contract for Design-Build Construction; (ii) is reasonably inferable from the incomplete construction documents submitted with the proposed GMP; (iii) is consistent with County's programmatic goals and objectives; (iv) is consistent with County's Design and Construction Standards and the general industry standards for completion of the Work; (v) is not a substantial enlargement of the scope of Work; or (vi) substantially conforms to the nature, type, kind, or quality of Work depicted in the incomplete construction documents submitted with the GMP proposal.
- 3.4. If a GMP proposal is unacceptable to County, County will promptly notify Design-Builder in writing. Within 14 calendar days of notification, County and Design-Builder will meet to discuss and resolve any differences, inconsistencies, or misunderstandings and to negotiate recommended adjustments to the Work and/or to the proposed GMP.
- 3.5. County may, at its sole discretion and based upon its sole judgment follow Appendix C Section 2.3.7.3 with respect to any GMP submitted by Design-Builder pursuant to Contract.
- 3.6. If County rejects a GMP proposal, neither party shall have any further obligations or liabilities pursuant to this Contract except in the event of any notice from County to Design-Builder of deficiencies in the Work due to Design-Builder's failure to meet the Standard of Care, then Design-Builder shall re-perform the deficient Work and re-perform any associated services at no cost to County.
- 3.7. If County accepts a GMP proposal, the parties will complete and execute an amendment to this Contract, and County will issue a written Notice to Proceed to Design-Builder establishing the date that Design-Builder will commence Phase 2 (the "Phase Commencement Date"). Design-Builder shall not expend any monies for the new phase prior to receipt of the Notice to Proceed.
4. **Key Personnel.** Design-Builder will employ suitably trained and skilled professional personnel to perform all services under this Contract. Prior to changing any key personnel, especially those key personnel County identified in Design-Builder's Statement of Qualifications relied upon in making this Contract, Design-Builder will obtain the approval of County.
5. **Compensation and Payment.**
 - 5.1. County will pay Design-Builder at the rates in Appendix D – Design and Preconstruction Services Fee Proposal. County's total payments to Design-Builder for Phase 1 Work, including sales taxes (if applicable), will not exceed \$1,150,652.68 (the "Not-to-Exceed Amount" or "NTE amount"). The payment amounts or rates in Appendix D – Design and Preconstruction Services Fee Proposal do not include sales taxes. Design-Builder may invoice County for the sales taxes Design-Builder is required to pay on goods supplied to County under this Contract.
 - 5.2. Design-Builder will invoice County on a monthly basis unless a different billing period is included in Appendix A. County must receive invoices no more than 30 calendar days after the end of the billing period in which Design-Builder delivered the invoiced products or services to County. County may refuse to pay for any product or service for which Design-Builder does not timely

invoice County and, pursuant to A.R.S. § 11-622(C), will not pay for any product or service invoiced more than six months late. Design-Builder will cite the Contract number on all invoices. Design-Builder shall show sales taxes as a separate line item on invoices. Any pre-printed terms and conditions on a purchase order form do not apply to Work performed under this Contract, which is to be governed solely by the terms of this Contract, including all attached and referenced documents.

- 5.3. County may, at any time during the Term and during the retention period set forth in Section 30 below, question any payment under this Contract. If County raises a question about the propriety of a past payment, Design-Builder will cooperate with County in reviewing the payment. County may set-off any overpayment against amounts due to Design-Builder under this or any other contract between County and Design-Builder. Design-Builder will promptly pay County any overpayment that County cannot recover by set-off.
- 5.4. Design-Builder will not perform work in excess of the GMP without prior authorization by a written Change Order executed by County's Board of Supervisors or Procurement Director pursuant to the Pima County Procurement Code. Work performed in excess of the GMP without a written and properly approved Change Order is done at Design-Builder's own risk.
- 5.5. Price Guarantees. Upon acceptance by County of a GMP under Section 3.7:
 - 5.5.1. Design-Builder guarantees that the sum of: (i) the actual cost of the work; (ii) Design-Builder's contingency; (iii) Design-Builder's staffing costs; (iv) the general conditions cost; and (v) Design-Builder's overhead and profit, will not exceed the amount in the accepted GMP. Design-Builder is responsible for all costs or expenses that would cause the sum of the items above to exceed the GMP unless County has adjusted the GMP by an approved change order.
 - 5.5.2. Design-Builder certifies that: all unit costs supporting the GMP proposal are accurate, complete, and current at the time of negotiations; and that any other factual unit costs that Design-Builder may provide to County in the future to support any additional amounts that County may authorize will also be accurate and complete. County may reduce payments to Design-Builder if County determines that any amounts Design-Builder included are materially inaccurate, incomplete, or non-current factual unit costs.
6. **Insurance.** The Insurance Requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract. County in no way warrants that the minimum limits contained herein are sufficient to protect Design-Builder from liabilities that arise out of the performance of the work under this Contract. Design-Builder is free to purchase additional insurance.

Design-Builder's insurance will be placed with companies licensed in the State of Arizona or hold approved non-admitted status on the Arizona Department of Insurance List of Qualified Unauthorized Insurers. Insurers will have an "A.M. Best" rating of not less than A- VII. County in no way warrants that the above- required minimum insurer rating is sufficient to protect Design-Builder from potential insurer insolvency.

6.1. Minimum Scope and Limits of Insurance.

Design-Builder will procure and maintain, until all of their obligations have been discharged, coverage with limits of liability not less than those stated below.

- 6.1.1. Commercial General Liability (CGL) – Occurrence Form with limits of \$2,000,000 Each Occurrence and \$2,000,000 General Aggregate. Policy will include bodily injury, property damage, and broad form Contractual liability coverage, and products – completed operations.

6.1.2. Business Automobile Liability – Bodily Injury and Property Damage for any owned, hired, and/or non-owned automobiles used in the performance of this Contract with a Combined Single Limit (CSL) of \$1,000,000.

6.1.3. Workers' Compensation (WC) and Employers' Liability - Statutory requirements and benefits. In Arizona, WC coverage is compulsory for employers of one or more employees. Employer's Liability coverage- \$1,000,000 each accident and each person – disease.

Note: The Workers' Compensation requirement will not apply to a Design-Builder that is exempt under A.R.S. § 23-901, and when such Design-Builder executes the appropriate County Sole Proprietor or Independent Design-Builder waiver form.

6.1.4. Builder's Risk Insurance does apply to this contract. Design-Builder shall be required to maintain throughout the course of construction, Builder's Risk Insurance in a dollar amount equal to the full insurable value of the work under contract, which shall include "All Risk" coverage. Pima County shall be named as a "Loss Payee". Design-Builder shall be responsible for equipment, materials, and supplies until completion of the project and acceptance by Pima County.

6.1.5. Professional Liability (Errors and Omissions) Insurance – The policy limits will be not less than \$2,000,000 Each Claim and \$2,000,000 Annual Aggregate. The policy will cover negligent acts for professional services arising out of the Work of this Contract.

In the event that the Professional Liability insurance required by this Contract is written on a claims-made basis, Design-Builder warrants that any retroactive date under the policy will precede the effective date of this Contract and, 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 Contract is completed.

6.2. Additional Insurance Requirements

Insurance provided by Design-Builder will not limit Design-Builder's liability assumed under the indemnification provisions of this Contract. The policies shall include, or be endorsed to include, as required by this written agreement, the following provisions:

6.2.1. Additional Insured Endorsement: The General Liability and Business Automobile Liability Policies will each be endorsed to include County, its departments, districts, boards, commissions, officers, officials, agents, and employees as additional insureds with respect to liability arising out of the activities performed by or on behalf of Design-Builder.

6.2.2. Subrogation Endorsement: The General Liability, Business Automobile Liability and Workers' Compensation Policies will each contain a waiver of subrogation endorsement in favor of County, and its departments, districts, boards, commissions, officers, officials, agents, and employees for losses arising from work performed by or on behalf of Design-Builder.

6.2.3. Primary Insurance Endorsement: Design-Builder's policies will stipulate that the insurance afforded Design-Builder will be primary and that any insurance carried by the Department, its agents, officials, employees or County will be excess and not contributory insurance, as provided by A.R.S. § 41-621 (E).

6.3. Notice of Cancellation.

For each insurance policy required by the insurance provisions of this Contract, Design-Builder must provide to County, within two business days of receipt, a notice if a policy is suspended,

voided, or cancelled for any reason. Such notice will be mailed, emailed, hand-delivered or sent by facsimile transmission to Pima County Procurement, 150 West Congress Street, 5th Floor, Tucson, Arizona 85701-1317 or via fax to (520) 724-3646.

6.4. Verification of Coverage.

Design-Builder will furnish County with certificates of insurance (valid ACORD form or equivalent approved by County) as required by this Contract. An authorized representative of the insurer will sign the certificates.

6.4.1. All certificates and endorsements, as required by this written agreement, are to be received and approved by County before work commences. Each insurance policy required by this Contract must be in effect at, or prior to, commencement of work under this Contract. Failure to maintain the insurance coverages or policies as required by this Contract, or to provide evidence of renewal, is a material breach of Contract.

6.4.2. All certificates required by this Contract will be sent directly to the Department. County Project or Contract number and Project description will be noted on the certificate of insurance. County reserves the right to require complete copies of all insurance policies required by this Contract at any time.

6.5. Approval and Modifications.

The Pima County Risk Manager may modify the Insurance Requirements at any point during the Term of this Contract. This can be done administratively, with written notice from the Risk Manager and does not require a formal Contract amendment. Neither the County's failure to obtain a required insurance certificate or endorsement, the County's failure to object to a non-complying insurance certificate or endorsement, nor the County's receipt of any other information from the Contractor, its insurance broker(s) and/or insurer(s), constitutes a waiver of any of the Insurance Requirements.

7. **Payment and Performance Bonds.**

As required by A.R.S. § 34-610 and § 34-611 and, as a condition precedent to receiving a Notice to Proceed for any new construction phase of the Work, Design-Builder will deliver to County the Performance Bond and the Payment Bond, each in an amount equal to the portion of the GMP attributable to that phase of the construction work, as financial security for the faithful performance and payment of its Design- Build Period obligations hereunder. The Design-Builder will provide for an increase in the Performance Bond and the Payment Bond to reflect any GMP adjustments, as a condition of its entitlement to the GMP adjustment.

7.1. The Performance Bond and the Payment Bond must be substantially in the form set forth in Attachment 1 hereto and must be issued by a surety company: (1) verified by County having a rating of "A-" in the latest revision of the A.M. Best Company's Insurance Report; (2) be listed in the United States Treasury Department's Circular 570, "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsurance Companies"; and (3) holding a certificate of authority to transact surety business in the State of Arizona, issued by the Director of the Department of Insurance.

7.2. The Performance Bond and the Payment Bond shall be released only upon the achievement of Final Completion by Design-Builder. In no event shall the Performance Bond or the Payment Bond serve as a limitation on the liability of Design-Builder under this Contract.

7.3. Design-Builder's failure to maintain the Performance Bond and Payment Bond in the required amounts throughout the construction phases of this Contract will constitute material breach of this Contract.

- 8. Design-Builder's Performance.** Design-Builder is responsible for the professional quality, technical accuracy, timely completion, and coordination of all its efforts and other services under this Contract. Without additional compensation from County, Design-Builder will correct or revise any errors, omissions, or other deficiencies in all products of its efforts and other services provided. This will include resolving any deficiencies arising out of the willful or negligent acts or omissions of Design-Builder found during or after the course of the services performed by or for Design-Builder under this Contract, to the extent that such willful or negligent errors, omissions, and acts fall below the standard of care and skill that a professional Design-Builder in Arizona would exercise under similar conditions. Design-Builder is responsible for these corrections or revisions regardless of County having knowledge of or condoning/accepting the efforts or services.
- 9. Excusable Delays.** Neither Party shall be liable to the other nor deemed in default under this Contract if and to the extent that such Party's performance is prevented or delayed by reason of an Uncontrollable Circumstance. For purposes of this Contract, Uncontrollable Circumstance means any act, event, or condition that: (1) is beyond the reasonable control of the party relying on it as a justification for not performing an obligation or complying with any condition required of such party under this Contract; and (2) materially expands the scope of, interferes with, delays, or increases the cost of performing the party's obligations under this Contract, to the extent that such act, event, or condition is not the result of the intentional or negligent act, error, or omission, failure to exercise reasonable diligence, or breach of this Contract on the part of the party claiming the occurrence of an uncontrollable circumstance. Excusable Delays shall not include late performance by a subcontractor unless the delay arises out of an Uncontrollable Circumstance. A party shall extend the time of completion by a Change Order for a period of time equal to the time the Uncontrollable Circumstance prevented the delayed Party from performing in accordance with this Contract.
- 10. Liquidated Damages.** Design-Builder agrees to achieve substantial completion by the end date as determined by mutual agreement of the Parties at time of GMP. Design-Builder's failure to reach Substantial Completion within the Term will substantially harm County. Because damages resulting from such a failure cannot be calculated with any degree of certainty, the Parties agree that if Contractor does not achieve Substantial Completion within the Term (as may be amended through written Change Orders), Design-Builder will pay to County as liquidated damages, and not a penalty, a dollar amount not-to-exceed limits set forth in Pima Association of Governments (PAG) Standards and Specifications, Section 108-9, for each calendar day between the deadline for Substantial Completion and the date Design-Builder actually achieves Substantial Completion. Dollar amount to be determined by mutual agreement of the Parties at time of GMP. The Parties further agree that the daily liquidated damages amount is fair, reasonable, and not subject to later challenge.
- 11. Unilateral Change Directive.** County may issue a unilateral change directive to Design-Builder at any time during the term of the Contract. Upon receipt of a unilateral change directive, Design-Builder will promptly proceed with the performance of any change in the Work as instructed and will promptly advise County in writing of Design-Builder's agreement (or disagreement) with any price, performance, or schedule, if any, as may be proposed by County in the unilateral change directive. No unilateral change directive will be binding on either Party unless it has been approved by the Pima County Board of Supervisors or, if authorized, County's Procurement Director. A unilateral change directive that is signed by Design-Builder and approved by the Pima County Board of Supervisors or Procurement Director reflecting the Scope of Work and any price, schedule, or performance relief, if any, will be deemed a Change Order.
- 12. Suspension/Termination for Convenience**
- 12.1. Suspension by County for Convenience. County may, without cause, order Design-Builder, in writing, to suspend or interrupt the Work in whole or in part for such period of time as County may determine necessary whenever such suspension or interruption would be in the best interest of County. If County suspends the Work for convenience, an adjustment shall be made for substantiated increases in the cost of performance of the Contract, if any, including profit on the

increased cost of performance, caused by suspension or interruption. No adjustment shall be made to the extent:

12.1.1. performance is, was, or would have been so suspended or interrupted by another cause for which Design-Builder is responsible; or

12.1.2. an equitable adjustment is made or denied by County.

12.2. Termination by County for Convenience.

12.2.1. The performance of the Work under this Contract may be terminated by County, in whole or in part, in accordance with this clause whenever County reasonably determines that such termination is in the best interest of County. Any such termination will be affected by delivery to Design-Builder of a written Notice of Termination specifying the extent to which performance of the Work is terminated, and the date upon which such termination becomes effective.

12.2.2. If the Contract is terminated by County as provided herein, County will compensate Design-Builder for any Work performed, and accepted, prior to the termination, together with profit in proportion to the Work performed and accepted. The compensation shall include payment for contractual obligations reasonably incurred prior to termination. No amount will be allowed for: anticipated profit on unperformed Work; or consequential damages to Design-Builder resulting from the termination.

12.2.3. Termination of the Contract or any portion thereof by County for convenience will not relieve Design-Builder of its contractual responsibilities for Work completed.

13. Termination for Cause.

13.1. Events of Default. This Contract may be terminated for cause upon the occurrence of one or more of the following Events of Default:

13.1.1. If Design-Builder fails or neglects to carry out the Work in accordance with the provisions of the Contract Documents, and fails, after 10 calendar days written notice from County, to correct such failure or neglect and thereafter diligently pursue the Project to completion;

13.1.2. If Design-Builder materially breaches this Contract and fails, after 10 days written notice from County, to correct such breach and thereafter diligently pursue the Project to completion; or

13.1.3. If a custodian, trustee or receiver is appointed for Design-Builder, or if Design-Builder becomes insolvent or bankrupt, or makes an assignment for the benefit of creditors, or Design-Builder causes or suffers an order for relief to be entered with respect to it under applicable Federal bankruptcy law or applies for or consents to the appointment of a custodian, trustee or receiver for Design-Builder, or bankruptcy, reorganization, arrangement or insolvency proceedings, or other proceedings for relief under any bankruptcy or similar law or laws for the relief of debtors, are instituted by or against Design-Builder, and in any of the foregoing cases such action is not discharged or terminated within 60 days of its institution.

13.2. Remedies of County Upon an Event of Default.

- 13.2.1. Upon an Event of Default, County has the right to terminate this Contract upon an additional seven days' written notice to Design-Builder provided Design-Builder has not commenced a cure within the seven-day period.
- 13.2.2. Without prejudice to any of County's other rights or remedies, County may:
 - 13.2.2.1. Take possession of all data, reports, and work in progress in possession of Design-Builder or to which Design-Builder otherwise has rights;
 - 13.2.2.2. Accept assignment of Subcontracts; and
 - 13.2.2.3. Finish the Work by whatever reasonable method County may deem expedient.
- 13.2.3. If County terminates the Contract under this Section 13.2, Design-Builder is not entitled to receive further payment until the Work is finished. If the unpaid balance exceeds costs incurred in finishing the Work, such excess may be paid to Design-Builder, up to the amount due Design-Builder to the date of the termination. If such costs exceed the unpaid balance of the Contract, Design-Builder will pay the difference to County.

14. Dispute Resolution.

- 14.1. In the event of any dispute between County and Design-Builder regarding any part of this Contract or the Contract Documents, or the Parties' obligations or performance hereunder, either Party may institute these dispute resolution procedures. The Parties shall continue performance of their respective obligations notwithstanding the existence of a dispute.
 - 14.1.1. The Parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Builder and County each commit to resolving such disputes or disagreements in an amicable, professional, and expeditious manner to avoid unnecessary losses, delays, and disruptions to the Work. Design-Builder and County will first attempt to resolve disputes or disagreements at the field level through discussions between Design-Builder's Representative and County's Representative.
 - 14.1.2. Either Party may, from time to time, call a special meeting for the resolution of disputes that would have a material impact on the cost or progress of the Project. This meeting will be held at County's offices within three working days of a written request for a meeting that specifies in reasonable detail the nature of the dispute. County's Project Manager and Design-Builder's Project Manager will attend the meeting. These Representatives shall attempt in good faith to resolve the dispute. If unable to resolve the dispute, the Parties may agree to escalation of discussions to a higher level before proceeding to mediation, as described below.
 - 14.1.3. If the Parties are unable to resolve the dispute through the special meeting or escalation, then either Party may request non-binding mediation. The non-requesting Party may decline the request in its reasonable discretion. If there is concurrence that any matter will be mediated, a mediator, mutually acceptable to the Parties and experienced in design and construction matters as well as in the Design-Build procurement method will be appointed. The Parties will share the cost of the mediator. The mediator will be given any written statements of the Parties and may review Project and any relevant documents. The mediator will call a meeting of the Parties within 10 working days after his/her appointment, which meeting will be attended by County's Project Manager and

Design-Builder's Project Manager. Such Authorized Representatives shall attempt in good faith to resolve the dispute. During such 10-day period, the mediator may meet with the Parties separately.

14.1.4. No minutes will be kept with respect to any mediation proceedings and the comments and/or findings of the mediator, together with any written statements prepared by the Parties, will be non-binding, confidential, and without prejudice to the rights and remedies of any Party. The entire mediation process must be completed within 20 working days of the date upon which the initial special meeting is held, unless the Parties agree otherwise in writing. If the dispute is settled through the mediation process, the decision will be implemented by written agreement signed by the Parties.

14.1.5. Nothing in this Section limits, interferes with, or delays the right of either Party to this Contract to commence judicial legal proceedings upon a breach of this Contract by the other Party, whether in lieu of, concurrently with, or at the conclusion on any non-binding mediation.

15. No Consequential or Punitive Damages. In no event will either Party be liable to the other or obligated in any manner to pay to the other any special, incidental, consequential, punitive, or similar damages based upon claims arising out of or in connection with the performance or non-performance of its obligations or otherwise under this Contract, or the material falseness or inaccuracy of any representation made in this Contract, whether such claims are based upon contract, tort, negligence, warranty, or other legal theory; provided, however, that the waiver of the foregoing damages under this Section is intended to apply only to disputes and claims as between County and Design-Builder. Nothing in this Section shall limit the obligation of Design-Builder to indemnify, defend and hold harmless County Indemnitees for any special, incidental, consequential, punitive, or similar damages payable to third parties resulting from any act or circumstance for which Design-Builder is obligated to indemnify County Indemnitees hereunder. In addition, the Parties acknowledge and agree that nothing in this Section will serve as a limitation or defense with respect to any obligation of a party to pay liquidated damages specifically provided for under this Contract.

16. Laws and Regulations.

16.1. Compliance with Laws. Design-Builder will comply with all federal, state, and local laws, rules, regulations, standards, and Executive Orders.

16.2. Licensing. Design-Builder warrants that it (directly or through its subcontractors) is appropriately licensed to provide all services required under this Contract and that its subcontractors will be appropriately licensed.

16.3. Choice of Law; Venue. The laws and regulations of the State of Arizona govern the rights of the parties, the performance of this Contract, and any disputes hereunder. Any action relating to this Contract will be brought and maintained in Superior Court in Pima County.

17. Independent Contractor. Design-Builder is an independent Contractor. Neither Design-Builder, nor any of Design-Builder's officers, agents or employees will be considered an employee of Pima County for any purpose or be entitled to receive any employment-related benefits, or assert any protections, under the Pima County Merit System. Design-Builder is responsible for paying all federal, state and local taxes on the compensation received by Design-Builder under this Contract and will indemnify and hold County harmless from any and all liability that County may incur because of Design-Builder's failure to pay such taxes.

18. Subcontractors. Design-Builder is fully responsible for all acts and omissions of its subcontractors, and of persons directly or indirectly employed by Design-Builder's subcontractors, and of persons for whose acts any of them may be liable, to the same extent that Design-Builder is responsible for the acts and omissions of its own employees. Nothing in this Contract creates any obligation on the part of

County to pay or see to the payment of any money due any subcontractor, except as may be required by law.

- 19. Assignment.** Design-Builder may not assign its rights or obligations under this Contract, in whole or in part, without County's prior written approval. County may withhold approval at its sole discretion.
- 20. Non-Discrimination.** Design-Builder will comply with all provisions and requirements of Arizona Executive Order 2009-09, which is hereby incorporated into this contract, including flow-down of all provisions and requirements to any subcontractors. During the performance of this Contract, Design-Builder will not discriminate against any employee, client, or any other individual in any way because of that person's age, race, creed, color, religion, sex, disability, or national origin.
- 21. Americans with Disabilities Act.** Design-Builder will comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including 28 CFR Parts 35 and 36.
- 22. Authority to Contract.** Design-Builder warrants its right and power to enter into this Contract. If any court or administrative agency determines that County does not have authority to enter into this Contract, County will not be liable to Design-Builder or any third party by reason of such determination or by reason of this Contract.
- 23. Full and Complete Performance.** The failure of either Party to insist, in one or more instances, upon the other Party's full and complete performance under this Contract, or to take any action based on the other Party's failure to fully and completely perform, is not a waiver or relinquishment of the right to insist upon full and complete performance of the same, or any other covenant or condition, either in the past or in the future. The acceptance by either Party of sums less than may be due and owing it at any time is not an accord and satisfaction.
- 24. Cancellation for Conflict of Interest.** This Contract is subject to cancellation for conflict of interest pursuant to A.R.S. § 38-511, the pertinent provisions of which are incorporated into this Contract by reference.
- 25. Notice.** Any notice required or permitted to be given under this Contract must be in writing and be served by personal delivery, email or by certified mail upon the other Party as follows:

County:

Jackson Jenkins, Director
Regional Wastewater Reclamation Department
201 N. Stone Ave., 8th Floor
Tucson, AZ 85701
Tel : (520) 724-6549

Design-Builder:

Darron Rolle
Kiewit Infrastructure West Co.
3888 E Broadway Rd.
Phoenix, AZ 85040
Tel : (602) 437-7878

- 26. Non-Exclusive Contract.** Design-Builder understands that this Contract is nonexclusive and is for the sole convenience of County. County reserves the right to obtain like services from other sources for any reason.
- 27. Remedies.** Either Party may pursue any remedies provided by law for the breach of this Contract. No right or remedy is intended to be exclusive of any other right or remedy and each is cumulative and in addition to any other right or remedy existing at law or at equity or by virtue of this Contract.
- 28. Encumbrances.** Design-Builder will not directly or indirectly create or permit to be created or to remain, and shall promptly discharge or bond any encumbrance or lien arising in relation to the Project or the Design-Build Work. Design-Builder's Subcontracts with all materialmen, suppliers, and Subcontractors shall provide that the sole recourse for such materialmen, suppliers, and Subcontractors for non-payment shall be against the Payment Bond.

29. Severability. Each provision of this Contract stands alone, and any provision of this Contract found to be prohibited by law will be ineffective to the extent of such prohibition without invalidating the remainder of this Contract.

30. Books and Records. Design-Builder will keep and maintain proper and complete books, records, and accounts, which will be open at all reasonable times for inspection and audit by duly authorized representatives of County. In addition, Design-Builder will retain all records relating to this Contract for at least five (5) years after its expiration or termination or, if later, until any related pending proceeding or litigation has concluded.

31. Public Records.

31.1 Disclosure. Pursuant to A.R.S. § 39-121 et seq., and A.R.S. § 34-603(H) in the case of construction or Architectural and Engineering services procured under A.R.S. Title 34, Chapter 6, all documents submitted in response to the solicitation resulting in award of this Contract, including, but not limited to, pricing schedules, product specifications, work plans, and any supporting documents, are public records. As such, those documents are subject to release and/or review by the general public upon request, including competitors.

31.2 Records Marked Confidential; Notice and Protective Order. If Design-Builder reasonably believes that some of those records contain proprietary, trade-secret, or otherwise-confidential information, Design-Builder must prominently mark those records "CONFIDENTIAL." In the event a public-records request is submitted to County for records marked CONFIDENTIAL, County will notify Design-Builder of the request as soon as reasonably possible. County will release the records 10 business days after the date of that notice, unless Design-Builder, within that period, secured an appropriate order from a court of competent jurisdiction, enjoining the release of the records. County will not, under any circumstances, be responsible for securing such an order, nor will County be in any way financially responsible for any costs associated with securing such an order.

32. Legal Arizona Workers Act Compliance.

32.1 Compliance with Immigration Laws. Design-Builder hereby warrants that it will at all times during the term of this Contract comply with all federal immigration laws applicable to its employment of its employees, and with the requirements of A.R.S. § 23-214 (A) (together the "State and Federal Immigration Laws"). Con Design-Builder further ensure that each subcontractor who performs any work for Design-Builder under this Contract likewise complies with the State and Federal Immigration Laws.

32.2 Books & Records. County has the right at any time to inspect the books and records of Design-Builder and any subcontractor in order to verify such party's compliance with the State and Federal Immigration Laws.

32.3 Remedies for Breach of Warranty. Any breach of Design-Builder's or any subcontractor's warranty of compliance with the State and Federal Immigration Laws, or of any other provision of this section, is a material breach of this Contract subjecting Design-Builder to penalties up to and including suspension or termination of this Contract. If the breach is by a subcontractor, and the subcontract is suspended or terminated as a result, Design-Builder will be required to take such steps as may be necessary to either self-perform the services that would have been provided under the subcontract or retain a replacement subcontractor, as soon as possible so as not to delay project completion. Any additional costs attributable directly or indirectly to such remedial action are the responsibility of Design-Builder.

- 32.4 Subcontractors. Design-Builder will advise each subcontractor of County's rights and the subcontractor's obligations under this Section by including a provision in each subcontract substantially in the following form:

"Subcontractor hereby warrants that it will at all times during the term of this contract comply with all federal immigration laws applicable to Subcontractor's employees, and with the requirements of A.R.S. § 23-214 (A). Subcontractor further agrees that County may inspect the Subcontractor's books and records to ensure that Subcontractor is in compliance with these requirements. Any breach of this Section by Subcontractor is a material breach of this Contract subjecting Subcontractor to penalties up to and including suspension or termination of this Contract."

33. Grant Compliance. Not Applicable.

- 34. Israel Boycott Certification.** Pursuant to A.R.S. § 35-393.01, if Design-Builder engages in for-profit activity and has 10 or more employees, and if this Contract has a value of \$100,000.00 or more, Design-Builder certifies it is not currently engaged in, and agrees for the duration of this Contract to not engage in, a boycott of goods or services from Israel. This certification does not apply to a boycott prohibited by 50 U.S.C. § 4842 or a regulation issued pursuant to 50 U.S.C. § 4842.

- 35. Forced Labor of Ethnic Uyghurs.** Pursuant to A.R.S. § 35-394, if Design-Builder engages in for-profit activity and has 10 or more employees, Design-Builder certifies it is not currently using, and agrees for the duration of this Contract to not use (1) the forced labor of ethnic Uyghurs in the People's Republic of China; (2) any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; and (3) any contractors, subcontractors or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China. If Design-Builder becomes aware during the term of the Contract that the Company is not in compliance with A.R.S. § 35-394, Design-Builder must notify the County within five business days and provide a written certification to County regarding compliance within one hundred eighty days.

- 36. No Third-Party Beneficiaries.** Unless explicitly stated otherwise elsewhere in this Contract, no person other than the Parties themselves has any rights or remedies under this Contract.

- 37. Entire Agreement.** This document constitutes the entire agreement between the Parties pertaining to the subject matter it addresses, and this Contract supersedes all prior or contemporaneous agreements and understandings, whether oral or written. In the event of any conflict between the terms and provisions of this Agreement and those of any Schedule, Exhibit or Statement of Work, the following order of precedence shall govern: (a) first, this Contract, exclusive of any Schedules, Change Orders, and the General Conditions; (b) second, the Scope of Services; (c) third, any Change Orders; (d) fourth, the General Conditions in Appendix C; (e) fifth, any Appendices to this Agreement.

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IN WITNESS WHEREOF, the Parties have affixed their signatures to this Contract on the dates written below.

PIMA COUNTY

Chair, Board of Supervisors

Date

ATTEST:

Clerk of the Board

Date

DESIGN-BUILDER



Authorized Officer Signature

Stan M. Driver, Senior Vice President

Printed Name and Title

August 7, 2023

Date

This contract template has been approved as to form by the Pima County Attorney's Office.

APPENDIX A - PROJECT SCOPE OF WORK (96 Pages)

The Tres Rios Water Reclamation Facility (TRWRF) is the largest wastewater treatment plant in Pima County and operates as a conventional Biological Nutrient Removal (BNR) facility using a 5-stage configuration for both nitrification and denitrification processes. In addition, the TRWRF operates a regional biosolids management facility (RBMF) for processing solids from all RWRD facilities. Constructed in 2013, the TRWRF was designed to meet a total nitrogen discharge limit of 8 mg/L. However, the TRWRF received a renewed Arizona Pollution Discharge Elimination System (AZPDES) permit in 2017 requiring it to meet new Ammonia limits. The new standard is listed in Arizona Administrative Code, Title 18, Chapter 11 Department of Environmental Quality Water Quality Standards and contains both acute and chronic ammonia limits that are contingent upon temperature and/or pH values. Because the TRWRF discharge represents the base flow in the Santa Cruz River, the more stringent chronic standards apply which can range from 1.5 mg/L in summer to 4.5 mg/L in the winter.

To address this new ammonia limit, the TRWRF must make modifications to the existing process to ensure compliance throughout the year. A key process for targeting ammonia reduction is the centrate sidestream waste generated through the dewatering of anaerobically digested bio-solids at the RBMF. The centrate sidestream waste typically contains ammonia concentrations of 1,000 mg/L and a volume between 300,000 – 500,000 gallons each day which represent almost 30% of the daily ammonia load processed at the TRWRF. This return flow poses challenges for recycling into the treatment process and controlling nitrogen removal and therefore should be the easiest and very possibly the only process modification necessary for achieving long term compliance with the new ammonia limit.

Pima County RWRD has evaluated various treatment options through a previous DB selection process and has selected the Anitamox process as the preferred solution for the Tres Rios WRF. The inclusion of the Anitamox process represents the easiest process modification necessary for achieving long term compliance with the new ammonia limit. An additional benefit of the Anitamox process is a gain in treatment capacity at the Tres Rios WRF and a 17% reduction in aeration energy and CO₂ emissions for achieving the County's emission reduction goals.

The sidestream Anitamox treatment process will be designed to reliably treat the full volume of sidestream waste at the Tres Rios WRF on a 24-hour, 365-day per year basis. The effluent from the sidestream Anitamox treatment process shall have an ammonia concentration less than 150 mg/L. The Anitamox process shall repurpose an existing basin at the Tres Rios WRF.

Influent Design Basis

Parameter	Units	Current Value
Flow	MGD	0.500
BOD ₅	mg/L	350
COD	mg/L	950
TSS	mg/L	142
TKN	mg/L	1,360
NH ₄ -N	mg/L	1,260
Alkalinity	mg/L	3,310
Elevation	ft	2,390
Minimum Temperature	°C	31.4



Location of the Sidestream Treatment Process Installation.

System Performance Requirements

The effluent from the sidestream Anitamox treatment process shall be designed to have the anticipated performance efficiencies.

1. The Anitamox process shall be able to reduce sidestream ammonia concentrations by 85% and total inorganic nitrogen by 80%.
2. Facility shall be able to process sidestream waste 24 hrs./day, 365 days per year.
3. Facility must be fully automated under PLC control and integrated with the Tres Rios SCADA system providing complete read/write access include remote control, monitoring, alarm processing and enunciation, trending and data archiving capabilities for both manual and automated control.
4. Facility operation shall not result in an increase in manpower or FTEs beyond normal operator rounds and not require dedicated personnel for operation.

Additionally, the Anitamox process shall not require chemical treatments to reduce ammonia and require no supplemental carbon or alkalinity additions.

The Contractor will provide a PLC to receive real time SCADA information for the parameters furnished by Pima County and are listed below:

- The PLC shall be able to send/receive real time information with the plant SCADA for the parameters listed below and up to ten spares:
 - Reactor and Equalization Influent Flows
 - Reactor Air Flow in SCFM and Valve Position Setting and Timer Setting
 - Reactor Mixer Operation
 - pH Value
 - Dissolved Oxygen Concentration
 - Ammonia Concentration
 - Nitrate Concentration
 - Temperature
 - Pump Flow Rate
 - Influent Valve Position

O&M Training

Six months prior to start-up the Contractor shall submit to Pima County a complete draft O&M manual for review and comment by Pima County. The O&M Manual shall be specific for the subject Project and in a form acceptable to Pima County. The O&M Manual shall be provide in hardcopy and electronic format. The final O&M Manual shall be submitted two months prior to start-up of the system. Six hard copies and two electronic versions of the O&M Manual shall be provided.

Training of County O&M staff shall be performed by qualified instructors and will use the O&M Manual as the basis of the training. Training will include classroom presentations and hands-on exercises. Supplemental training materials may be used with approval by Pima County. O&M Training will include means of determining the comprehension of materials provided during training. Areas of non-comprehension training shall be repeated.

Start Up and Commissioning

After all O&M training is complete, the Contractor shall proceed to startup of the process and systems in a logical sequence as presented in the O&M Manual. The startup and commissioning shall be performed by Contractor furnished personnel. The County O&M staff shall observe all of the start-up processes and procedures. After the commissioning the equipment warranties and guarantees shall be furnished to Pima County.

During start-up, if adjustments to the O&M Manual materials, an addendum to the O&M Manual shall be prepared and provided to the County.

Performance Testing

After substantial completion of construction, the Contractor will provide RWRD plant staff with operator training, including O&M training on all the equipment and systems provided in preparation of a 60 continuous calendar days performance test. The performance test will be operated by the County in association with the Contractor. The County will perform all sample testing in the County's certified laboratory facility. Should the system fail to meet the performance requirements, or operation of any part of the system stops, because of mechanical or system failure anytime during the 60 days, the performance test period will be extended an additional week for each occurrence.

System Design Requirements

The Sidestream Anitamox design will be based on the general features outlined above and the project **Technical Requirements**. The design will be completed and detailed to provide an operational and fully functional sidestream ammonia reduction after construction. At a minimum, design submittals will be made at the 30 percent, 60 percent, 90 percent and 100 percent of design. The design requirements and design submission requirements are described in the Project Scope of Work requirements (**Attachment 1 to Appendix A**).

The design-build team will have monthly meetings (monthly progress meetings) with RWRD to review project status and discuss upcoming activities. A project report shall be prepared and submitted each month describing project activities and actions undertaken and completed, and activities and actions to be undertaken and completed within the next month. The project schedule will be reviewed during each monthly meeting.

Should the Design-Builder and Pima County fail to negotiate a Guaranteed Maximum Price; the Design-Builder will be required to complete the design to the 100 % level for competitive bidding later.

System Performance Requirements

The Anitamox sidestream treatment process will be designed to reliably treat the full volume of centrate generated at the Tres Rios WRF on a 24-hour, 365-day per year basis.

Inspect centrate piping from Building 32 Centrifuge to Building 70 Recycle Storage and from Building 70 to Building 32 East Intermediate Pump Station. Inspect for Struvite buildup.

Construction Requirements

A Contractor, appropriately licensed by the State of Arizona will perform all the work necessary to provide a complete and operational Anitamox sidestream process. All work will be in locations approved by RWRD and in compliance with all current local, state and federal codes. All permits for construction will be the responsibility of the Design-Builder. All onsite equipment, materials and supplies will be kept in areas designated by RWRD for that purpose. All personnel will enter the site through approved access points only after following the plant security processes and procedures.

The Contractor will be responsible for preparing the baseline project schedule and monthly updates from project initiation through construction completion, startup, commissioning and performance testing.

The Contractor will prepare construction cost estimates for inclusion in the 30 percent, 60 percent, 90 percent and 100 percent of design submittals. When requested by RWRD, the Contractor will prepare a Guaranteed Maximum Price (GMP) for the construction, O&M Manual preparation, commissioning, startup, training and performance testing. The GMP will be based on an "open-book" bidding process from qualified subcontractors. Self-performed services will be subject to review and approval by RWRD. Unapproved services shall be processed through open-book bidding.

A draft Operations and Maintenance (O&M) Manual will be submitted to RWRD for comment 180 days in advance of startup and training. A final complete O&M Manual in conformance with the existing plant-wide O&M Manual will be submitted for approval by RWRD 60 days prior to startup and training on the Anitamox sidestream process.

Record drawings for the Project will be prepared and approved by RWRD before retainage release and final payment is approved.

Project Schedule Requirements

The Design-Builder shall submit a proposed baseline project schedule to the County within 45 calendar days after the contract date for review and comment by the County. The schedule will be updated at least monthly throughout the project. The schedule shall include a defined work calendar designating which days of the week will be planned workdays and dates of all scheduled non-workdays. The schedule shall encompass the entire Design-Build Period and shall consist of, but not be limited to, the following:

- All design and permitting activities and milestones to be achieved in the design-build period
- All construction activities and milestones to be achieved in the design-build Period
- Sequence of design-build work and the time of commencement and completion of each part
- All design deliverables and the sequence for their review by the County
- All permitting deliverables and the sequence for their review by the County and approval agencies
- Sitework
- Temporary relocations
- Excavation
- Shutdowns and tie-ins
- Concrete placement (pour and cure time)
- Backfill and compacting
- Raceway and duct bank installations
- Process piping and ductwork installations
- HVAC installations
- Plumbing
- Electrical equipment installations
- Power and control wiring and termination
- Treatment system installations
- Major equipment installations
- Order and delivery dates for all County furnished equipment
- Painting and coatings
- Preliminary and final O&M Manual delivery
- All testing
- All training
- Turnover of spare parts
- Pre-startup substantial completion inspections
- Equipment system and subsystem startups
- Record drawings, warranties, occupancy permits
- Final inspections and final punch list
- Commissioning
- Acceptance testing
- Performance testing

Each activity shall show the number of person-days of efforts, by month, over the duration of the design-build period. Further, the Design-Builder shall show each type of critical construction equipment used, number of pieces of each type of equipment used, and where such equipment will be used. In developing the schedule, the Design-Builder shall be responsible for assuring that Subcontractor work at all tiers, as well as its own work, is included in the schedule.

The schedule shall show the sequence and interdependence of activities required for complete performance of the design-build work. The Design-Builder shall be responsible for assuring that all design-build work sequences are logical, activity durations are reasonable based on their scope and the resources allocated for them and that the schedule reflects a coordinated plan of the design-build work.

Failure by the Design-Builder to include any element of design-build work required for proper performance of the Design-Builder's obligations under the contract shall not excuse the Design-Builder from completing all design-build work within the design-build period.

The Design-Builder shall meet with the County within 14 calendar days after the County's receipt of the Design-Builder's proposed baseline schedule for a joint review to identify any corrections or adjustments to the proposed schedule. Within 14 days of such joint review meeting, the Design-Builder shall submit a final schedule incorporating the County's comments into the proposed schedule. The finalization of the schedule shall be a precondition to the establishment of the Construction Date.

The final schedule shall be updated on a monthly basis to show progress until final completion has been achieved. The final schedule shall be used for the evaluation of any design-build period extension request(s) made by the Design-Builder once the final schedule has been established.

In the event the Design-Builder fails to define any element of design-build work, activity or logic, such omission or error, when discovered by the Design-Builder or County, shall be corrected by the Design-Builder in the next monthly progress schedule and the Design-Builder shall provide notice to the County of the proposed amendment(s) with the submission of the monthly progress report. The schedule shall be utilized in the preparation of and submitted with progress payments and monthly meetings.

System Performance Testing

After substantial completion of construction, the Design-Builder will provide RWRD plant staff with operator training, including O&M training on all the equipment and systems provided in preparation of a 60 continuous calendar days performance test. The performance test will be operated by the County in association with the Design-Builder. The County will perform all sample testing in the County's certified laboratory facility. with at least one of, or a combination of, the following methods:

Should the system fail to meet the performance requirements, or operation of any part of the system stops, because of mechanical or system failure anytime during the 60 days, the performance test period will restart at day one.

ATTACHMENT 1 TO APPENDIX A- PROJECT SCOPE OF WORK (50 Pages)

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Task 17.8 - Inspection Notice to County	

Task 17.9 - County Authority to Keep Work Uncovered	
Task 18 Construction Documents	
Task 18.1 - Reporting of Errors	
Task 18.2 - Shop Drawings Required.....	
Task 18.3 - Interpretation of Construction Document Conflicts	
Task 18.4 - Implied Minor Details.....	
Task 19 Submittals, Drawings, and Shop Drawings.....	
Task. 19.1 - Records Maintained at Work Site.....	
Task 19.2 - Submittals to County	
Task 19.3 - Submittal Content Standards	
Task 19.4 - Design-Builder Review of Subcontractor Submittals.....	
Task 19.5 - Deviations from Contract Documents	
Task 19.6 - Responsibility for Submittals	
Task 19.7 - Design-Builder Representations Concerning Correctness of Submittals.....	
Task 19.8 - County Review	
Task 19.9 - Response to County Rejection or Comments	
Task 19.10 - Untimely Submittal	
Task 19.11 - Transmittal of Approved Submittals to Subcontractors.....	
Task 20 Product Samples, Tests, and Certificates	
Task 20.1 - Requirement to Furnish Product Samples	
Task 20.2 - Submittal of Product Samples	
Task 20.3 - Certification of Compliance	
Task 20.4 - Duty to Perform.....	
Task 20.5 - Destruction of Samples.....	
Task 20.6 - County Testing Not Acceptance	
Task 20.7 - Removal of Rejected Work.....	
Task 20.8 - Cooperation with Testing Efforts	
Task 20.9 - Trade Name Substitutions.....	
Task 20.10 - Field Inspection.....	
Task 21 Redline Drawings	
Task 21.1 - Monthly Review.....	
Task 21.2 - Changes Shown.....	
Task 21.3 - Basis Documents.....	
Task 21.4 - Changes after Substantial Completion	

Task 22	Startup.....
Task 22.1 - Startup Plan.....	
Task 22.2 - Startup.....	
Task 23	Performance Testing.
Task 23.1 - Performance Test Plan.	
Task 23.2 - Performance Test Procedures and Standards.....	
Task 23.3 - General Performance Standards.	
Task 23.4 - Performance Test Report.	

PROJECT DESCRIPTION

This scope of work describes the general services to be provided by the Design-Builder for the design and construction of the Sidestream Anitamox Process. A separate document, entitled “Attachment 2 to Appendix A - Technical Specifications,” describes the key components of the Work as well as County technical requirements for the Work. The Technical Specifications define what will be done and the General Scope of Work defines how it will be done.

It is envisioned that the Work will be accomplished in two phases: Phase 1 - Design and Pre-Construction Services; and Phase 2 – Construction Services. Each phase will have a specific list of work products and deliverables. Also, each phase will include design review workshops with County’s and Design-Builder’s personnel at critical design milestones.

This Project does not include at this time, the following additional work elements:

- Excavations or other mitigation measures required to preserve or relocate historic resources.

DESIGN PHASES SCOPE OF WORK

The following key assumptions were made in the development of the Scope of Work for design and in estimating level of effort:

- With the exception of the final review, the project team will continue the design effort during formal reviews of deliverables by Pima County and regulatory agencies.
- County will provide one round of compiled review comments to the Design-Builder for each deliverable submitted for review.
- The design will be based on the federal, state, and local codes and standards in effect at the start of the Project.
- County's design standards will be used. County will provide electronic copies of these documents in MS Word format to the Design-Builder.
- The drawings will follow the Design-Builder's CAE/ CAD standards. AutoCAD will be used to develop the drawings. At the conclusion of design, County will be given a 22"x 34" sized set of original signature drawings and an electronic set of drawings in pdf format. In addition, the County will be given a copy of the Design Documents on compact disk (CD-R) in AutoCAD format.

The design will be carried out using a five-phased design delivery approach:

1. Preliminary Design Report (10%)
2. Schematic Design (30%)
3. Design Development (60%)
4. Construction Document Development (90%)
5. Construction Document Completion (100%)

PHASE 1 – PRELIMINARY DESIGN SERVICES

Task 1 Project Management

The purpose of this task is to manage, coordinate, and lead the Design-Builder's activities and perform administration of Project design services. The Design-Builder will perform the following subtasks described below as part of Task 1.

Task 1.1 - Project Execution Plan

Within 60 days of the Notice to Proceed, a Project Execution Plan will be prepared to guide the direction of the Design-Builder team. It will include descriptions of the roles and responsibilities of team members, communication plan, cost and schedule control procedures, document control, change management, and other Project management requirements. Also, the plan will define the CAD/CAE software standards, graphic standards, file naming conventions and standards, and other graphic standards. Design-Builder will utilize standards developed by the County as a basis for this element of the Plan. In addition, the Plan will include a Quality Management Plan and a Project Health and Safety Plan applicable to the Design-Builder Team. The Project Execution Plan will be distributed to the County and design team members.

Task 1.2 - Project Kick-off and Chartering Meeting

Task 1.2.1 - Project Kickoff Meeting

Within 60 days of the Notice to Proceed, the Design-Builder will conduct a project kick-off meeting to be held with the County. The purpose of the meeting is to discuss the roles, relationships, and responsibilities of all parties. The draft baseline design schedule will be presented and discussed. The Design-Builder will prepare a meeting summary and will distribute to the attendees.

Task 1.2.2 - Chartering Meeting

The Design-Builder will attend a project chartering meeting to be held between the County and the Design-Builder. The purpose of the meeting is to discuss the roles, relationships, and responsibilities of the parties. The draft baseline Project Schedule will be presented and discussed.

Task 1.3 - Contract Administration

This task includes activities associated with administration of the Contract and coordination with the County. It will include communications with the County and others as required. In addition, preparation of invoices, oversight of Project staff, administration of contracts with sub-consultants, maintenance of a decision log, and record keeping are included in this task.

Task 1.4 - Project Schedule and Controls

Within 60 days of the Notice to Proceed, the Design-Builder will submit a draft baseline Project Schedule using MS Project, which will be updated on a monthly basis. The initial draft Project Schedule will be cost-loaded for Phase 1 tasks. Upon completion of Phase 1 and approval to proceed with Phase 2, a new cost-

loaded Project Schedule will be developed for the remainder of the Project. This task also includes the preparation of monthly reports showing the comparison of actual costs and percent complete with planned cost and percent complete. The Design-Builder will also report Project status including the following information:

- Key accomplishments
- Key issues
- Required actions
- Upcoming work and challenges
- Key milestone schedule updates
- Scheduled progress versus actual progress
- Cost summary
- Cost (budget, accrued. Projection, variance)

Task 1.5 - Project Coordination and Progress Meetings

On a bi-weekly basis, the Design-Builder will conduct Project design progress meetings between the County and Design-Builder's project team members to discuss design elements of the Project. Meeting agendas will be prepared and distributed 2 days prior to the meeting and a meeting minute summary will be prepared and distributed by the Design-Builder within 3 business days following the design Project Coordination and Progress Meeting. In addition, the Design-Builder will conduct monthly progress report and invoice presentation meetings attended by the County to confirm the Design-Builder is meeting the requirements of the County. A summary of meetings will be prepared and distributed by the Design-Builder within 5 business days of the monthly progress report meeting. This task also allocates time for internal Project coordination meetings.

Task 1.6 - Not Applicable

Task 1.7 - Quality Assurance/Quality Control Management

The Design-Builder will provide management of the quality assurance/quality control (QA/QC) aspects of the Project. An internal Project Quality Manager (PQM) will be identified by the Design-Builder and will provide oversight of the QA/QC staff, scheduling of technical reviews, and documenting and adjudicating of review comments from both internal sources and the County. The Quality Management Plan will be prepared as part of the Project Execution Plan.

Task 1.8 - Public Information Assistance

The County is responsible for managing the Public Information Program for the Project. The Design-Builder will assist the County by preparing informational material and attending meetings, if requested. The Design-Builder is not authorized to issue statements or press releases on County's behalf nor is it authorized to issue statement or press releases concerning the Project unless prior approval is given by the County.

Task 1.9 - Construction Cost Estimating/Guaranteed Maximum Price Reviews

The Design-Builder will prepare Opinions of Probable Construction Costs at the conclusion of the 30%, 60%, 95%, and 100% design phases. The Association for the Advancement of Cost Estimating (AACE) recommended practices will be used to develop the cost estimates.

Task 1.10 - Project Closeout

At the completion of design, appropriate Project records will be archived according to County's existing methods and standards.

Task 1 - Deliverables

1. Project Execution Plan
2. Project Kickoff/Chartering Meeting Summary
3. Invoices
4. Draft Project Baseline Schedule
5. Monthly Progress Reports
6. Bi-weekly Progress Meeting Summary
7. Monthly Progress Report
8. 30% Cost Estimate
9. 60% Cost Estimate
10. 90% Cost Estimate
11. 100% Cost Estimate

Task 2 - Permitting Assistance

The purpose of this task is to develop a Permitting Workplan for obtaining the various permits, identifying the permits required for construction and operation of the project, preparing the permit applications for the various regulatory agencies, and submitting the permit applications to County for review and approval. County will then submit the completed applications to the various regulatory agencies and pay all the permit fees. For permit activities related to this Project, the Design-Builder will provide five copies of draft and final permit applications and accompanying material. An electronic file in .pdf format will be provided for draft and final submittals. The Design-Builder will develop a Permitting Workplan. The plan will list those permits that are necessary, the appropriate contacts for the permits, the time constraints associated with the permits, and a schedule for application of the permits. In addition to the Permitting Plan, permit applications will be developed, as appropriate, for each agency. County will take the lead in submittal of the permit applications. As requested by County, the Design-Builder will assist in the negotiation of these permits.

Task 2.1 - Permitting Workplan

The Design-Builder will prepare a permitting workplan for submittal and approval by County. The workplan will include the following elements:

- List of anticipated permits required
- Agency contacts
- Time constraints associated with each permit
- Schedule for submittal of permit applications

Task 2 - Deliverables

1. Permitting Workplan
2. Stormwater Construction Permit Application
3. Draft and Final Stormwater MSGP Application
4. AZPDES SWPPP Draft and Final

5. Draft and Final Regulatory Applicability Analysis TM
6. Draft and Final Air Permit Application

Task 3 - Preliminary Design

The purpose of this task is to develop design criteria for use in the subsequent design phases of Project. The Design-Builder will perform the following subtasks as part of this Task:

Task 3.1 - Data and Information Collection

Information and data needed to formulate design criteria will be collected and reviewed by the Design-Builder.

Task 3.2 - Survey and Mapping

The Design-Builder will provide mapping and related services as described below for Project, suitable for final design activities. The Design-Builder will employ a Registered Land Surveyor (RLS), registered in Arizona, to survey and map the improvements to be designed, and/or constructed. The surveying and mapping will be sufficient to establish needed horizontal and vertical control monuments. Existing aerial and ground survey information will be reviewed to determine any additional survey activities needed. Specific activities will include the following:

- Establish Control Network: The Design-Builder will perform research, field surveys, and office work necessary to establish the Horizontal and Vertical Project Control Network meeting County standards. The Design-Builder will establish a survey control network which will encompass the Project area. The Project Control Network will also provide the basis of control for the construction phase of the Project. Survey control monuments will be located in areas that will not be disturbed during construction. Survey control monuments set by the RLS will be tagged or stamped.
- Survey monuments (property pins, section corners, witness comers, and bench marks) will be collected during the field survey with a description of the monuments (steel pin, O.I.P., L.C.P., and brass monument in concrete).
- A ground aerial survey will be performed and used to develop a site digital terrain model and existing facilities model, including all existing above grade structures and site features.
- Horizontal Control: Control traverses will be geometrically closed and the error of angular and horizontal closure for the unadjusted traverse will be shown in the field notes and on the required maps. Horizontal closures will be made using unadjusted angles and distances and will have a precision ratio of 1:20,000 or better. Set, at a minimum, semi-permanent monuments nail and shiner, or rebar or better, at newly established control point locations.
- Vertical Control: A control listing of the benchmarks used for the survey control network will be provided to the Design-Builder. The datum which the elevations are to be referenced will be included in the field research data. Set, at a minimum, semi-permanent monuments nail and shiner, or rebar or better, at newly established control point locations.
- Arizona State Plane Coordinates: The coordinate system for establishing the Project Control Network will be the North American Datum of 1983 (NAD-83) (1992) adjustment, Arizona State Plane Coordinate System in International feet reported in both grid and ground coordinates. The vertical datum will be North American Vertical c Datum of 1988 (NAVD88).

The survey and mapping activities associated with the treatment facilities are defined as follows:

- Aerial Targets: Design-Builder will set up to 20 aerial targets for photo-control at locations determined by the aerial mapping firm within the defined Project limits.

- Aerial Photography: Design-Builder will acquire new color vertical aerial photography, +/- 1:2400 scale for design mapping at these facilities.
- DTM and 1-foot contours - Design Mapping: Using the acquired 1:2400 scale aerial photography, Design-Builder will generate a DTM for a 1"=20'scale, 1.0-foot contour interval contour mapping of the affected treatment plant site. The total area for 1.0-foot interval contour mapping will be for the portion of the facility affected by this design and construction project.
- Other surveys (other than control surveys), will comply with FGDC Geospatial Positioning Accuracy Standards, Part 4: Standards for Architecture, Engineering, Construction (A/E/C), and Facility Management with accuracy tolerances of +/-0.10- foot for the horizontal and +/- 0.03-foot for the vertical (if applicable) on other hard surfaces and +/-0.10-foot for the vertical on soft or natural ground surfaces (if applicable).
- Planimetric Mapping: Using the acquired 1:2400 scale aerial photography, Design-Builder will generate a 1" =20'scale planimetric mapping of the entire 150 acre site. Above ground features (structures, roads, curbs, sidewalks, piping, walls or fencing, ditches, grade breaks, site lighting, and major vegetation) will be collected during the survey.
- Digital Orthophoto Images: Using the acquired 1:2400 scale photography, Design-Builder will generate digital orthophoto images at 0.2 ground distance pixel resolution covering the entire 150 acre site.
- Locate Utilities: The Design-Builder will locate at grade utilities and other physical obstructions within the Project site. The Design-Builder will also identify locations and elevations of inverts of sanitary sewers, storm sewers, other buried utilities, drainage structures, and other similar underground structures.
- Surveying services will be performed under the supervision of a qualified, Arizona registered, professional land surveyor.
- The units of measurement for this Project will be in International Feet.
- The Design-Builder will take reasonable precautions to prevent damage to public and private property, and will restore the site to the condition existing prior to the surveyor's entry.

Task 3.3 - As-Built Validation/Development

The Design-Builder will obtain as-built information for the Project area and will utilize this information, and information obtained in Subtask 3.2, to develop a set of as-built drawings as required for design and construction of the new facilities. Specific activities will include the following:

- Determine document needs associated with the Project and obtain available information including as-built drawings for roads, sanitary sewers, utilities, storm water drainage structures, rights-of-way, easements, and property lines, and significant topographical features.
- Utilize information obtained in Subtask 3.2 to validate as-built information as required for the design and construction.
- Develop and prepare as-built drawings for Project. At this stage, focus will be on obtaining and documenting "above ground" information associated with the Project site. Below grade as-built information for site utilities is described separately in Task 4.3, Sub-surface Utility Engineering.

Assumptions:

- The County will provide the Design-Builder with electronic or hard copies of existing as-built drawings for existing County facilities within the Project area.

Task 3.4 - Visual Inspection and Photography

The Design-Builder will perform a visual inspection of the proposed construction site and will determine if there are any concerns affecting the design or construction process. A written narrative documenting the results of this task will be provided to the County.

The Design-Builder will also take interior and exterior photographs (as appropriate) of existing above ground facilities. The photographs will be taken with a digital format camera with a minimum 8 MB pixel rating. The photographs should be of sufficient size to clearly identify vegetation, and objects which may come into question during the design and construction of the Project. As an alternate, digital motion pictures with still print capability may be used. The Design-Builder will provide County with licensed software and hands-on instruction, if needed, to view and print the pictures. The digital images (JPEG or MPEG) will be stored on CD or DVD (2 copies will be supplied to County). Hard copy will be printed only when needed.

Task 3.5 - Not Applicable

Task 3.6 - Design Criteria Development/Confirmation

The Design-Builder will work with the County to develop updated design criteria for the Project. Design criteria development and confirmation will include:

- Review of all available data, including as-built information and County requirements.
- Develop design criteria, sizing, and general layouts.

This design criteria development information will be summarized in a series of technical memoranda described in the following subtasks.

Assumptions:

- This task includes two meetings with appropriate County staff to review design criteria that is developed for the Project.

Task 3.6.1 - LEED Strategies (If Applicable)

In concert with the goals established by the County, the Design-Builder will lead a one-day LEED workshop with the County to validate the compliance or certification goals established for the Project. Based on the County's goals and the opportunities for incorporating LEED strategies into the Project components, conceptual approaches will be presented and a LEED strategy will be developed for the Project. A preliminary LEED Scorecard will be prepared with a preliminary list of proposed LEED credits for the Project.

This LEED Scorecard will be used to establish the LEED goals as the Project is designed. Actual final LEED certification level is based on a number of items, the LEED design elements that County chooses to incorporate into the Project and the County's decision on whether to include LEED certification activities into the design and construction phases, such as LEED template development, LEED modeling and verification, and commissioning.

The scope of this task is currently limited to developing LEED strategies for the Project, presenting this information in a workshop and documenting proposed LEED credits in the LEED scorecard. A design memoranda (DM) will be developed summarizing the LEED strategies.

Task 3.6.2 - Project Design Standards

Project design standards will comply with County standards. When such standards do not exist, Design-Builder and County will confer as necessary to establish County-approvable standards. These design

standards will include standards to be used for drawings and specifications for the Project as well as standards for each discipline, which include County preferences for materials and components.

Task 3.6.3 - Design Submittals

Task 3.6.3.1 - Submittal

The Design-Builder will submit to County, with such promptness as to cause no delay in the Design Work, all submittals and drawings required by the Contract or as necessary to illustrate details of the Design Work.

Task 3.6.3.2 - Submittal Requirements

Each submittal and drawing must be accompanied by a transmittal letter containing a list of the submitted documents and/or of the titles and numbers of the drawings, as appropriate. Each series will be numbered consecutively for ready reference and each submittal and drawing will be marked with the following information:

- Date of submission
- Name of Project
- Location of Project
- Branch of Design Work (specification section)
- Project number
- Name of submitting Design-Builder
- Name of Subcontractors
- Revision number

Task 3.6.3.3 - Consistency with Technical Specifications

All Subcontractor submittals and drawings will be reviewed by Design-Builder prior to being submitted to County and will bear a written statement by the Design-Builder that the submittals and drawings are consistent with the Technical Specifications or, if not totally consistent, will bear a written statement indicating all deviations from the Technical Specifications. By approving, verifying, and submitting drawings, product data, and similar submittals, the Design-Builder represents that the Design-Builder has determined and verified the information contained within such submittals complies with the requirements of the Technical Specifications. Any submittals or drawings submitted without the statement will be returned for resubmission; the submittals or shop drawings will be considered as not having been submitted, and any delay caused thereby will be the Design-Builder's sole responsibility. This review by Design-Builder of Subcontractor submittals and drawings will not be construed as Design-Builder approval of the design therein except that it will be a representation that the letter accompanying the submittal or drawings does indicate all deviations from the Construction Documents as required by Task 3.6.3.4,

Task 3.6.3.4 - Identification of Deviations

Design-Builder will include with submittals and drawings, a written statement indicating all deviations from the Technical Specifications. Failure to so notify County of such deviations may be grounds for subsequent rejection of the Design Work. If, in the opinion of County, the deviations are not acceptable, the Design-Builder must furnish the item as specified in accordance with the Technical Specifications. Design-Builder will not be relieved of responsibility for deviations from requirements of the Technical Specifications by County's approval of Drawings, Product Data, or similar submittals unless Design-Builder has specifically informed County in writing of such deviation at the time of submittal and County has given written approval to the specific deviation. The Design-Builder will not be relieved of responsibility for errors or omissions in Drawings, Product Data, or similar submittals by approval thereof.

Task 3.6.3.5 - Verification of Submittal

By reviewing or submitting submittals and/or drawings, the Design-Builder represents that it has determined and verified availability, field measurements, field construction criteria, materials, catalog numbers, and similar data, or will do so, and that it has checked and coordinated each submittal and/or drawing with the requirements of the Technical Specifications. If any specified material item or part is not available, the Design-Builder will so indicate to County.

Task 3.6.3.6 - County Review

The County will review and approve submittals and drawings and return them to Design-Builder within ten (10) days of receipt unless otherwise previously agreed in writing. For scheduling purposes, Design-Builder must assume a ten (10) day review period for each submittal or set of drawings. For complex submittals, Design-Builder must assume two ten (10) day review cycles. If review and approval are delayed beyond ten (10) days, County will notify Design-Builder in writing stating the reason for the delay. Approval will not relieve the Design-Builder from responsibility for deviations from the Technical Specifications, unless it has been called to County's attention, in writing, at the time of submission. Any modification will be approved only if it is in the interest of County to effect an improvement in the Work and does not increase the GMP or Contract Time(s). Any such modification is subject to all other provisions of the Technical Specifications and Contract and is without prejudice to any and all rights of County under any surety bonds.

Task 3.6.3.7 - Response to County Review

If the County returns a submittal or shop drawing to Design-Builder with the notation "rejected", "revise and resubmit", or "approved as noted", Design-Builder, so as not to delay the Work, will promptly submit a submittal or drawing conforming to the requirements of the Technical Specifications and Contract and indicating in writing on the submittal or drawing and on the transmittal what portions of the resubmittal have been altered in order to meet with the approval of the County. Any other differences between the resubmittal and the prior submittal will be indicated on the drawing and on the resubmittal as a special note.

Task 3.6.3.8 - No Time Extension

No extension of time will be granted to Design-Builder because of its failure to submit submittals or drawings in ample time to allow for review, possible resubmittal, and approval. The Design-Builder will furnish prints of its approved submittals and drawings to all Subcontractors whose work is in any way related to the Work covered by the submittal or drawings.

Task 3.6.4 - Design Memoranda

Based on information provided in the RFP/RFQ and further development of facilities criteria, sizing, and layouts, a series of design memoranda (DM) will be prepared to document and build consensus of the criteria to be used for the basis of design.

Task 3.6.4.1. - Site Layout

A proposed site plan is provided as part of the SFQ documents. This DM will include reviewing the proposed site layout, along with locations of existing utilities and roadways and proposed sizing of new and future facilities, including auxiliary facilities, and developing an updated proposed site layout for the Project. The site layout will include, as appropriate, new and existing facilities, roadways, and space allowances for utility corridors and future facilities.

Task 3.6.4.2. - Site Utility Requirements

This DM will, if applicable, summarize site utility requirements, including requirements for fire protection, potable water, non-potable water, power, communications infrastructure, and any additional requirements. The capacity of the existing systems for these utilities will also be summarized, with proposed modifications to provide the required utility capacities.

Task 3.6.4.3 - Power/Electrical System

This DM will, if applicable, include the electrical power supply sizing criteria for the Project, summarize the current electrical power system (if applicable) and provide a plan for electrical system feed modifications to power the new facilities. This task will develop a comprehensive plan for power supply and distribution to the new facilities including evaluating power supplies from the power supplier and any electrical power supply system and capacity currently available.

Task 3.6.4.4 - Instrumentation and Control Systems (SCADA)

This DM will, if applicable, include a description of the proposed instrumentation, control, and SCADA systems to be incorporated into the Project. This will be coordinated with County's existing SCADA system. A system block diagram will be developed showing how the Project ties into the existing control system. Process and instrumentation diagrams (P&IDs) will be developed for each unit process. Process control narratives will be developed to describe the control approach for each unit process. During this phase of the Project the P&IDs and process control narratives will be preliminary and will be developed in more detail during subsequent design phases.

Task 3.6.4.5 - Construction Packaging, Sequencing, and Duration

This DM will provide a summary of the recommended construction packaging and scheduling to achieve the County's goals and regulatory requirements for the project. These recommendations for construction packaging, sequencing, and duration will be coordinated with the County. This task will include attending workshops with County to coordinate these requirements and to develop a DM with recommendations and schedule milestones.

Assumptions:

- This task includes attending two 4-hour workshops with the County.

Task 3.6.4.6 - Maintenance of Existing Operations During Construction

This DM will provide a summary of construction sequencing and tie-ins to maintain any existing operations while the new facilities are being constructed and started up. The required MOPOs will be identified and documented for the purposes of updating as the design progresses. These recommendations will be coordinated with County staff.

Assumptions:

- This task includes attending two workshops with all appropriate County personnel.

Task 3.6.4.7 - Security

This DM will, if applicable, describe how the security will be maintained at the Project and, if the Project is a modification to an existing facility, how it will be incorporated into the existing security system. The site security provisions for the new facilities will be coordinated with the County's security plan. In addition, this DM will describe the overall site work to be done to provide security that meets the County's Security System Master Plan requirements. These security requirements may include closed circuit TV, fencing, gates with controllers, building access controls, and the site security monitoring system.

Assumptions:

- This task includes one meeting with County security personnel to review site security design criteria.

Task 3.6.4.8 - Not Applicable

Task 3.6.4.9 - Discipline Engineering Design Criteria

DM's will be developed to include the general design criteria for the technical disciplines, including HVAC, plumbing, electrical, structural, mechanical, architectural, instrumentation, and civil. In addition to the design criteria to be used for the Project, the applicable codes and standards will be listed that apply to the Project.

Task 3.6.4.10 - Pre-purchased Equipment and Materials

This DM will include recommendations for any pre-purchased equipment and materials recommended for advancing the Project schedule. The DM will identify vendor-imposed lead times for the recommended purchases and show Project Schedule impacts as well as critical purchase deadlines. The list of equipment and materials recommended for pre-purchase will be coordinated with the County to ensure that the equipment and materials meet County standards and any County preferences for type or manufacturer. Following County approval, Design-Builder will work with County to facilitate timely purchase of the recommended equipment and materials.

Task 3.7 - Preliminary Design Report

The Design-Builder will compile the DMs developed under this task into a comprehensive Preliminary Design Report. A Final Design Report will be completed under other tasks.

Task 3 - Deliverables

1. Draft Preliminary Design Report
2. Final Preliminary Design Report
3. Workshop Summary
4. Draft preparation of required permits and accompanying documentation
5. Draft Pilot Test Plan
6. Final Pilot Test Plan
7. Pilot Test Report
8. 30% Schematic Design Report (Draft and Final)
9. Presentation workshop materials and summary
10. 30% Construction Cost Estimate
11. 60% Design Development Documents
12. 60% Construction Cost Estimate
13. Final preparation of required permits and accompanying documentation
14. Outline of startup and operator training plan
15. Constructability Review Workshop Materials and Summary
16. Presentation workshop materials
17. 95% Construction Cost Estimate
18. 95% Contract Documents

19. 100% Contract Documents
20. Preliminary Design
21. Planimetric mapping, DTM, and 1.0-foot contour interval contour mapping at 1"=20' scale containing utilities located by field survey methods for the 150 acre site.
22. Digital orthophoto imagery at 1"=20' scale with 0.2-foot ground distance pixel resolution for the 150 acre site.
23. A copy of field notes and electronically collected notes of horizontal and vertical traverses as well as closure information on these traverses.
24. A coordinate printout of surveyed information with X, Y, and Z coordinates listed to the nearest 0.01 foot. The collected field information shall contain the station ID, the horizontal and vertical coordinate information, and feature codes. Information shall be tied to the Arizona State Plane Coordinate System. A Project adjustment factor shall be provided and the final coordinate system shall be converted to ground.
25. ASCII file containing topographic points and survey control points
26. Hard copy plots of the surveyed Project area showing the derived data with the 1.0-foot contours
27. As-built drawings
28. Calibrated GPSX Process Model Results
29. Design memoranda and preliminary drawings
30. Draft and Final Preliminary Design Report

Task 4 - Field Investigations

Task 4.1 - Geotechnical

Based upon available information, the scope of work for geotechnical investigations is assumed to consist of the following:

Task 4.1.1 - Site Reconnaissance and Field Exploration

- Using the facility site layout validated in Task 3, the location of soil borings will be determined, identified by their coordinates, and staked on the site.
- Clearance by a Subsurface Utility Engineering (SUE) firm will be obtained by Design-Builder for utilities at the proposed boring locations. A site reconnaissance will be made to evaluate site and access conditions by the SUE and soil boring driller. Cultural Resource (CR) clearances will be provided by County. One week minimum notification to CR prior to any drilling.
- For purposes of estimating cost, it is assumed that there will be 2 borings for a total footage of approximately 20 lineal feet each.
- The subsurface conditions encountered will be logged by a geologist or geotechnical engineer, and the soils encountered will be identified in accordance with ASTM D 248800, *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*. Standard Penetration Tests will be performed in accordance with ASTM D 1586-99, *Standard Test Method for Penetration Tests and Split-Barrel Sampling of Soils* at approximately 5 feet intervals. For soft fine grained soils, relatively undisturbed Shelby tube samples will be obtained for laboratory testing, in general accordance with ASTM D 1587-00, *Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes*. Where the soils is too stiff to use Shelby tube samples, ring samples will be taken in general accordance with ASTM D 3550-84, *Standard Practice for Ring-Lined Barrel Sampling of Soils*.

- Piezometers will be installed at 4 to 5 selected locations to determine the groundwater levels in the soil profile. Knowledge of groundwater conditions is important for design as well as for construction planning purposes.
- To aid in corrosion analysis, field resistivity soundings will be performed at various locations at the proposed plant site. The field resistivity soundings will be performed using the Wenner array in accordance with ASTM G57.

Task 4.1.2 - Laboratory Testing

Laboratory tests will be performed on samples obtained from the borings to evaluate certain physical and engineering parameters, including the following:

- One-Dimensional Consolidation (ASTM D 4546)
- Grain Size Distribution (ASTM C 136)
- Percent Passing the No. 200 Sieve (ASTM C 117)
- Atterberg Limits (ASTM D 4318)
- Consolidated Undrained Triaxial Compression Test (ASTM D 4767-02)
- R-Value (ASTM D 2844)
- Swell Potential
- In-Place Moisture and Dry Density
- Chemical Corrosivity Tests including pH, resistivity, and soluble salts.

Task 4.1.3 - Engineering Analysis and Geotechnical Report Preparation

An engineering analysis will be performed to provide the following design parameters:

- Allowable bearing pressures for all structures
- Estimated total and differential settlements
- Modulus of subgrade reaction for the design of mat-type foundations
- Coefficient of friction for the design of mat-type foundations or conventional spread footings
- Static lateral earth pressures for unrestrained and restrained subsurface walls such as vault structures including sloping backfill conditions
- Seismically induced lateral earth pressures for unrestrained and restrained subsurface walls such as vault structures including sloping backfill conditions
- Apparent earth pressures for the design of temporary excavation shoring
- Modulus of lateral earth reaction (E') for the design of flexible pipe
- Pipe/soil coefficient of friction
- Lateral earth support and coefficient of friction for pipe thrust blocks
- Seismically induced peak horizontal ground accelerations
- Non-dedicated asphalt concrete and Portland cement concrete pavements
- Dedicated off-site half street asphalt concrete pavements

A geotechnical report will be prepared to include a summary of the above, including preliminary mat and spread foundation bearing capacities and the boring logs.

Task 4.2 - Corrosion

Design-Builder will perform a soils analysis and corrosion control evaluation of the Project site. Investigations will include soil resistivity tests, soil box resistivity test, pH measurements, sulfur reducing bacteria tests, and a stray current potential evaluation. The analysis will be presented in a Design Memorandum with recommendations for corrosion protection design.

The Design-Builder's corrosion engineer will evaluate the corrosion protection requirements in potentially corrosive environments and provide recommendations in the DM on general materials and coatings to use in the Project.

Task 4.3 - Subsurface Utility Engineering

Design-Builder will map all underground utilities within all potential excavation areas at the Project site. This utility mapping will include developing base maps using existing record drawings and other existing information. Vacuum potholing and other locating methods will be used as needed to determine more exact utility locations for existing underground utilities. For purposes of estimating cost, it is assumed that up to three (3) crew days will be required for potholing. Once identified, the location of utilities will be surveyed and shown on the Project mapping. A Subsurface Utility Engineering firm may be used as needed for locating existing subsurface utilities.

Assumptions:

- This task includes three (3) crew days of a subsurface utility company at the Project site for potholing and surveying subsurface utilities.

Task 4.4 - Legal Survey

If required, County will furnish, or direct the Design-Builder to obtain at County's expense, surveys describing physical characteristics, legal limitations, and utility locations for the Project site, and a written legal description of the Project site. The surveys and legal information will include, as applicable, grades and lines of streets, alleys, pavements, and adjoining property and structures; adjacent drainage; rights-of-way, restrictions, easements, encroachments, zoning, deed restrictions, boundaries, and contours of the site; locations, dimensions, and necessary data pertaining to existing buildings, other improvements, and trees; and information concerning available utility services and lines, both public and private, above and below grade, including inverts and depths.

Task 4.5 - Endangered Species Survey (as applicable)

The Design-Builder will hold informal consultations (2 meetings) with the USFWS regarding adverse impacts to any known species within the Project area.

Design-Builder's biologist will survey the Project area, document the results of the field survey, and submit the report to USFWS. The report will document the existence or absence of listed species in the Project area. It is anticipated that comments on the draft report will be received from USFWS. Upon receipt of the comments, a final report will be prepared and submitted to USFWS and County.

Task 4.6 - Arizona Native Plant Survey

Design-Builder will investigate, as applicable, U.S. Bureau of Reclamation (BOR), State of Arizona, and Pima County native plant mitigation requirements for areas that will be disturbed by construction.

Task 4.6.1 - Prepare Native Plant Mitigation Plan (as applicable)

The Design-Builder will map the Project area. The mapping will be prepared at a horizontal scale of T-40 and will use aerial photography prepared in Task 3.

The Design-Builder will consult with the State of Arizona to review the Project area and determine if refinements are required.

The Design-Builder will perform a full plant inventory of lands encompassing the Project. The Design-Builder will calculate plant mitigation fees for the Project area using the State Land Native Plant Value Methodology. The draft plant inventory and mitigation fee calculations will be submitted to County for review and comment. A final plant inventory and mitigation fee calculation will be prepared that addresses County comments. Final documents will be submitted to County for submission to the State of Arizona.

The Design-Builder will attend one pre-submittal conference with the State of Arizona and will provide technical assistance during the State's review period to answer questions or provide additional information, if required by the State. It is assumed that the Design-Builder will respond to two information requests.

Task 4 - Deliverables

1. Draft and Final Geotechnical Report
2. Draft and Final Corrosion Report
3. Draft and Final ANP Survey Results

Task 5 - Schematic Design (30%)

The purpose of this task is to use the data and guidelines developed in Task 3, Preliminary Design, to develop and evaluate alternative design concepts, and agree upon a single design concept for the Project. The primary products from this task will be design memorandums, a 30% level 3-D model, Schematic Design Report, and an initial 30% level construction cost estimate for the Project.

During the Schematic Design phase, the Design-Builder will develop renderings of facilities taken from the model, sketches, preliminary drawings, process and instrument diagrams (P&IDs), and narratives. At the conclusion of this phase of design, a 30% Design Briefing will be held with County. At this briefing, the 3-D model will be used to convey concepts and to solicit input. Meeting minutes will be prepared to capture comments and to document the decisions reached. Specific activities and deliverables from this task are as identified in the subtasks below. During the Schematic Design phase, the Design-Builder will focus on constructability aspects of Project, including facility layouts and construction sequencing.

If the County decides to proceed with a LEED certification approach for the Project, the LEED scorecard will be updated as part of the Schematic Design tasks for each discipline and preliminary LEED templates will be developed for each LEED point. The LEED certification process would also include registering the Project with the Green Building Council.

Task 5.1 - Civil and Site Development

Schematic design work for civil and site development will include the following activities:

- Develop site layouts of improvements for the facility developed to 30% level.
- Identify the locations of underground utilities and incorporate this information into site utility drawings.
- Prepare preliminary storm water calculations and develop preliminary storm water control concepts.
- Set preliminary finish grades of structures and roadways. Identify traffic flow patterns and patterns for delivery of equipment, chemicals, and materials to the site.
- Identify routes for emergency vehicles.
- Review concepts with Design-Builder quality control reviewers.

- Develop concepts for ingress and egress from the Project site.
- Develop potable water distribution system concepts.
- Develop reuse water distribution system concepts.
- Determine routes for major yard piping and site utilities. Coordinate with other projects in the area.
- Contractor entrance, offices, parking, and staging areas will be defined.

Task 5.2 - Landscape Architecture

The general landscape architecture concepts will be prepared by the County and provided to the Design-Builder for use in the Schematic Design phase of the Project. Schematic Design work for landscape architectural will include the following activities:

- Perform an analysis of existing site conditions to include existing vegetation, soil conditions, topography, drainage, and views.
- Coordinate irrigation system requirements with site civil for reclaimed water distribution irrigation supply.
- Develop concepts and layout for fencing, site screening and enclosures.
- Soil stabilization with 85% coverage.

Task 5.3 - Architecture

The general architectural concepts will be prepared by the County and provided to the Design-Builder for use in the Schematic Design phase of the Project. Schematic design work for architectural will include the following activities:

- Perform code review to determine requirements applicable to new facilities. Rehabilitation and code upgrading of existing facilities may be required in locations where existing facilities will be expanded or modified.
- Utilize architectural theme for buildings provided by County. An architectural review meeting will be held with County to review the architectural theme to be used for the above grade structures within the Project area, and for any fencing required. Select interior and exterior construction materials; roof type, slope, and roof support system.
- Assign code classification to new buildings.
- Compile list of chemicals and amounts to be used, if applicable, to determine any area classifications associated with chemical storage.
- Prepare preliminary layout of buildings (plan, section, and elevations).
- Determine building materials.
- Determine locations for personnel facilities in the existing and new buildings.
- Review concepts and draft work products with Design-Builder quality control reviewer.
- Coordinate with the County to schedule a meeting with building review officials. Meet with building review officials as needed to review building permit approach for new and/or modified existing facilities.

Task 5.4 - Structural

Schematic design for structural will include the following activities:

- Coordinate with architectural discipline on the selection of building concepts and building materials. Consult with County on building/structure layouts.
- Develop facility foundation and building concepts and structural design approach.
- Provide input on any modifications to existing facilities to incorporate new work or tie in new facilities.
- Review concepts -with Design-Builder quality control reviewer.

Task 5.5 - Foundations/Excavation

Schematic design for geotechnical will include the following activities:

- Based on the geotechnical investigation described in Task 4, evaluate foundation options.
- Perform an engineering analysis to develop design parameters for the foundation options.
- Review concepts with Design-Builder quality control reviewer.
- Coordinate with civil and structural design leads in making a decision on the preferred foundation option and finalizing design criteria.

Task 5.6 - Process/Hydraulics (as applicable)

Schematic design for process will include the following activities:

- Determine the size and capacity of unit treatment processes, pipelines, and ancillary systems.
- Develop liquids processes gravity flow and pumped flow hydraulics.
- Advance the design for any new outfall capacity determined to be needed as part of the preliminary design hydraulics analysis.
- Develop doses for chemical feed systems.
- Review capacities of existing equipment and pipelines that will interface with new equipment to verify adequacy or to determine replacement if necessary
- Prepare process flow diagrams.
- Develop process narratives.
- Develop plans and sections of various processes.
- Review and update as required the operations during construction design memorandum
- Review concepts with Design-Builder quality control reviewer.
- Develop process models (GPS-X and Pro2D). Provide comparison and summary of output for each model.

Task 5.7 - Process Mechanical (as applicable)

Schematic design for mechanical will include the following activities:

- Select and size major process equipment. Prepare sizing calculations and obtain review and approval of calculations as directed by the Design-Builder Quality Control Manager. Establish level of redundancy required for process equipment.
- Coordinate with the County on preferences of equipment manufacturer and processes. Prepare equipment list with sizing for major equipment.
- Determine equipment availability and delivery lead time requirements.

- Develop preliminary piping and valve schedules with input from County.
- Prepare mechanical specification list and draft piping and valve schedules.
- Prepare preliminary layouts for piping and equipment arrangements.
- Coordinate process and building mechanical water demands and define needs for effluent reuse water and for potable water.
- Coordinate with civil to determine location for new process and utility yard piping.
- Develop plans and sections of various processes.
- Review concepts with Design-Builder quality control reviewer.

Task 5.8 - Building HVAC/Plumbing (as applicable)

Schematic design for HVAC and plumbing will include the following activities:

- Select type of ventilation system to be used in process buildings and odor control facilities. Develop preliminary system sizing and determine locations for building mechanical equipment. Coordinate recommended control systems with appropriate County staff.
- Select type of heating system to be used.
- Select type of air conditioning system to be used.
- Coordinate with the architectural discipline to establish design R-values for exterior walls and roof systems.
- Perform a ventilation code review.
- Coordinate with local and State Fire Marshal and architect to determine requirements for sprinklers and fire protection.
- Determine plumbing utility requirements in existing and new facilities, coordinate with existing facilities and determine configuration for building plumbing drain systems
- Review concepts with Design-Builder quality control reviewer.

Task 5.9 - Electrical (as applicable)

Schematic design work for electrical will include the following activities:

- Prepare preliminary overall one-line diagram for the proposed facility.
- Prepare preliminary load calculations.
- Size electrical rooms, size equipment to fit into the rooms - existing and new buildings
- Determine equipment availability and delivery lead time requirements
- Determine number of electrical feeds to be provided. Coordinate with the electric service provider (ESP) to determine locations of power feeds, voltage, billing details (peak usage rates), requirements for reduced voltage starters, and substation requirements.
- Determine redundancy requirements for power supplies and power distribution.
- Determine any standby power requirements and potential sources.
- Establish preferred voltages for power distribution and equipment operation.
- Perform an electrical code review.

- Coordinate with other disciplines, including architectural and mechanical, to resolve code compliance issues specific to the disciplines. Develop preliminary schedule of hazardous and corrosive locations.
- Review concepts with Design-Builder quality control reviewer.
- Coordination with ESP.

Assumptions:

- This electrical scope may include developing a preliminary design for providing electrical power new facilities included in this Project. Modifications to existing facilities will be included where these modifications are necessary to provide power to the new facilities.

Schematic design work for the instrumentation and control will include the following activities:

- Coordinate with County to develop Preliminary P&IDs for each process.
- Add equipment/instrument tag numbering, naming, and abbreviation following existing County standard conventions.
- Identify equipment based on County standards.
- Determine equipment availability and delivery lead time requirements
- Design control system configuration in coordination with the County standards and review same with the County. Develop control system block diagram showing interface of new control systems with County standards.
- Work with process engineer to prepare written operational description of each major process.
- Develop overall control philosophy including local control approach, control system, level of automation, supervisory control based on County's SCADA standards. Coordinate SCADA criteria with SCADA Integrator and County.
- Review concepts with Design-Builder quality control reviewer.

Task 5.11 - Ancillary Systems (as applicable)

Schematic design work for ancillary systems will include the following activities:

- Identify PCRWRD standards for telephone and intercom systems.
- Identify PCRWRD standards for security.
- Identify PCRWRD standards for fire alarm systems.
- Determine fire water demands.
- Identify data highway architecture.

Task 5.12 - Updated MOPO Design Memorandum

Update the MOPOs that were identified in Task 3.6.3.6 based on the additional design information developed in Task 6. Meet with County staff prior to update of MOPO and discuss additional information available to update MOPO.

Task 5.13 - Schematic Design Report

A schematic design report will be developed including process control narratives, any design memoranda updates from the Preliminary Design Phase, and preliminary layout drawings.

Task 5.14 - Schematic Design Construction Cost Estimate

This task includes Design-Builder review of the cost estimate with County. Design-Builder and County will resolve any differences between the cost estimate and County's budget.

Assumptions:

- This task scope does not include a value engineering study of the schematic design or value engineering revisions of the schematic design.

Task 5.15 - Schematic Design Model Review and Workshop

Design-Builder will prepare a model of Project and use it to present major design concepts to County staff. Additional information, such as P&IDs and facility renderings, will be presented at the workshop. An update and status of permitting and stakeholder activities will be presented. The Schematic Design workshop is based on a 2 hour meeting to allow time to meet with all appropriate County staff. At the meeting, input on the design concepts will be discussed. Following the workshop, meeting minutes and responses to comments will be prepared and submitted to the County to address comments and to document decisions reached. The responses to comments will be incorporated in the 60% Design Development Document. The objective of these workshops is to get County input and freeze the 30% design prior to moving forward with the Design Development phase of the Project.

Task 5 - Deliverables

1. MOPO DM Update
2. Draft and Final Schematic Design Report
3. SD Workshop Summary
4. 3-D Model

PHASE 2 – FINAL DESIGN SERVICES

Task 6 - Design Development (60%)

The purpose of this task is to utilize the decisions that were made in the 30% schematic design task to finalize design development and to achieve a true "design freeze" at the conclusion of this task. Structures, equipment, major plant piping, any processes, and the site plan will be finalized during this task to allow for subsequent final detailing in the Construction Document Preparation phase. Specific activities and work products from this task are described in the following subtasks.

Should the Project include a LEED certification requirement, the LEED scorecard will be updated as part of the Design Development tasks for each discipline and the LEED templates will be developed for each LEED point. If the Project will be LEED certified, the Design-Builder will incorporate LEED requirements into the preliminary specifications and a commissioning lead will provide input into commissioning specifications.

Task 6.1 - Civil and Site Development

- Finalize horizontal locations of major site elements.
- Finalize floor, structure, and finish grade elevations.
- Define demolition requirements and limits.
- Define contractor staging, storage, access, parking, and off-site access corridors.
- Prepare preliminary site grading drawings.

- Develop preliminary yard piping and plant drain layouts.
- Show storm water control concepts (retention basins, swales, curb, and gutter) on the drawings.
- Finalize paving concepts.
- Prepare first draft of technical specifications.
- Review design development with Design-Builder quality control reviewer.

Task 6.2 - Landscape Architecture N/A

- Develop details, as necessary, for interpretive signage.
- Review design development with Design-Builder quality control reviewer.
- General ground cover - soil stabilization for 85% of disturbed ground areas.

Task 6.3 - Architecture (as applicable)

- Further develop a 3-D electronic model of the Project.
- From the models, generate floor plans and elevations.
- Size and locate electrical and control rooms.
- Select the type and location of HVAC equipment and controls, determine space requirements and routing for ductwork, and establish design R-values for exterior walls and roof systems.
- Define the structural design concepts for the facilities.
- Confirm applicable codes for buildings/structures with local code officials and State Fire Marshal. Complete building and fire code analysis. Attend one meeting with local code official to review floor plans.
- Prepare first draft of technical specifications.
- Develop first draft of architectural material schedules.
- Review design development work products with Design-Builder quality control reviewer.

Task 6.4 - Structural (as applicable)

- Establish foundation design.
- Document structural design concepts for buildings and structures.
- Prepare preliminary floor and foundation plans for major structures.
- Prepare first draft of technical specifications.
- Review design development work products with Design-Builder quality control reviewer.

Task 6.5 - Process/Hydraulics (as applicable)

- Finalize major equipment-sizing calculations.
- Finalize plant gravity hydraulics and pumping system hydraulics for major pumping systems.
- Complete internal reference P&IDs.
- Develop process control narratives.
- Review design development work products with Design-Builder quality control reviewer.

Task 6.6 - Process Mechanical (as applicable)

- Prepare 3-D electronic model of mechanical layout.
- From the model, prepare preliminary mechanical plans and major sections.
- Assemble catalog cuts and equipment data sheets for major process equipment.
- Finalize P&IDs.
- Finalize ancillary equipment sizing and line sizing calculations.
- Finalize equipment selection (type, size, weight, arrangement).
- Prepare first draft of technical specifications.
- Review design development work products with Design-Builder quality control reviewer.

Task 6.7 - Building HVAC/Plumbing (as applicable)

- Prepare sizing calculations for HVAC equipment.
- Prepare HVAC equipment data sheets and cut sheets.
- Create ventilation concept drawing.
- Locate duct routes and equipment locations.
- Prepare HVAC system block diagrams. Define HVAC system control philosophy with the County.
- Finalize routing for potable water, effluent reuse water, water for fire suppression, and plant drain system.
- Develop preliminary plumbing drawings including utility piping, drainage systems, and drain piping.
- Prepare first draft of technical specifications.
- Review design development work products with Design-Builder quality control reviewer.

Task 6.8 - Electrical (as applicable)

- Determine location of Motor Control Centers (MCCs) and equipment to be powered out of each MCC.
- Prepare preliminary one-line diagrams for overall facility.
- Prepare detailed electrical load calculations.
- Prepare a preliminary layout of the major electrical equipment.
- Determine equipment requiring uninterruptible power supplies (UPS).
- Determine space requirements and locations for control equipment.
- Locate major I/O termination panels, terminal junction boxes, and control panels.
- Submit load calculations and one-lines to electric utility for review.
- Identify routing methods for electrical conduit and tray.
- Lay out duct bank systems (major runs/manholes).
- Coordinate with civil yard piping.
- Locate manholes and hand holes.
- Develop detailed lighting concepts and prepare preliminary site lighting layout.
- Define and document hazardous locations (NFPA 820).

- Prepare first draft of technical specifications.
- Review design development work products with Design-Builder quality control reviewer.

Task 6.9 - Instrumentation and Control Systems (as applicable)

- Prepare final CAD-based P&ID drawings including loop numbers and instrumentation.
- Finalize I/O rack room sizing.
- Summarize I&C system design philosophy for each major process in a process control narrative.
- Prepare preliminary Instrument List, I/O List, and PLC Equipment List.
- Prepare preliminary panel drawings for control system control panels (not including vendor package system panels to be done by vendor).
- Update control system block diagram.
- Develop control diagrams/loop diagrams for each type of control scheme to be used following existing PCRWRD standards.
- Define control interfaces for package systems with local controls, including adjustable frequency drives.
- Prepare first draft of technical specifications, including incorporating County standards for instruments and I&C components.
- Coordinate with County on control system configuration and operation.
- Review design development work products with Design-Builder quality control reviewer.

Task 6.10 - Ancillary Systems

- Define and document the requirements for telephone and intercom systems.
- Determine the systems required for access control and security monitoring and surveillance systems and determine the methods of procuring such equipment (sole source negotiated price and performance specification). Coordinate security with County requirements.
- Define and document the concepts for fire alarm systems.
- Meet with the State Fire Marshal to determine fire water demands and requirements for fire suppression systems.
- Review design development work products with Design-Builder quality control reviewer.

Task 6.11 - Project Delivery/Construction Package Analysis

Design-Builder will conduct a Project delivery analysis, which will include consideration of the following:

- Finalize the list of any equipment to be pre-negotiated and/or County selected.
- Coordinate with vendors the equipment to be pre-procured and develop contract interface details.
- Receive County's review comments on 60% documents before development of 95% construction documents begins.
- Update and provide more detail on procurement and construction schedule and milestones. The results of this analysis will be discussed with the PCRWRD at the 60% Design Development Workshop.

Task 6.12 - Updated MOPO Design Memorandum

Update the MOPO DM, from Task 5.12, based on additional design information developed in Task 6. Meet with County staff prior to update of MOPO and discuss additional information available to update MOPO.

Task 6.13 - Design Development Construction Cost Estimate

This task includes Design-Builder review of the cost estimate with the County. Construction cost estimating procedures are defined in Task 1.9.

In the event that the cost estimate exceeds the County budget, Design-Builder and County will meet as necessary to review and refine the cost estimate with the goal of reaching consensus on a workable Project cost.

Task 6.14 - Design Development Review with County

Design-Builder will assemble the work products from the tasks above and submit the 60% Design Development document to the County for review and comment. A workshop will be held with the County's personnel to review the 60% deliverable and 3-D model, to receive and discuss comments, and to reach closure on design issues. A 1-day workshop is included in this task to provide time to meet with all appropriate County staff. Following the workshop, meeting minutes and responses to comments will be prepared and submitted by Design-Builder. The responses to comments will be incorporated in the 95% Construction Documents.

Task 6 - Deliverables

1. Design Development Documents
2. Project Delivery/Construction Package Memoranda and Meeting Minutes
3. Updated MOPO DM
4. DD Construction Cost Estimate
5. DD Workshop Summary
6. 3-D model

Task 7 - Construction Document Preparation (95%)

The purpose of this task is to develop the final construction drawings, specifications, and schedules for the Construction Phase. The construction documents will be finalized in Task 9, by incorporating the 95% review comments.

Task 7.1 - Develop 95% Construction Documents

Specific activities performed by the Design-Builder during this phase will include the following:

- Incorporate responses to comments on the 60% Design Development Document.
- Complete the design around the equipment that has been pre-purchased.
- Prepare final construction drawings.
- Prepare final technical specifications.
- Prepare final calculations.
- Complete final checking and coordination review by design leads.
- Provide independent review by the Design-Builder quality control review team.

- Should the County decide to proceed with a LEED certification approach for the Project, the LEED scorecard will be updated as part of the Contract Document preparation tasks for each discipline and LEED templates and the documentation required for each LEED point will be finalized.

Task 7.2 - Construction Documents Construction Cost Estimate

A 95% definitive construction cost estimate will be prepared from 95% percent complete plans and elevations, piping and instrument diagrams, one-line electrical diagrams, equipment data sheets, vendor quotations, structural details, soil data, drawings of major foundations and buildings, and a complete set of specifications.

Task 7.3 - Construction Document Review with County

The Design-Builder will submit 95% Construction Documents to the County for review and comment. The County will prepare one set of collated and adjudicated review comments and provide to the Design-Builder prior to the 95% Review Workshop. The workshop will be held to discuss and resolve this final set of review comments. Following the workshop, meeting minutes and responses to comments will be submitted to the County to document decisions.

Task 7.4 - Construction Cost Estimate Reconciliation

This task includes Design-Builder review of the cost estimate with County. Construction cost estimating procedures are defined in Task 1.9.

In the event that the cost estimate exceeds the County budget, Design-Builder and County will meet as necessary to review and refine the cost estimate with the goal of reaching consensus on a workable Project cost.

Task 7.5 - Updated MOPO Design Memorandum

Update the MOPO DM from Task 6.12 based on additional design information developed in Task 7. Meet with County staff prior to update of MOPO and discuss additional information available to update MOPO.

Task 7 - Deliverables

1. 95% Contract Documents
2. CD Construction Cost Estimate
3. Adjudicated Review Comments and Workshop Minutes
4. Updated MOPO DM

Task 8 - Construction GMP

Design-Builder will prepare and, by the date specified in the Contract, deliver to County a proposed GMP for the construction phase of the Project. At a minimum, the following component will be included in the proposed GMP:

- A recital of the specific Construction Documents, including drawings, specifications, and all amendments thereto, used in preparation of the GMP proposal.
- The five (5) elements of the Guaranteed Maximum Price:
 - a. Guaranteed Maximum Cost of the Work (hereinafter defined), detailed by each subcontract, trade, or bid division;
 - b. the Design-Builder's Contingency for the Work;

- c. Guaranteed Maximum Design-Builder's Staffing Cost (hereinafter defined), detailed by expense category;
 - d. Guaranteed Maximum General Conditions Cost (includes bond & insurance costs) (hereinafter defined), detailed by expense category; and
 - e. Guaranteed Maximum for Design-Builder's Overhead and Profit.
- A draft schedule of values;
 - A description of all other inclusions to, or exclusions from, the GMP;
 - All assumptions and clarifications; and
 - The final construction Project Schedule.

Task 9 - 100% Construction Document Completion

The purpose of this task is to prepare final Construction Documents to be used for construction and building permit review. The Design-Builder will perform the following subtasks as part of this task.

Task 9.1 - Final Design Construction Documents

The Design-Builder will modify the Construction Documents to incorporate agreed upon review comments from the County, applicable regulatory agencies, and the Design-Builder's quality control review team. The final documents will then be submitted to the County for final back-check and approval. The final back checking will consist of verifying the 95% responses to comments were adequately incorporated.

The final Construction Document production is based on a maximum of 3 construction packages.

The final Construction Documents will include 22-inch x 34-inch mylars sealed and signed, and contract specifications.

Task 9.2 - Final Design Report

The final design report will include the final updates of the predesign report technical memoranda, documenting design criteria, treatment facility and equipment sizing, redundancy, treatment facilities configuration, and design criteria for the engineering disciplines. This report will be in compliance with ADEQ requirements. The Design-Builder will submit the Final Design Report to County for County submission to ADEQ.

Task 9 - Deliverables

1. Final Contract Documents
2. Final Design Report
3. Final GPSX Model
4. Final 3-D Model
5. Final MOPO DM

PHASE 3 - CONSTRUCTION

General Intent. Design-Builder will perform all Work and construction administration services necessary to construct the Project in accordance with the Contract for Design-Build Construction and to render the Project and all of its components operational and functionally and legally usable. This includes, but is not limited to, completion of the following tasks.

Task 10 - Trade Contractor Selection Bidding and Negotiation

Task 10.1 - Bid Packages

Design-Builder will prepare and assemble document packets for use in bidding the subcontracts. Such packaging of the Work will be broken down to maximize both competition and the involvement of small businesses.

Task 10.2. - Prequalification

The Design-Builder will develop subcontractor and supplier interest for each division of the Work. A design professional on the Project Team will attend all pre-bid meetings with potential subcontractors and be available to respond to questions regarding the Construction Documents.

Task 10.3 - Bidding

The Design-Builder will competitively bid each trade category or, if approved by County, negotiate for the performance of a particular trade category.

Task 10.4 - Budget Control

The Design-Builder will use its best efforts to obtain bids which are less than the final GMP estimates.

Task 10.5 - Bid Opening

The Design-Builder will conduct bid openings in the presence of the County's Representative. The Design-Builder will provide the County with a copy of its preliminary bid tabulation and a copy of all bids.

Task 10.6 - Bid Evaluation and Award

The Design-Builder will, for each subcontract, trade, or bid division:

- determine the final bid amounts, having reviewed and clarified the scope of Work in detail with the apparent low responsive bidders to determine that their bids are complete but do not include duplicate scope items;
- prepare and furnish to the County a final bid tabulation summary which includes by subcontract, trade, and/or bid division, the applicable final GMP estimate and the related final bid amount and the details of all scope clarifications for County's review and approval;
- if requested by County, provide a list of all potential Direct Purchase Materials (hereinafter defined);
- identify to the County in writing the subcontractors to which the Design-Builder recommends award of subcontracts; and
- award and enter into a subcontract between itself and each subcontractor which it has recommended in accordance with this Scope unless otherwise notified by the County.

Task 10.7 - County Approval Required to Proceed

No portion of the Work may be performed by the Design-Builder or its affiliates except with County's approval.

Task 11 - Design Professional's Role During and After Construction

Although the design and construction of the Project are being provided through a Design-Build delivery method, because no additional design professionals have been retained by County to provide oversight during construction and warranty phase services, the lead design professionals on the Design-Builder's Project Team will be responsible for providing the services described herein. Such services will be provided by the lead design professionals without regard to the conflict of interests associated with the Design-Build delivery method. These services include:

Task 11.1 - Construction Administration

The design professionals will carry out the Construction Administration services set forth herein.

Task 11.2 - Advice and Consultation

The design professionals will be a representative of, and will advise and consult with, the County during construction until final payment is made. The Design-Builder will have authority to act on behalf of the County only to the extent provided in the Contract.

Task 11.3 - Presence at Work Site

The design professionals on the Project Team will attend regularly scheduled construction meetings at the Site and will provide such representation as may be required to fulfill the intent and interpretation of the plans and specifications for the Project. In any event, the design professionals will visit the site as is reasonable and necessary to become familiar with the progress and quality of the Work completed and to determine if the Work is being performed in a manner indicating that the Work when completed will be in accordance with the Construction Documents. On the basis of on-site observations as an architect or as an engineer, the design professional will keep the County informed of the progress and quality of the Work and will guard the County against defects and deficiencies in the Work.

Task 11.4 - Certification of Pay Requests

Based on the design professionals' observations and evaluations of the Design-Builder's Applications for Payment, the design professional will review and certify the amounts due the Design-Builder. The design professional's certification for payment will constitute a representation to the County, based on the design professional's observations at the Project site and on the data comprising the Design-Builder's Application for Payment, that the Work has progressed to the point indicated and that, to the best of the design professional's knowledge, information, and belief, the quality of the Work is in accordance with the Construction Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Construction Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Construction Documents correctable prior to completion and to specific qualifications expressed by the design professional. The issuance of a Certificate for Payment will further constitute a representation that the Design-Builder is entitled to payment in the amount certified.

Task 11.5 - Duty to Inspect

The design professional will reject Work which does not conform to the Construction Documents. Whenever the design professional considers it necessary or advisable for implementation of the intent of the Construction Documents, the design professional will have authority to require additional inspection or testing of the Work in accordance with the provisions of the Design-Build Contract for Construction, whether or not such Work is fabricated, installed, or completed.

Task 11.6 - Submittals

The design professional will review, approve, reject, or take other appropriate action on construction-related inquiries and submittals, such as shop drawings, product data, and samples. The design professional will not approve any such submittals unless such submittals conform with: (i) the design concept; (ii) the Construction Documents; (iii) the County's total budgeted Construction Cost; (iv) the County's Design and

Construction Standards; and (v) governing codes and authorities having jurisdiction. In the event the County's Design and Construction Standards exceed applicable legal requirements, those County standards will govern. The design professional's review will be completed so that all Work can be performed without delay and all products or materials may be ordered or fabricated with sufficient time to meet the Project Schedule.

[Task 11.7 - Preparation of Change Orders](#)

The design professional will prepare Change Orders, with supporting documentation and data, if the design professional determines the same is necessary for the County's approval and execution in accordance with the Design-Build Contract for Construction.

[Task 11.8 - Interpretation](#)

Interpretations and decisions of the design professionals will be consistent with the intent of, and reasonably inferable from, the Construction Documents and will be in writing or in the form of drawings.

[Task 11.9 - Aesthetic Review](#)

The design professionals' decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Construction Documents, and if concurred with by the County.

[Task 11.10 - Substantial and Final Completion](#)

The design professionals will, in conjunction with County personnel, conduct inspections to determine the dates of Substantial Completion and Final Completion, will receive and forward to the County for the County's review and records, written warranties, and related documents required by the Design-Build Contract for Construction and assembled by Design-Builder, and will issue a final Certificate for Payment upon compliance by the Design-Builder with the requirements of the Design-Build Contract for Construction. The design professionals will perform all services relating to Substantial Completion and Final Completion in accordance with County policies and procedures.

[Task 11.11 - As-Built Drawings](#)

The Design-Builder will prepare "As-Built" or record drawings at Project completion in accordance with the requirements set forth in the County Specifications. These drawings will include changes made to the Project by Change Orders, Amendments to the Construction Documents, Architect's Supplemental Information, field orders, field reports, Requests for Information, shop drawings, other directives and submittals, and information provided by the Design-Builder.

[Task 11.12 - Warranty Support](#)

The design professionals will respond to: County's requests to review design and construction issues during the construction warranty period; coordinate and participate in the end of the warranty period inspection in accordance with the County Specifications; and produce a summary report documenting deficiencies, problems, or other outstanding items.

[Task 12 - Construction Supervision](#)

Commencing with the award of the first subcontract and terminating on the date of Final Completion, the Design-Builder will provide the services described herein. The Design-Builder will, as the County's construction representative during construction, advise and consult with the County, and provide administration of the Construction Documents. The Design-Builder will supervise and direct the Work at the Site. The Design-Builder will, at a minimum, staff the Project Site with personnel who will:

- supervise and coordinate the Design-Builder's personnel and act as its primary liaison with the County;
- coordinate trade contractors and suppliers, and supervise Site construction management services;
- be familiar with all trade divisions and trade contractors' scopes of Work, all applicable building codes and standards, and the Contract for Design-Build Construction;
- check, review, coordinate and distribute shop drawings and check and review materials delivered to the Site, regularly review the Work to determine its compliance with the Construction Documents and this Agreement, confer with the appropriate County consultant(s) as necessary to assure acceptable levels of quality;
- prepare and maintain Project records and process documents;
- schedule and conduct weekly progress meetings with subcontractors to review such matters as jobsite safety, job procedures, construction progress, schedule, shop drawing status and other information as necessary and provide notification of, and minutes from, such meetings to County;
- schedule and conduct weekly progress meetings with the County to review such matters as construction progress, schedule, shop drawing status, and other information as necessary; and
- make provision for Project security to protect the Project site and materials stored off-site against theft, vandalism, fire, and accidents as required by the General Terms and Conditions.

Task 13 - Reporting

The Design-Builder will provide a monthly report in searchable PDF format summarizing the progress of the Project to the County including information on the subcontractors' Work, percentage of completion of the Work, current estimating, subcontract buyouts, computerized updated monthly Critical Path Method scheduling and Project accounting reports, including projected time to completion and estimated cost to complete the Work, progress photographs, project directory, logs for Requests for Information, submittals and shop drawings, Change Orders, cost change proposals, field directives, safety meetings, deficiencies, weather conditions, and meeting minutes.

Task 14 - Miscellaneous Construction Phase Duties

Task 14.1 - GMP and Savings

During the Construction Phase, Design-Builder will complete the Construction Work in accordance with the Construction Documents and the Contract in return for payment by County of the Costs of Construction, provided that in no event will the aggregate payments by County to Design-Builder for Construction Work exceed the Guaranteed Maximum Price.

Task 14.2 - Services Provided

Design-Builder's Construction Phase services include, without limitation: team management and coordination, scheduling, cost control and change order management, submittal process management, subcontracting, field management, safety program, close-out process, and warranty period services. This will include providing through itself or its Subcontractors all necessary supervision, labor, inspection, testing, startup, material, equipment, machinery, temporary utilities, and other temporary facilities to permit Design-Builder to complete all Construction Work in accordance with the Construction Documents and the Contract.

Task 14.3 - Performance of Work

Design-Builder will perform all construction activities efficiently and with the requisite expertise, skill, quality, and competence to satisfy the requirements of the Construction Documents and the Contract.

Task 14.4 - Reporting

Design-Builder will provide County, on a monthly basis, a written status report detailing the progress of the Construction Work during the Construction Phase, including whether the Work is proceeding according to the Project Schedule. Each monthly report during the Construction Phase will include: an updated Project Schedule; an updated Construction Work cash flow projection for the duration of the Project; copies of the Design-Builder's Superintendent's daily site reports made during the preceding month; identification of discrepancies, conflicts, or ambiguities existing in the Construction Documents that require resolution; identification of any health and safety issues that have arisen in connection with the Construction Work; and identification of other items that require resolution so as not to jeopardize Design-Builder's ability to complete the Construction Work for the GMP and within the Contract Time(s),

Task 14.5 - Schedule

During the Construction Phase, Design-Builder will maintain the Project Schedule and will promptly prepare a proposed updated Project Schedule and submit it to County for its review and approval whenever events occur or are likely to occur that require changes in the Project Schedule. The Project Schedule for the Construction Phase is the same and a continuation of the Project Schedule used for the Design Phases and will indicate the dates for the start and completion of the various stages of the Construction Work, including the dates when County information and approvals are required and all necessary shutdowns or suspensions of County or separate vendor activities on the Site (if any).

Task 14.6 - Work Management

The Design-Builder will provide leadership to Design-Builder's employees and Subcontractors during the Construction Phase for all matters relating to the Construction Work. The Design-Builder agrees to furnish efficient business administration and superintendence and to complete the Construction Work in an expeditious and economical manner.

Task 14.7 - Management Presence at Work Site/Approval of Replacement

Design-Builder's Representative and the Design-Builder Superintendent will be at the Site at all times when Construction Work is being performed and will have the necessary expertise and experience required to supervise the Construction Work. Design-Builder's Representative will communicate regularly with County and will be vested with the authority to act on behalf of Design-Builder. Design-Builder's Representative and Design-Builder's Superintendent may only be replaced with the mutual written agreement of County and Design-Builder. Notwithstanding the foregoing, the Design-Builder's Representative and Design-Builder's Superintendent will be replaced upon reasonable request of the County.

Task 14.8 - Subcontractor Coordination

Design-Builder is responsible for coordinating the activities of its own Subcontractors.

Task 14.9 - Work Site Cooperation

If County is performing other work with separate contractors under its control as part of the Project or as a separate project, Design-Builder agrees to cooperate and coordinate its Construction Work with the work of County's separate contractors so that the Project and any separate project(s) on which the separate contractors are working can be completed in an orderly and coordinated manner reasonably free of significant disruption to any party. In this regard:

Task 14.9.1 - County Use of Work Site

County reserves the right to award other contracts related to the Project, or to perform certain work. The County also reserves the right to award other contracts unrelated to the Project but involving work in the vicinity of the Project or to perform unrelated work itself. Such other work may or may not be known to the County or disclosed to the Design-Builder prior to the date of the Contract. The Design-Builder will afford the County and other contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work and will properly coordinate its Construction Work with theirs in such manner as County may direct. The Design-Builder will also permit reasonable access of other contractors to the Site and their work.

Task 14.9.2 - Right to Comment on County Work Site Activity

The County will timely provide the Design-Builder with a copy of all plans, specifications, schedules, and other data relating to other contracts or work. The Design-Builder will thoroughly examine these documents and will within three (3) days of completing such examination notify the County in writing of any conflicts with the Construction Work to be performed by the Design-Builder. In no event will such notice be given so late as to interfere with or delay Construction Work to be performed by the Design-Builder. Failure of Design-Builder to review, or provide written notice as provided above will constitute a waiver of any objections or claims Design-Builder may have as a result of the necessity to coordinate Design-Builder's Construction Work with other activities.

Task 14.9.3 - Waiver of Claim against County

Should Design-Builder sustain any property damage through any act or omission of any other contractor, Design-Builder will have no claim or cause of action against County for such damage and hereby waives any such claim. The Design-Builder does not waive any claim or cause of action against any other contractor or subcontractor to recover any and all damages sustained by reason of the acts or omissions of such other contractor. The phrase "acts or omissions" as used in this section will include, but not be limited to, any unreasonable delay by any such other contractors, whether due to negligence, gross negligence, inadvertence or any other cause.

Task 14.9.4 - Duty to Remedy/Indemnification

Should the Design-Builder cause damage to the work or property of any other contractor or of the County, the Design-Builder will upon receiving due notice promptly attempt to settle with such other contractor or the County by agreement, repair or otherwise to resolve the dispute. If such separate contractor sues or initiates a proceeding against the County on account of any damage caused by the Design-Builder, the County will notify the Design-Builder who will defend and indemnify County against such proceedings to the extent required by Article 8 of the Contract.

Task 14.10 - Work Site Appearance

Design-Builder will keep the Site free from debris, trash and construction wastes to permit Design-Builder to perform its Construction Work efficiently, safely, and so as not to interfere with the use of any adjacent land areas, and will maintain the reasonable appearance of the jobsite and all storage/staging areas. Upon Substantial Completion of the entire Construction Work or a portion of the Construction Work to be accepted separately by County, Design-Builder will remove all debris, materials, wastes, equipment, machinery and tools from the Construction Work to permit County to occupy the entire Construction Work or portion of the Construction Work for the use for which it is intended.

Task 14.11 - Changes to Approved Work

Any changes affecting previously approved Construction Work will require prior written approval of County.

Task 15 - Control of Construction Work

Task 15.1 - Means and Methods

Design-Builder will at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction. Design-Builder will perform all construction activities efficiently and with the requisite expertise, skill, and competence to satisfy the requirements of the Contract and Construction Documents.

Task 15.2 - Supervision and Coordination of Work

The Design-Builder will supervise and direct the work of its employees and Subcontractors and coordinate the Construction Work with the activities and responsibilities of the County to complete the Construction Work in accordance with the Construction Documents and the Contract and within the Contract Time(s).

Task 15.3 - Lines of Authority

The Design-Builder will establish an on-site organization and lines of authority in order to carry out the overall plans for completion of the Construction Work.

Task 15.4 - Direct Supervision of Work

All elements of the Work will be under the direct supervision of a foreman or his designated representative on the Site who will have the authority to take actions required to properly carry out that particular element of the Work.

Task 15.5 - Superintendent

The Superintendent will represent the Design-Builder in its absence and all directions given to the Superintendent will be as binding as if given to the Design-Builder. Important directions will be confirmed by written request in each case. The Superintendent will give efficient supervision to the Work, using its best skill and attention. In the event of noncompliance with this Task, County may require the Design-Builder to stop or suspend the Work in whole or in part.

Task 15.6 - Measurements

Before ordering materials or doing work, the Design-Builder and each Subcontractor will verify measurements at the Site and will be responsible for the correctness of such measurements.

Task 15.7 - Field Measurements

Design-Builder will take field measurements and verify field conditions and will carefully compare such field measurements and conditions and other information known to the Design-Builder with the Construction Documents before commencing activities. Errors, inconsistencies, or omissions discovered will be reported to County at once.

Task 15.8 - Survey

Design-Builder will establish and maintain all building and construction grades, lines, levels, and bench marks, and will be responsible for accuracy and protection of same. This Work will be performed or supervised by a civil engineer or surveyor licensed in the State of Arizona.

Task 15.9 - Dust Control

Design-Builder will take whatever steps, procedures, or means necessary to prevent any dust nuisance due to construction operations. The dust control measures will be maintained at all times to the reasonable satisfaction of County and in accordance with the requirements of the Pima County Department of Environmental Quality.

Task 15.10 - Sanitary Provisions

Design-Builder will provide and maintain in a neat and sanitary condition such accommodations for the use of its employees as may be necessary to comply with the requirements and regulations of the State Department of Health or other authorities having jurisdiction.

Task 15.11 - On-Site Storage

Only materials and equipment which are to be used directly in the Work will be brought to and stored on the Site by the Design-Builder. Equipment no longer required for the Work will be removed from the Site within a reasonable time.

Task 15.12 - Responsibility for Materials and Equipment

Protection of construction materials and equipment stored at the Site from weather, theft, damage, and all other adversity is the responsibility of the Design-Builder. No part of damage or loss arising from Design-Builder's failure to provide such protection will be compensable from the Design-Builder's contingency.

Task 16 - Daily Log

Task 16.1 - Log Content

The Design-Builder will maintain a daily log of construction activities for each calendar day during the Construction Phase, using a form approved by Design-Builder and County. The Design-Builder will document all activities at the Site, including:

- Weather conditions showing the high and low temperatures during work hours, the amount of precipitation received on the Site, and any other weather conditions which adversely affect Construction Work at the Site;
- Soil conditions which adversely affect Construction Work at the Site;
- The hours of operation by Design-Builder and individual Subcontractor personnel;
- The number of Design-Builder and Subcontractor personnel present and working at the Site, by subcontract and trade, and updated schedule activity number;
- The equipment active or idle at the Site;
- A description of the Construction Work being performed at the Site by updated schedule activity number;
- Any delays, disruptions or unusual or special occurrences at the Site;
- Materials received at the Site; and
- A list of all visitors at the Site.

Task 16.2 - Copies to County

The Design-Builder will provide copies of the daily logs to County on a weekly basis. Providing copies of the daily log to County does not satisfy any requirement in the Design-Builder Contract for written notice to the County.

Task 17 - Supervision and Construction Procedures

Task 17.1 - Duty to Supervise and Direct

The Design-Builder will supervise and direct the Construction Work, using the Design-Builder's best skill and attention. The Design-Builder will be solely responsible for coordination and accomplishment of all portions of the Construction Work in accordance with the Construction Documents and the Contract.

Task 17.2 - Responsibility for Actions

The Design-Builder will be responsible to the County for the acts and omissions of all entities or persons employed by or operating under the direction of Design-Builder including, but not limited to, Subcontractors, material and equipment suppliers, vendors, and service providers.

Task 17.3 - Responsibility for Inspection Delays

Delays in or results from inspections, tests, or approvals required or performed by persons other than the Design-Builder will not relieve Design-Builder from its obligation to perform the Construction Work in accordance with the Construction Documents and the Contract. Nothing contained in this Task 17.3 precludes the Design-Builder from asserting any rights it may have under the Contract in the event County is responsible for unreasonable delays in the making of any inspections, tests, or approvals.

Task 17.4 - Superintendent Authority

The superintendent and representatives will represent the Design-Builder and all communications given to either representative will be binding on the Design-Builder. All oral communications will be confirmed in writing.

Task 17.5 - Skilled Employees

The Design-Builder will at all times enforce strict discipline and good order among its employees and its Subcontractors' employees and will not allow employment on the Construction Work of any unfit person or anyone not skilled in the task or trade assigned to him or her.

Task 17.6 - County Access to Work

The Design-Builder will at all times allow the County or any other representative designated by County access to the Construction Work to observe progress and inspect the quality of work and conformance to the Construction Documents and the Contract.

Task 17.7 - Uncovering Work

Any Construction Work required to be observed or inspected, as applicable, by the County prior to being covered, which is covered without prior observation or inspection, as applicable, or without prior consent of the County, must be uncovered and recovered by the Design-Builder, if requested by the County, at no cost to County, except where Design-Builder has complied with the notice requirement of Task 17.8 and County or any other representative designated by County fails to inspect the Construction Work to be covered up.

Task 17.8 - Inspection Notice to County

Design-Builder will notify the County in writing at least twenty-four (24) hours prior to the time at which the County must be present to perform an inspection or observation, as applicable. Failure to provide such notice will make the Design-Builder responsible for uncovering the affected Construction Work including any costs to provide reasonable and required access to the Construction Work.

Task 17.9 - County Authority to Keep Work Uncovered

Notwithstanding the foregoing, if after inspection by County, the quality of the Construction Work is in question or an error in measurement is suspected, County may require that Design-Builder leave the work uncovered pending final resolution of the discrepancy.

Task 18 - Construction Documents

Task 18.1 - Reporting of Errors

Design-Builder will study and compare the Construction Documents in advance of beginning each portion of the Construction Work and immediately report to the County any material error, inconsistency, conflict, ambiguity, or omission that is discovered.

Task 18.2 - Shop Drawings Required

The drawings included in the Construction Documents are intended to show general arrangements, design, and extent of Construction Work and are not intended to serve as shop drawings. When specified by County, Design-Builder will not perform any portion of the Construction Work without approved shop drawings, product data, or samples. Any Construction Work performed in violation of this requirement will be solely at the Design-Builder's risk regardless of County's knowledge of such Construction Work.

Task 18.3 - Interpretation of Construction Document Conflicts

In the event of any conflict or ambiguity, the Construction Documents will be interpreted as being complementary, requiring a complete Project or designated portion thereof to be accepted separately by the County. Any requirement occurring in any one of the Construction Documents is as binding as though occurring in all Construction Documents. Generally, the specifications address quality, types of materials and contractual conditions while the drawings show placement, sizes, and fabrication details of materials. In the event of any conflict in the Construction Documents, the order of precedence stated below will govern:

- Contract amendments (subsequent amendments will govern over prior amendments only to the extent modified).
- The Contract document.
- Design-Builder Special Conditions.
- Technical Specifications.
- Standard Specifications & Details for Public Improvement, 2015 Edition.
- General Conditions.
- Glossary of Terms.
- In case of conflict between drawings and specifications, the specifications will govern.
- Conflicts within the drawings:
 - 1) Schedules, when identified as such, will govern over all other portions of the drawings.
 - 2) Specific notes will govern over all other notes and all other portions of the drawings, except the schedules described in Item (c)(1) above.
 - 3) Larger scale drawings will govern over smaller scale drawings.
 - 4) Figured or numerical dimensions will govern over dimensions obtained by scaling.
- If provisions of codes, safety orders, Construction Documents, referenced manufacturer's specifications, or industry standards are in conflict, the more restrictive or higher quality will govern.

- In the event of any conflict or ambiguity, Design-Builder will request an interpretation by the Design-Builder before performing the Construction Work.

[Task 18.4 - Implied Minor Details](#)

If the Construction Documents are not complete as to any minor detail of a required construction system or with regard to the manner of combining or installing of parts, materials, or equipment, but there exists an accepted trade standard for good and skillful construction, such detail will be deemed to be an implied requirement of the Construction Documents in accordance with such standard. "Minor detail" will include the concept of substantially identical components, where the price of each such component is small even through the aggregate cost or importance is substantial and will also include a single component which is incidental, even though its cost or importance may be substantial. The quality and quantity of parts or material so supplied will conform to trade standards and be compatible with the type, composition, strength, size, and profile of the parts or materials otherwise set forth in the Construction Documents.

[Task 19 - Submittals, Drawings, and Shop Drawings](#)

[Task. 19.1 - Records Maintained at Work Site](#)

The Design-Builder will maintain at the Site, for the use of County, one copy of all drawings, specifications, bulletins, amendments, Change Orders, field orders, approved shop drawings, approved submittals, supplementary instructions, requests for information, catalog data, manufacturers' operating and maintenance instructions, certificates, warranties, guarantees, and other Contract related documents and their modifications, if any, in good order and marked daily by the Design-Builder to record all approved changes made during construction. These will be turned over to the County by Design-Builder at Substantial Completion.

[Task 19.2 - Submittals to County](#)

The Design-Builder will submit to County, with such promptness as to cause no delay in the Construction Work or in the work of any other contractor, all submittals and shop drawings as required by the Construction Documents and the Contract or as necessary to illustrate details of the Construction Work.

[Task 19.3 - Submittal Content Standards](#)

Each submittal and shop drawing must be accompanied by a transmittal letter containing a list of the titles and numbers of the shop drawings. Each series will be numbered consecutively for ready reference and each submittal and shop drawing will be marked with the following information:

- Date of submission
- Name of Project
- Location of Project
- Branch of Construction Work (specification section)
- Project number
- Name of submitting Design-Builder
- Name of Subcontractors
- Revision number

Task 19.4 - Design-Builder Review of Subcontractor Submittals

All Subcontractor submittals and shop drawings will be reviewed by Design-Builder prior to being submitted to County and will bear a written statement by the Design-Builder that the submittals and shop drawings are consistent with the Construction Documents or, if not totally consistent, will bear a written statement indicating all deviations from the Construction Documents. By approving, verifying and submitting Shop Drawings, Product Data, Samples, and similar submittals, the Design-Builder represents that the Design-Builder has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Construction Documents. Any submittals or shop drawings submitted without the statement will be returned for resubmission; the submittals or shop drawings will be considered as not having been submitted, and any delay caused thereby will be the Design-Builder's sole responsibility. This review by Design-Builder of Subcontractor submittals and shop drawings will not be construed as Design-Builder approval of the design therein except that it will be a representation that the letter accompanying the submittal or shop drawings does indicate all deviations from the Construction Documents as required by Task 19.5,

Task 19.5 - Deviations from Contract Documents

Design-Builder will include with submittals and shop drawings, a written statement indicating all deviations from the Construction Documents and Contract. Failure to so notify County of such deviations may be grounds for subsequent rejection of the related Construction Work or materials. If, in the opinion of County, the deviations are not acceptable, the Design-Builder must furnish the item as specified or as indicated on the drawings included in the Construction Documents and in accordance with the Contract, Design-Builder will not be relieved of responsibility for deviations from requirements of the Contract Documents by County's approval of Shop Drawings, Product Data, Samples, or similar submittals unless Design-Builder has specifically informed County in writing of such deviation at the time of submittal and County has given written approval to the specific deviation. The Design-Builder will not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by approval thereof.

Task 19.6 - Responsibility for Submittals

It is the Design-Builder's obligation and responsibility to check all of its submittals and shop drawings and to be fully responsible for them and for coordination with connecting Construction Work. Submittals and shop drawings will indicate in detail all parts of an item of Construction Work, including, without limitation, erection and setting instructions, and engagements with work of other trades or other separate contractors.

Task 19.7 - Design-Builder Representations Concerning Correctness of Submittals

By reviewing or submitting submittals and/or shop drawings, the Design-Builder represents that it has determined and verified availability, field measurements, field construction criteria, materials, catalog numbers, and similar data, or will do so, and that it has checked and coordinated each submittal and/or shop drawing with the requirements of the Construction Documents and Contract. If any specified material item or part is not available, the Design-Builder will so indicate to County.

Task 19.8 - County Review

The County will review and approve submittals and shop drawings and return them to Design-Builder within ten (10) days of receipt unless otherwise previously agreed in writing. For scheduling purposes, Design-Builder must assume a ten (10) day review period for each submittal or set of shop drawings. For complex submittals, Design-Builder must assume two ten (10) day review cycles. If review and approval are delayed beyond ten (10) days, County will notify Design-Builder in writing stating the reason for the delay. Approval will not relieve the Design-Builder from responsibility for deviations from the Construction Documents or Contract, unless it has been called to County's attention, in writing, at the time of submission. Any modification will be approved only if it is in the interest of County to effect an improvement in the Construction Work and does not increase the GMP or Contract Time(s). Any such modification is subject

to all other provisions of the Construction Documents and Contract and is without prejudice to any and all rights of County under any surety bond.

[Task 19.9 - Response to County Rejection or Comments](#)

If the County returns a submittal or shop drawing to Design-Builder with the notation "rejected", "revise and resubmit", or "approved as noted", Design-Builder, so as not to delay the Construction Work, will promptly submit a submittal or shop drawing conforming to the requirements of the Construction Documents and Contract and indicating in writing on the submittal or shop drawing and on the transmittal what portions of the resubmittal have been altered in order to meet with the approval of the County. Any other differences between the resubmittal and the prior submittal will be indicated on the shop drawing and on the resubmittal as a special note.

[Task 19.10 - Untimely Submittal](#)

No extension of time will be granted to Design-Builder because of its failure to submit submittals or shop drawings in ample time to allow for review, possible resubmittal, and approval. Construction Work will not commence until the Design-Builder has received written approval.

[Task 19.11 - Transmittal of Approved Submittals to Subcontractors](#)

The Design-Builder will furnish prints of its approved submittals and shop drawings to all Subcontractors whose work is in any way related to the Construction Work covered by the Submittal or shop drawings.

[Task 20 - Product Samples, Tests, and Certificates](#)

[Task 20.1 - Requirement to Furnish Product Samples](#)

Design-Builder will furnish product samples of all items requested or required by the specifications. Product samples will be properly identified and submitted with such promptness as to cause no delay in Construction Work or in the work of any other contractor and to allow time for consideration by County. Design-Builder will submit product samples to County for review and approval in accordance with Task 19, above, and this Task 20.

[Task 20.2 - Submittal of Product Samples](#)

Each product sample must be accompanied by a letter of transmittal containing the following information:

- Date of submission
- Name of Project
- Location of Project
- Branch of Construction Work (specification section number) Project number
- Name of submitting Design-Builder
- Name of Subcontractor

[Task 20.3 - Certification of Compliance](#)

Design-Builder will furnish to County a certificate stating that material or equipment submitted complies with the Construction Documents and the other Contract Documents. If a certificate originates with the manufacturer, the Design-Builder will endorse it and submit it to County together with a statement of compliance in its own name.

Task 20.4 - Duty to Perform

No tests, inspections, observations or approvals performed or given by County or others acting for County, or any agency of Federal, State, or local government, nor any acts or omissions by County in administering the Contract will relieve Design-Builder from its duty to perform the Construction Work in accordance with the Construction Documents, the Contract, and applicable law.

Task 20.5 - Destruction of Samples

Unless the County is requested at the time of submittal to return samples at Design-Builder's expense, rejected samples will be destroyed.

Task 20.6 - County Testing Not Acceptance

After delivery of materials, County may make such tests as it deems necessary, with samples required for such tests being furnished by and at the cost of Design-Builder. Any such test is for the benefit of County and will not relieve Design-Builder of the responsibility for providing quality control measures to assure that Construction Work strictly complies with the Construction Documents and the Contract. No test will be construed as implying acceptance of materials, work, workmanship, equipment, accessories, or any other item or thing. Any material not meeting the requirements of the specifications may be rejected by County and will be removed immediately and replaced in an acceptable manner.

Task 20.7 - Removal of Rejected Work

On the basis of the test results, materials, workmanship, equipment, or accessories may be rejected even though general approval has been given, if items have been incorporated into the Construction Work, County will each have the right to cause their removal and replacement by items meeting Construction Document requirements or to demand and secure appropriate reparation to County from the Design-Builder.

Task 20.8 - Cooperation with Testing Efforts

Design-Builder will cooperate with the selected testing laboratory and all others responsible for testing and inspecting the work and will provide them access to the Work at all times. The County and/or selected testing laboratory will make every effort as to not delay the work.

Task 20.8.1 - Compliance with Work Site Rules

Any person employed by any testing laboratory who, in the opinion of the Design-Builder, does not perform his work in a proper, skillful, and safe manner or is intemperate or disorderly will, at the written request of the Design-Builder, be removed from the Work by County or testing laboratory employing such person, and will not be employed again in any portion of Work without the written approval of the Design-Builder.

Task 20.8.2 - Testing Prior to Delivery

At the option of County, materials may be tested at the source of supply before delivery is started. County will make every effort necessary to not delay the work if materials are to be tested at the source of supply.

Task 20.9 - Trade Name Substitutions

Unless the Contract Documents indicate that no substitutions are permitted, Design-Builder may, subject to the following conditions, substitute or supply alternate items when equipment, materials, or patented processes are referenced in the Contract Documents by manufacturer, trade name, make, or catalog number:

- The substitution will be submitted to County in writing by Design-Builder.

- Design-Builder will certify that the substitution will perform the functions and achieve the results called for by the general design, be similar and of equal substance, and be suited to the same use as that specified.
- The submittal will state any required changes in the Construction Documents to adapt the design to the proposed substitution.
- The submittal will contain an itemized estimate of all costs and credits that will result directly and indirectly from the acceptance of such substitution, including cost of design, license fees, royalties, and testing. Also, the submittal will include any adjustment in the Contract Time created by the substitution.
- Design-Builder, if requested by the County, will submit Samples or any additional information that may be necessary to evaluate the acceptability of the substitution

County will make the final decision and will notify Design-Builder in writing as to whether the substitution has been accepted or rejected. If County does not respond in a timely manner, Design-Builder will continue to perform the Work in accordance with the Contract and the substitution will be considered rejected.

Task 20.10 - Field Inspection

County may utilize field inspectors during construction to assist County in observing Design-Builder's performance. Such inspectors are solely for the purpose of assisting County and should not be confused with an inspector with a regulatory agency or with an inspector from an County-selected laboratory. In conjunction with these activities, the inspector may perform the following activities:

- Thorough onsite observation of the Work in progress and field checks of materials and equipment, the inspector will endeavor to provide protection against defects and deficiencies in the Work.
- The inspector will be authorized to inspect all Work and materials furnished. Such inspection may extend to all or part of the Work and to the preparation, fabrication, or manufacture of the materials to be used.
- The inspector will not be authorized to issue instructions contrary to the Construction Documents or to act as foremen for the Design-Builder.
- The inspector will have the authority to reject work or materials until any questions at issue can be decided by County.

The use of such services by County will not make County responsible for or give the County control over construction means, methods, techniques, sequence, or procedures, or for safety precautions or programs, or responsibility for the Design-Builder's failure to perform the work in accordance with Contract Documents.

County and its representatives will at all reasonable times have access to the work wherever it is in preparation or progress. Design-Builder will provide proper facilities for such access and for inspection.

During the course of construction, as identified in the scheduled, initial construction inspections, if work fails to comply with the Project plans and specifications, Design-Builder will be responsible for all additional engineering consultant costs associated with re-inspections, meetings and reports.

Task 21 Redline Drawings

Task 21.1 - Monthly Review

On a monthly basis, the Design-Builder will complete and turn over to County redlined drawings for review. The redlined drawings will clearly indicate all field changes that were made to adapt to field conditions, field changes resulting from Change Orders, and all buried and concealed installation of piping, conduit and utility services. All buried and concealed items will be accurately located on the redlined drawings as to depth and in relationship to not less than two permanent features such as manholes or corners. The redlined

drawings will be clean and all changes, corrections, and dimensions will be given in a neat and legible manner in a contrasting color.

Task 21.2 - Changes Shown

Items required to be marked include but are not limited to:

- Dimensional changes to the drawings.
- Revisions to details shown on Drawings
- Depths of foundations or footings
- Locations and depths of underground utilities
- Revisions to routing of piping and conduits.
- Revisions to electrical circuitry.
- Actual equipment locations.
- Duct size and routing, if any.
- Locations of concealed internal utilities.
- Changes made by Change Order.
- Details not on original Contract Drawings.

Task 21.3 - Basis Documents

Design-Builder will completely and accurately mark Project Red Line Record Drawing prints of Construction Documents or Shop Drawings, whichever is most capable of indicating the actual physical condition. Where Shop Drawings are marked, they must display a cross-reference to their location in the Construction Documents.

Task 21.4 - Changes after Substantial Completion

Changes or corrections in the Construction Work made subsequent to Substantial Completion will be submitted to County as part of the red line record drawings.

Task 22 - Startup

Task 22.1 - Startup Plan

D-B will develop a detailed plan for the startup of the Project (the “Startup Plan”) and submit it to County for review and approval. The Startup Plan will address all tasks necessary for a successful startup of the Project including, without limitation, the following items:

- The responsible party for each task identified in the Startup Plan.
- A schedule for all Startup tasks.
- Actions to be taken should some portion of the Project become inoperable or fail to perform as anticipated.
- Expected sludge and chemical requirements and usage during commissioning and startup of the Project.
- County and D-B staffing during the startup.
- Communications procedures.

- SCADA system operation.
- Control of odors.
- The relationship between the steps in the Startup Plan and the steps specified below to be undertaken by D-B prior to commencement of Performance Testing.
- Identification of any special safety requirements for startup personnel.

Task 22.2 - Startup

D-B will conduct the Startup consistent with the Startup Plan.

Task 23 - Performance Testing

The purpose of the Performance Testing is to demonstrate that the Project meets all performance requirements set forth in the Contract.

Task 23.1 - Performance Test Plan

D-B will develop a detailed plan for conducting the Performance Test (the "Performance Test Plan") and submit it to County for review and approval. The Performance Test Plan will describe the D-B's approach and details for meeting the Contract requirements. The Performance Test Plan will address all tasks necessary to successfully test the performance of the Project including, without limitation, the following items:

- Facility configuration -identify which of the components in each unit process will be utilized in the test.
- Provide anticipated chemical dosages to be used.
- Test date -the scheduled date the test will be performed by the D-B.
- Related systems required if the test will involve coordination with ancillary or support systems, identify these ancillary or support systems in the plan and schedule.
- Tasks and responsibilities, staffing requirements, support -the specific tasks or activities, both non-process and process related, which are required for the successful completion of the test.
- Response procedures for unsuccessful test results including definition of threshold results that constitute overall Performance Test failure.
- Internal and external communications protocols.
- Operating and maintenance schedule during testing.
- Operating conditions for Influent and Effluent systems.
- Procedures for demonstrating compliance with every Performance Test Procedure and Standard.
- Procedure for testing cathodic protection systems, if such systems are provided.

The Performance Test Plan will also describe methods for demonstrating compliance with Performance Guarantees during the performance of the Performance Tests, including:

- A list of all parameters to be monitored and measurements to be made including but not limited to all Influent and Effluent and Sludge parameters to be monitored and a schedule of monitoring, describing sampling locations, analytical methods and sampling frequencies at which parameters will be monitored on a continuous or other defined basis.
- Identification of equipment calibrations to be performed, descriptions of all calibration techniques to be used and timing of calibrations relative to Performance Testing (all instruments used in

Performance Testing operations and to monitor and evaluate Performance Testing will be calibrated in accordance with manufacturer's requirements), QA/QC procedures, including those to be utilized for all equipment used for testing and measuring different parameters within the treatment process and at the process control laboratory, contract laboratories and County laboratory. The description will address the calibration practices, including the frequency and accuracy requirements. The calibration procedures will consider intermediate spot and cross checks, in addition to the formal calibration periods.

- A full description of any analytical methods and techniques that will be utilized to ensure that all Applicable Law and Performance Guarantees are met. In addition, descriptions of how data collected will be compared with Performance Guarantees will be provided and will be in a manner that complies with Applicable Law. Provide examples of any tools such as flow charts, check sheets or any other data presentation and evaluation techniques that will be utilized.
- A list of real-time data fields that will be provided to the County during Performance Testing.
- A protocol for enabling the County to collect samples during Performance Testing.

The Performance Test Plan will also specify the form and content of the Performance Test report and include specific, detailed sampling protocols to be utilized while conducting the Performance Tests. Laboratory analyses to determine compliance with the Performance Guarantee will be conducted by the County laboratory.

Task 23.2 - Performance Test Procedures and Standards

D-B will perform Performance Testing in accordance with the requirements of the approved Performance Test Plan. If there is a failure to meet Performance Test Procedures and Standards, the D-B will conduct re-tests until the Performance Procedures and Standards are met in accordance with the Contract Technical Specifications. No temporary equipment will be allowed to operate during Acceptance Testing. The Performance Test will be repeated in its entirety at the D-B's expense if the D-B is forced to use any temporary equipment to maintain operation.

Task 23.3 - General Performance Standards

The D-B will perform the Performance Test for a continuous 60-day period to demonstrate that the Project can meet the Performance Guarantees over the range of sludge flows and loadings received at the Project. In order to satisfy the Performance Test requirements, the D-B must certify to the County in the Performance Test Report that the Project:

- Was designed and constructed in accordance with the Contract Standards.
- Operated in accordance with the Contract Standards with only the normal complement of employees included in the D-B's staffing plan. Additional staff may be on-site to aid with sample collection and engineering support only. Additional staff and duties to be approved and authorized by County. Use of unauthorized staff will be cause to invalidate the Performance Test.
- Operated with all automated and computerized systems in full and continuous operation.
- Operated properly during manual and automatic shutdown and start-up.
- Met the Performance Guarantees for the duration of the Performance Test.

Task 23.4 Performance Test Report.

The D-B will prepare reports describing and documenting each Performance Test. The report(s) will include, at a minimum, the following information:

- A certification stating that testing was conducted in accordance with the approved Performance Test Plan.

- A certification of the results of each Performance Test, including:
 - A determination of the extent to which the results comply with the Performance Test Procedures and Standards.
 - For each Performance Guarantee a determination of the extent to which the Facility complies with the Performance Guarantee.
- All required data measured and recorded during the Performance Test, including all laboratory analyses, chemical consumption, instrument calibrations, pressures, and other measurements. Copies of original data sheets, log sheets, calculations, laboratory reports, and test sheets will be provided. D-B will retain all original data sheets, log sheets, calculations, laboratory reports, and test sheets and make them available for County inspection upon request.
- All necessary certifications relating to testing, evaluation, analyses, and performance.
- A record of all equipment failures, repairs, and preventative maintenance.
- A summary of all data and calculations demonstrating the ability of the Project to meet the requirements of the Performance Guarantees.
- A summary of test results and conclusive evidence of compliance with all Performance Test requirements.
- Any additional data reasonably requested by the County in approving the Performance Test Plan to be included in such report.

All certifications required in the Performance Test report will be signed by the D-B and signed and sealed by an engineer employed by the lead design firm.

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Note to Proposers: The Technical Specifications include the Design and Construction Requirements and the Secondary Technical Criteria. The distinction between these two categories of Technical Specifications is in the Design-Builder's ability to make changes. The Design and Construction Requirements may only be changed during the design stage of the project after approval by County of the requested changes. During the design phase a complete review of the specifications will be conducted jointly by County and the selected Design-Builder. This review will allow for revisions or corrections to the specifications as required based on the technology offered by the Design Builder and in the best interests of the project and in the best interests of the County. The Design-Builder will have a greater degree of flexibility with respect to the Secondary Technical Criteria. Secondary Technical Criteria will be identified in the negotiation of the Contract based on the information in the Statement of Qualifications. Proposers should consider all requirements set forth in these Technical Specifications to be Design and Construction Requirements.

TS 1.0 – Project Overview

The Tres Rios Water Reclamation Facility (TRWRF) is the largest wastewater treatment plant in Pima County and operates as a conventional Biological Nutrient Removal (BNR) facility using a 5-stage configuration for both nitrification and denitrification processes. In addition, the TRWRF operates a regional biosolids management facility (RBMF) for processing solids from all RWRD facilities. Constructed in 2013, the TRWRF was designed to

meet a total nitrogen discharge limit of 8 mg/L. However, the TRWRF received a renewed Arizona Pollution Discharge Elimination System (AZPDES) permit in 2017 requiring it to meet new Ammonia limits. The new standard is listed in Arizona Administrative Code, Title 18, Chapter 11 Department of Environmental Quality Water Quality Standards and contains both acute and chronic ammonia limits that are contingent upon temperature and/or pH values. Because the TRWRF discharge represents the base flow in the Santa Cruz River, the more stringent chronic standards apply which can range from 1.5 mg/L in summer to 4.5 mg/L in the winter.

To address this new ammonia limit, the TRWRF must make modifications to the existing process to ensure compliance throughout the year. A key process for targeting ammonia reduction is the centrate side stream waste generated through the dewatering of anaerobically digested bio-solids at the RBMF. The centrate side stream waste typically contains ammonia concentrations of 1,000 mg/L and a volume between 300,000 – 500,000 gallons each day which represent almost 30% of the daily ammonia load processed at the TRWRF. This return flow poses challenges for recycling into the treatment process and controlling nitrogen removal and therefore should be the easiest and very possibly the only process modification necessary for achieving long term compliance with the new ammonia limit.

The side stream Anitamox treatment process will be designed to reliability treat the full volume of side stream waste at the Tres Rios WRF on a 24-hour, 365-day per year basis. The effluent from the side stream Anitamox treatment process shall have an ammonia concentration less than 150 mg/L.

Influent Design Basis

Parameter	Units	Current Value
Flow	MGD	0.500
BOD ₅	mg/L	350
COD	mg/L	950
TSS	mg/L	142
TKN	mg/L	1,360
NH ₄ -N	mg/L	1,260
Alkalinity	mg/L	3,310
Elevation	ft	2,390
Minimum Temperature	°C	31.4

System Performance Requirements

The effluent from the sidestream Anitamox treatment process shall be designed to have the anticipated performance efficiencies.

1. The Anitamox process shall be able to reduce side stream ammonia concentrations by 85% and total inorganic nitrogen by 80%.
2. Facility shall be able to process sidestream waste 24 hrs./day, 365 days per year.
3. Facility must be fully automated under PLC control and integrated with the Tres Rios SCADA system providing complete read/write access include remote control, monitoring, alarm processing and enunciation, trending and data archiving capabilities for both manual and automated control.
4. Facility operation shall not result in an increase in manpower or FTEs beyond normal operator rounds and not require dedicated personnel for operation.

Additionally, the Anitamox process shall not require chemical treatments to reduce ammonia and require no supplemental carbon or alkalinity additions.

The Contractor will provide a PLC to receive real time SCADA information for the parameters furnished by Pima County and are listed below:

The PLC shall be able to send/receive real time information with the plant SCADA for the parameters listed below and up to ten spares:

- Reactor and Equalization Influent Flows
- Reactor Air Flow in SCFM and Valve Position Setting and Timer Setting
- Reactor Mixer Operation
- pH Value
- Dissolved Oxygen Concentration
- Ammonia Concentration
- Nitrate Concentration
- Temperature
- Pump Flow Rate
- Influent Valve Position

O&M Training

Six months prior to start-up the Contractor shall submit to Pima County a complete draft O&M manual for review and comment by Pima County. The O&M Manual shall be specific for the subject Project and in a form acceptable to Pima County. The O&M Manual shall be provide in hardcopy and electronic format. The final O&M Manual shall be submitted two months prior to start-up of the system. Six hard copies and two electronic versions of the O&M Manual shall be provided.

Training of County O&M staff shall be performed by qualified instructors and will use the O&M Manual as the basis of the training. Training will include classroom presentations and hands-on exercises. Supplemental training materials may be used with approval by Pima County. O&M Training will include means of determining the comprehension of materials provided during training. Areas of non-comprehension training shall be repeated.

Start Up and Commissioning

After all O&M training is complete, the Contractor shall proceed to startup of the process and systems in a logical sequence as presented in the O&M Manual. The startup and commissioning shall be performed by Contractor furnished personnel. The County O&M staff shall observe all of the start-up processes and procedures. After the commissioning the equipment warranties and guarantees shall be furnished to Pima County.

During start-up, if adjustments to the O&M Manual materials, an addendum to the O&M Manual shall be prepared and provided to the County.

Performance Testing

After substantial completion of construction, the Contractor will provide RWRD plant staff with operator training, including O&M training on all the equipment and systems provided in preparation of a 60 continuous calendar days performance test. The performance test will be operated by the County in association with the Contractor. The County will perform all sample testing in the County's certified laboratory facility. Should the system fail to meet the performance requirements, or operation of any part of the system stops, because of mechanical or system failure anytime during the 60 days, the performance test period will be extended an additional week for each occurrence.

TS 5.0 – Construction Requirements

A contractor appropriately licensed by the State of Arizona will perform all the work necessary to provide a complete and operational Biogas Purification Facility. All work will be done only within locations approved by County and in compliance with all current local, state, and federal codes. All permits for construction will be the responsibility of the D-B. All onsite equipment, materials, and supplies will be stored only in areas designated by County for that purpose. All personnel will enter the WRF through approved access points and must comply with all County security and safety processes and procedures while on County property.

TS 5.1 - O&M Training

Six months prior to start-up the D-B shall submit to Pima County a complete draft O&M manual for review and comment by Pima County. The O&M Manual shall be specific for the subject Project and in a form acceptable to Pima County. The O&M Manual shall be provide in hardcopy and electronic format. The final O&M Manual shall be submitted two months prior to start-up of the system. Six hardcopies copies and two electronic versions of the O&M Manual shall be provided.

Training of County O&M staff shall be performed by qualified instructors and will use the O&M Manual as the basis of the training. Training will include classroom presentations and hands-on exercises. Supplemental training materials may be used with approval by Pima County. O&M Training will include means of determining the comprehension of materials provided during training. Areas of non-comprehension training shall be repeated.

TS 5.2 - Start Up and Commissioning

After all O&M training is complete, the D-B shall proceed to startup of the process and systems in a logical sequence as presented in the O&M Manual. The startup and commissioning shall be performed by D-B furnished personnel. The County O&M staff shall observe all of the start-up processes and procedures. After the commissioning the equipment warranties and guarantees shall be furnished to Pima County.

During start-up, if adjustments to the O&M Manual materials, an addendum to the O&M Manual shall be prepared and provided to the County.

TS 5.3 - Performance Test

After substantial completion of construction, the Design-Builder will provide RWRD plant staff with operator training, including O&M training on all the equipment and systems provided in preparation of a 60 continuous calendar days performance test. The performance test will be operated by the County in association with the Design-Builder. The County will perform all sample testing in the County's certified laboratory facility. Should the system fail to meet the performance requirements, or operation of any part of the system stops, because of mechanical or system failure anytime during the 60 days, the performance test period will restart at day one.

TS 6.0 – Historical Data

Historical centrate flow data and characteristics production and quality data are available in Attachment 5. All data and values provided in Attachment 5 are historical and are provided for reference only. It is the D-B's responsibility to perform whatever additional analyses it deems necessary to achieve a robust and contract-compliant design.

TS 7.0 – Reliability/Redundancy Criteria

The Design-Builder shall provide the appropriate spare parts to keep the Anitamox sidestream processes in near continuous service to meet the Performance Guarantees.

TS 8.0 – Reference Standards

TS 8.1 - Design Documents

All wastewater treatment facilities constructed in Arizona must comply with the applicable recommendations and requirements of ADEQ Bulletin No. 11. Any deviations from the applicable recommendations and requirements of ADEQ Bulletin No. 11 must be consistent with the Design and Construction requirements, and must be approved by ADEQ.

TS 8.2 - Codes and Standards

The list below provides Project designers with guidance to applicable codes and standards for civil, structural, architectural, mechanical, and electrical design disciplines. The D-B will perform the Design-Build Work in accordance with the Contract Standards, which include, among other things, all applicable permits, ordinances, codes, standards, and regulations. The D-B will use the latest requirements of the Governmental Body having jurisdiction if different from those indicated below. The lists of codes and standards provided in this Section are not intended to be all-inclusive. The D-B will be responsible for identifying and complying with all codes and standards that are applicable to the performance of the Design-Build Work in accordance with Applicable Law and Good Engineering and Construction Practice.

TS 8.2.1 - Civil

The Contract Standards applicable to the performance of all civil design and construction work for the Project including, but are not limited to, the following:

- Pima County Regional Flood Control District, Pima County Drainage Standards for Local Drainage and the Pima County Floodplain and Erosion Hazard Management Ordinance, as amended to date.
- ADEQ Best Management Practices
- Arizona Department of Transportation (ADOT) Standard Specifications (where applicable).
- American Association of State Highway and Transportation Officials (AASHTO), Policy on the Geometric Design of Highways and Streets.
- U.S. Department of Transportation Federal Highway Administration (FHWA), Manual on Uniform Traffic Control Devices [MUTCD 2009 MUTCD with Revisions 1 and 2, May 2012.
- Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities, 2006 revisions.
- 2015 International Building Code and Local Amendments
- 2015 International Energy Conservation Code and Local Amendments
- 2015 International Fire Code and Local Amendments
- 2017 National Electrical Code and local Amendments
- 2015 Uniform Plumbing Code and local Amendments
- 2015 International Plumbing Code and local Amendments
- 2015 International Mechanical Code and local Amendments
- American Institute of Steel Construction (AISC), Manual of Steel Construction, 14th Edition
- American Welding Society (AWS) Welding Code
- American Society for Testing and Materials (ASTM)

TS 8.2.2 - Structural

The Contract Standards applicable to the performance of all structural design and construction work for the Project include, but are not limited to, the following:

- Standards and Codes established by the Northwest Fire District
- The currently adopted editions of the following codes by Pima County Developmental Services Department:
 - International Building Code (IBC) 2015
 - ASCE 7-05 “Minimum Design Loads for Buildings and Other Structures”, as referenced by IBC 2006.
 - American Institute of Steel Construction (AISC) Manual of Steel Construction, 14th Edition
 - American Welding Society (AWS) Welding Code
 - Seismic Provisions for structural steel buildings ANSI/ AISC 341-05
 - Aluminum Design Manual

TS 8.3 - Architectural

The Contract Standards applicable to the performance of all architectural design and construction work for the Project include, but are not limited to, the following:

- 2015 International Building Code and local Amendments
- 2015 International Energy Conservation Code and local Amendments
- 2015 International Fire Code and local Amendments
- 2017 National Electrical Code and local Amendments
- 2015 Uniform Plumbing Code and local Amendments
- 2015 International Plumbing Code and local Amendments
- 2015 International Mechanical Code and local Amendments
- Swaback Partners report “IRWRF Architectural Theme & Character

TS 8.4 - Process Mechanical

The process mechanical design will comply with applicable industry standards for piping, valves, and process equipment. The Contract Standards applicable to the performance of all process mechanical design and construction work for the Project include, but are not limited to, the codes and standards published by the following organizations:

- American Water Works Association (AWWA)
- American Society of Mechanical Engineers (ASME)
- American National Standards Institute (ANSI)
- Hydraulic Institute (HI)

TS 8.5 - Building Mechanical

The Contract Standards applicable to the performance of all building mechanical design and construction work for the Project include, but are not limited to, the following Building Codes:

- Building: 2015 International Building Code (IBC)

- Electrical: 2017 National Electrical Code (NEC)
- Energy: 2015 International Energy Conservation Code (IECC) with local amendments
- Fire: 2015 International Fire Code (IFC) with local amendments
- Mechanical: 2015 International Mechanical Code (IMC) with local amendments
- Plumbing: 2015 International Plumbing Code (IPC) with local amendments
- Standards and Regulations:
 - Air-Conditioning and Refrigeration Institute (ARI)
 - Air Moving and Conditioning Association (AMCA)
 - American Conference of Governmental Industrial Hygienists (ACGIH)
 - American National Standards Institute (ANSI)
 - American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
 - American Society of Mechanical Engineers (ASME)
 - American Society of Plumbing Engineers (ASPE)
 - Americans with Disabilities Act (ADA), Title III, Current Edition
 - Associated Air Balance Council (AABC)
 - National Environmental Balancing Bureau (NEBB)
 - National Fire Protection Association (NFPA)
 - Occupational Safety and Health Administration (OSHA) Standards for General Industry
 - Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)

TS 8.6 - Supervisory Control and Data Acquisition (SCADA)

The Contract Standards applicable to the performance of all Supervisory Control and Data Acquisition (SCADA) and instrumentation design and construction work for the Project include, but are not limited to, the codes and standards published by the following organizations:

- American National Standards Institute (ANSI)
- American Society of Testing Materials (ASTM)
- American Society of Mechanical Engineers (ASME)
- Electronic Industries Association (EIA)
- Federal Communications Commission (FCC)
- Institute of Electrical and Electronic Engineers (IEEE)
- Instrument Society of America (ISA)
- National Electrical Code (NEC)
- National Electrical Manufacturers Association (NEMA)
- Occupational Safety and Health Administration Standards (OSHA)
- Scientific Apparatus Makers Association (SAMA)
- Underwriters Laboratories, Inc. (UL)

TS 8.7 - Electrical

The Contract Standards applicable to the performance of all electrical design and construction work for the Project include, but are not limited to, the following:

- 2017 National Electrical Code (NFPA 70)
- 2006 Pima County Outdoor Lighting Code
- 2015 International Energy Conservation Code
- All other applicable local standards and regulations.

Load studies stating connected and operating loads with applicable demand factors to substantiate the sizing and ratings of all electrical equipment associated with the design will be provided. All materials specified will be UL listed.

TS 9.0 – Sitework Design

The D-B will design the Project Site in compliance with all Applicable Law and will meet the following general objectives:

- The Project will be designed and constructed in a manner that is both environmentally compatible with the Project Site and environmentally sustainable, in accordance with the requirements of the Pima County Development Service's Building Safety and Sustainability Division.
- The Project will be designed in a manner, including grouping functions, to provide easy and efficient operation and monitoring, and to optimize the collection, storage, and use of operating data.
- The Facility will be arranged on the Facility Site to provide efficient and safe access into and throughout the Project Site, including compliance with fire/safety vehicle requirements. The D-B will cluster individual buildings and equipment to the extent practicable.
- Buildings, structures, and pipelines will be designed using materials and equipment consistent with a minimum 50-year physical service life, based on industry standard practices.
- The materials and equipment will be selected to assure the maximum service life expectancy with a low incidence of failure and a high probability of continued manufacturer support and service.
- Equipment selection, building design, landscaping, and other Project elements will be selected to minimize the frequency of maintenance while presenting a well-kept and pleasing appearance.
- Project structures must be protected against the 100-year flood.

TS 10.0 – Specific Site Design Criteria

Criteria for Project Site design, reliability and redundancy, and process control are listed below:

- Arrange the Project Site layout so that facilities generally fit within the constraints shown on Attachment 4, the Site Location Map, attached hereto. .
- All process units will be covered and provide appropriate odor control.
- Operators must have reasonable access to all equipment (walk-up access to all equipment; means to get equipment greater than 100 pounds to a cart).
- Vehicular maintenance access to all facilities (boom truck/flatbed).
- Maintain minimum setbacks required by zoning classification.
- Height limit not to exceed any applicable requirements including but not limited to the Pima County design code and the architectural concepts developed in the Swaback Partners report, "IRWRF Architectural

Theme & Character“ Provide systems for containment and treatment all surface runoff within the developed Project Sites, including runoff from all access driveways serving the Project Sites. Separately contain and treat surface runoff from areas that may contain spills from treatment processes.

- All process units capable of causing nuisance odors will be covered or enclosed in buildings. Exhaust air from these structures will be routed to appropriate odor scrubbing facilities. Monitoring and controls will be in accordance with Applicable Law and the Odor Guarantee.
- All equipment with significant noise generation will be enclosed within buildings or shrouded within sound attenuation structures. Noise levels will not exceed 50 dbA at the Treatment Facility boundary per the Arizona Administrative Code Title 18, Chapter 9, Part B201.
- All buried carbon steel components will be protected from corrosion by cathodic protection, unless the manufacturer provides documentation that the protection is not required at this location.
- Facility lighting will minimize off-site impacts and provide a safe working environment for the staff. Photo-electrically controlled, low-level, low-glare exterior lighting, meeting Illumination Engineering Society of North American foot candle level requirements as stated in the Recommended Practice Manual, and in the City of Tucson / Pima County Outdoor Lighting Code, Reference Document #20, will be provided at the Facility Site entrances and along roadways, parking areas and sidewalks to enhance security and allow for safe movement in the dark. Switch-controlled task lighting will be provided in the immediate vicinity of unit processes and other areas that may require maintenance and operation at night. L.E.D. technology shall be used whenever feasible.

TS 11.0 – Excavation, Filling, and Backfilling

TS 11.1 - Responsibility for Fill

The D-B will be responsible for furnishing all supervision, labor, tools, materials, and equipment; performing all operations in connection with excavation of materials regardless of the character of that material; obtaining fill and backfill material approved by a licensed professional engineer specializing in soil mechanics to achieve final grade lines; and all activities necessary for disposal of excess excavated material. All necessary arrangements for obtaining fill material and topsoil from off-site borrow areas will be the responsibility of the D-B.

TS 11.2 - Professional Engineer

The D-B will employ a professional engineer registered in the state of Arizona specializing in soil mechanics to provide recommendations for the work, including excavation, fill, backfilling, compaction, dewatering, subgrade preparation and stabilization, shoring, and drainage from protection of excavated areas.

TS 11.3 - Excavation

The D-B will perform all necessary excavation for construction of the Project. Excavations for footings will be made sufficiently wide for the installation of form work and to the depths required. The D-B will prevent the foundation area from becoming destabilized due to the flow of water into the excavation or from cave-ins. Where soils are not suitable for sustaining design loads, the D-B will take appropriate action in accordance with the requirements of appropriate established codes and good Engineering and Construction practices. Backfill material will consist of suitable clean soil.

TS 11.4 - Excess Fill

To the maximum extent possible, the D-B will locate facilities to balance cut and fill and place surplus excavated materials above that required for backfilling in areas of the Project Sites consistent with the D-B's clearing and grading plans or in disposal areas approved by the County. The D-B is encouraged to use excess excavated material for landscaping features or other beneficial purposes on the Project Sites. To the extent that excess excavated material cannot be placed in these areas, the D-B will be responsible for all activities necessary to dispose of the excess material at an approved on-site location or property adjacent to the Tres Rios WRF.

TS 11.5 - Grading and Drainage

Design of all storm drain systems will be in accordance with the Pima County Regional Flood Control District's Hydrology Manual for Engineering Design and Flood Plain Management within Pima County, Arizona as well as the Pima County Drainage Standards for Local Drainage and the Pima County Floodplain and Erosion Hazard Management Ordinance.

A stormwater management plan, if required, will be prepared for the Project Sites that complies with requirements of the Pima County Department of Environmental Quality Stormwater Guidelines. The plan will address surface and roof drainage as well as the quality and quantity of storm runoff. The storm water management plan will follow the minimum design criteria as set forth in the County's Storm Water Management Program.

TS 12.0 – Landscaping

TS 12.1 - County Standard

Landscaping will be in compliance with the Pima County Landscape Design Manual and the Swaback Partners report, "IRWRF Architectural Theme & Character "

TS 12.2 - Appropriate Materials

Landscaping and irrigation will use environmentally appropriate materials that are tolerant of the climate of the Service Area and compliant with all applicable Contract Standards. The proper use of plant materials and other design elements must demonstrate environmental responsibility.

TS 12.3 - Design Considerations

All landscape will be designed with minimum maintenance, maximum security and maximum water conservation in mind. Any landscape irrigation will be carried out with reclaimed water, including maximum use of captured stormwater runoff.

TS 13.0 – Roads, Sidewalks, Parking, and Traffic Circulation

TS 13.1 - General

Main access requirements will be finalized during the Facility Site development for the Project. At a minimum, the width of the facility access roads will conform to *Pima County Codes* as well as *Uniform Fire Codes* for fire department access requirements and be constructed of either asphalt or concrete pavement. Pervious pavement will not be used for roads and driveways. The general flow of onsite traffic will separate heavy vehicle traffic from other vehicular traffic to the extent practicable. Adequate traffic signage will be provided to promote safe movement around the Project Sites. At various facility structures, driveways are to be designed to provide access for building and equipment maintenance.

TS 13.2 - Turn Radius

All roadways will have adequately sized turning radii so that a WB-50 design vehicle can traverse the Facility Site. All roads will facilitate the capture of surface water runoff. All roadway widths and turning radii will meet *Pima County Codes* as well as *Uniform Fire Code* requirements.

TS 13.3 - Road Material

The facility access road and the interior roads will be constructed of asphalt or concrete pavement designed for a minimum of HS-20 loadings unless otherwise indicated or required.

TS 13.4 - Chemical Unloading Areas

Areas for chemical unloading from trucks will have containment curbs and will be paved with Portland cement concrete. Coatings, if required, on the concrete surfaces will be determined by the consideration of the chemicals being handled in the area. Grades around these areas will be sloped away from the containment area to minimize surface water runoff into the containment area. Located inside the containment area will be a series of catch basins to capture rainfall and to facilitate drainage within the area. These catch basins will prevent any chemicals from entering the storm drainage system. The contained water is then to be conveyed to the headworks.

The D-B will design, construct, and maintain the Project Sites road system to meet the following objectives:

- Ingress and egress locations to the Project Sites will be designed with adequate sight distances and turning radii to allow for control and safety of all turning movements.
- Adequate Project Sites roadways, parking, and maneuvering areas will efficiently and safely provide for anticipated traffic levels including Facility staff, visitors, and standard trucks and semi-trailers used for chemical deliveries, and for emergency vehicles including firefighting equipment.
- Circulation patterns and Facility Site roadways will be established in a manner that minimizes the interaction of trucks with staff and visitor vehicles.
- Paved on-site walkways and sidewalks will be located to facilitate routine foot traffic between unit processes and around those units where washdown or other operations will be done from the ground level.
- Sub-base and pavement design will be appropriate for the type and level of use, especially with respect to use by heavy trucks, and soil conditions. Prior to placement of any pavement materials, the subbase will be adequately prepared and stabilized.
- Proper access will be provided for emergency vehicles and equipment, including fire trucks.
- Signage, constructed to ADOT design standards, will clearly direct chemical delivery trucks to the chemical/delivery and storage areas.
- The D-B will design, construct and maintain all drainage systems necessary to accommodate drainage from all access driveways serving the Project Sites.

TS 14.0 – Site Management During Construction

TS 14.1 - Fencing

The Design Builder will provide a temporary chain-link perimeter fence during construction to ensure the security of the Project Site and safeguard operations within the Construction Work Limits. The temporary fence is to be removed after construction is complete.

TS 14.2 - Erosion Control

Erosion control measures will be applied before and while construction activities are taking place. To reduce the amount of sediment being transported from the Project Sites, sediment fences will be installed at the toe of new slopes, around stockpiles, and downhill of disturbed areas. There will also be a gravel construction entrance at the limits of construction to help mitigate construction debris from being transported away from the Project Sites. Loss of material from erodible stockpiles and other disturbed areas will be mitigated. All erosion control measures will be shown and implemented in accordance with Pima County Department of Environmental Quality *Best Management Practices* and the Pima County Regional Flood Control District's *Hydrology Manual for Engineering Design and Flood Plain Management within Pima County, Arizona*, Pima County Drainage Standards for Local Drainage and the Pima County Floodplain and Erosion Hazard Management Ordinance.

TS 14.3 - Security

The Project Site is located within the County's secured area. However, D-B is solely responsible for providing security within the Project Site.

TS 15.0 – Utility Requirements

TS 15.1 - Non-Potable Water

The D-B will provide a connection from the County's existing non-potable water system to the Project. Non-potable water will be provided by County at approximately 65 psig. D-B will provide all necessary equipment to increase the non-potable water pressure to levels required for operation of the equipment and systems supplied pursuant to the Contract.

TS 15.2 - Potable Water

Operational potable water will be available from the County's WRF supply lines. D-B will provide a connection to County's potable water system. D-B will install a backflow preventer in any location where potable water discharges to a non-potable system. At a minimum, backflow prevention equipment will meet the requirements of Applicable Law.

TS 15.3 - Fire Water

The D-B will provide a fire water system sized and designed based on the materials and design of the Project Structures and meeting the requirements of the Northwest Fire Department. This system will be separate from the other water supply systems and will be fed directly from the Tucson Water system. Facility access for firefighting and the number and location of fire hydrants will comply with the requirements of the Northwest Fire Department.

TS 15.4 - Natural Gas

The D-B is responsible for connecting to the existing natural gas system on plant site, if required.

TS 15.5 - Electrical System

D-B will be responsible for assessing the electrical load required to operate the BCS. D-B will be able to connect the BCS facility to the County's existing electrical supply grid if the existing system is capable of supporting the loads. If the D-B determines that the current County system is not able to support the expected loads, the D-B will be responsible to procure the proper connection point with Tucson Electric Power (TEP). D-B will provide all necessary electrical management equipment, controls, and wiring after the tap point.

TS 16.0 – Structural Design

TS 16.1 - Professional Engineer

All structural design work will be prepared under the direct supervision of a structural engineer licensed in the State of Arizona. The D-B will design all structures for a service life of not less than 50 years, in accordance with the most current applicable codes and standards.

TS 16.2 - Design Loads

The International Building Code (IBC) will apply to all building structures not otherwise covered. American Concrete Institute (ACI) 318-14 Building Code requirements will supplement the design of concrete structures. American Institute of Steel Construction (AISC) Allowable Stress Design standards will supplement steel structure design.

The recommendations of ACI 350R Environmental Engineering Concrete Structures will be requirements for the design of:

- Concrete water containing structures.
- Buildings with high humidity
- Concrete structures exposed to repeated washdown or to chemical or process spills.
- Concrete structures below ground.
- Concrete structures built or placed in the water.

TS 16.2.1 - Dead Loads

Loads resulting from the weight of all permanent loads, equipment, fixtures, etc., such as walls, partitions, floors, roofs, equipment bases, earth for buried structures, and all permanent non-removable stationary construction are dead loads.

TS 16.2.2 - Live Loads

Live loads are all loads other than dead loads that are applicable and must be considered in the design to satisfy applicable code and specific project requirements. At a minimum the live loads are:

**Table 16-1
Minimum Live Loads**

Location/Parameter	Load
People-only areas (All Floors general)	100 pounds per square foot (psf)
Heavy Storage	250 psf
Light Storage	150 psf
Process slabs	200 psf
Stairways/access way	100 psf
Corridors	100 psf
Electrical rooms	300 psf
HVAC Mechanical Rooms	150 psf
Pump stations, Process Building and Slabs	200 psf
Vehicular access areas	HS20
Roof loads (no reducible)	20 psf
Sidewalks & Driveways	250 psf & Concentrated load per IBC
Fixed stairway	100 psf & 1000 lbs concentrated

Location/Parameter	Load
Buried structures	Per AASHTO guideline
Process tank elevated roof slabs	100 psf uniform or equipment concentrated load

TS 16.2.3 - Seismic Design Loads

Building structures will be based on IBC Section 1613 and American Society of Civil Engineers (ASCE) 7-05 Chapters 11 and 12. The Maximum considered Earthquake (MCE) values SS and S1 will be the maximum value required by the IBC 2006/ ASCE 7-05, U.S. Geological Survey (USGS) National Seismic Hazard Map 2007 or Geotechnical report.

- $I = 1.25$ (Category III – wastewater treatment facilities, IBC Table 1604.5 and ASCE Table 11.5.1).
- Characterization of the Project Sites will be in accordance with Table 1615.1 of the International Building Code (IBC).
- Seismic Design Category will be calculated per IBC table.
- Seismic design of all non-structural components will be in accordance with Chapter 13 of ASCE 7-05.
- Non-Building structures will be designed in accordance with Chapter 15 of ASCE 7-05, in which separate design requirements are provided for different types of structures. MCE values will be the same as for the building structures.

TS 16.2.4 - Wind Loads

Design wind loads will be determined based on Chapter 6 of the American Society of Civil Engineers (ASCE) 7-05 per the IBC.

IBC 90 miles per hour (mph) (3-second gust), Exposure Category C, and Importance factor (I) of 1.15 (Category III- wastewater treatment facilities, IBC Table 1604.5).

TS 16.2.5 - Groundwater Loads

Any encounter of groundwater in the exploratory borings drilled at the Project Sites will be reported in the D-B's Geotechnical Report. If none is discovered at the specified boring depths, review of well logs will indicate the approximate location of groundwater.

TS 16.2.6 - Impact Loads

For crane support girders and monorails – refer to American Institute of Steel Construction (AISC) requirements for horizontal and vertical impact forces.

For light machinery supports - 20 percent minimum or manufacturer's recommendation.

TS 16.2.7 - Liquid Loads

Liquid holding basin walls will be designed for maximum liquid levels with the following conditions:

- Full of liquid, no backfill
- Backfill and groundwater with tank empty
- Any tank cell empty or full in any combination
- Hydrodynamic loads due to seismic forces including sloshing effect

- Static earth pressure plus surcharge with tank empty

Operational level will include maximum flooded condition unless passive methods are provided to prevent flooding. Passive methods include overflow weirs; upstream or downstream hydraulic controls not dependent on pumps, monitors, electronic controlled valves, or operators. If passive level controls are present, then the maximum operational level is defined as the liquid elevation when those controls are in effect.

TS 16.2.8 - Lateral Earth Pressure

Based upon its review of Project Sites geotechnical data, the D-B will determine and document appropriate value for:

- Active pressures
- At-rest pressures
- Passive pressures

In addition, the D-B will use the following:

- Surcharge pressures: Use a minimum of 2 feet of earth for walls where vehicular loads can come within H/2 of the wall.
- Lateral loads on retaining walls due to earthquakes as required by the building code of the County.

TS 16.2.9 - Load Combinations

The D-B will design the facilities for all loads including dead, live, snow, wind, impact, temperature variations, moving, and liquid loads required by the appropriate codes and standards. The design will also include all equipment and process loads. The most severe distribution, concentration, and combination of loads and forces will be used in the design.

TS 16.3 - Special Inspection, Structural Observation, and Quality Assurance

Special inspection, testing and inspections, structural observation, quality control and quality assurance as required by Section 17 of IBC and by Applicable Law will be provided. These requirements will be incorporated in the design documents and construction specifications.

TS 16.4 - Deflections

The D-B will ensure against deflections causing adverse functional or aesthetic effects over the life of the Facility. Grating and metallic basin covers will not have a deflection greater than L/360.

TS 16.5 - Geotechnical Design

D-B will develop comprehensive geotechnical design criteria to support the structural design work. The structural design provided by the D-B will include an array of above grade buildings and structures and below grade pipelines, structures and appurtenant facilities. The geotechnical information to be provided includes:

- A detailed Project Sites evaluation to identify geotechnical features that are relevant to the Facility design.
- Engineering soil properties including: active, at-rest, and passive earth pressure; surcharge pressures; weights and density of various soil materials; sliding friction coefficients; modulus of subgrade reaction; Atterburg Limits.
- Hydrologic and ground water information including maximum anticipated ground water levels.
- Seismic evaluations, including characterization of the Project Sites in accordance with Table 1615.1 of the International Building Code (IBC).
- Deep excavation information including: recommendation on deep excavation and shoring techniques.

- Foundation parameters including: allowable bearing pressures, shallow footing design recommendations; recommendation for earth retaining structures design; recommendations for backfill and structural fill materials.

TS 16.6 - Concrete Design and Construction

Crack control shall be adequate to prevent leakage of water out of water containing structures or into dry structures. The durability of the concrete structure shall be adequate to: resist abrasion and freeze-thaw cycles; resist penetration into the concrete by chemicals; protect the reinforcement from water, chemical and atmospheric attack; and maintain appearance.

Design for reinforced concrete structures shall be considered for different types of structures:

- All liquid-holding concrete structures, concrete components exposed to outside weather and backfill material, and concrete surfaces exposed to wash down or humid process conditions shall be designed per ACI 350-05 Code.
- Above-grade components of architectural non-water holding type buildings where the concrete is protected from moisture shall be designed per ACI 318-05 Code.
- Precast/Prestressed structures, if any, shall comply with the Precast/Prestressed Concrete Institute (PCI) Design Handbook.

TS 16.6.1 - General

Design Strength:

- Concrete 2000 psi Lean concrete and pipe encasement
 4000 psi All reinforced concrete
 4000 psi Unreinforced concrete structures and benching
- Cement shall be "Ordinary Portland Cement", Type II.
- Corrosion protection requirements shall be found in the Geotechnical report.
- Reinforcing steel shall conform to A615, Grade 60.

TS 16.7 - Masonry Design

Masonry shall be designed in accordance with the IBC. The latest edition of Reinforced Masonry Engineering Handbook by the Masonry Institute of America shall supplement masonry design. Masonry shall not be used for the below grade support of soil loads or in earth retaining structures.

TS 16.8 - Structural Steel Design and Construction

TS 16.8.1 - Connection Design

- Use ASTM A325-SC for structural steel framing member connections.
- Use stainless steel for Aluminum member connections.
- Use Type 304 or 316 Stainless Steel (or other material that is appropriate for the conditions to be used) bolts for all sanitary type construction.

TS 16.8.2 - General

- Structural steel wide flange shapes shall conform to American Society for Testing and Materials (ASTM) A992.

- Structural steel shall be designed, fabricated and erected according to IBC as modified by ESP 550.1. The methods shall be according to either the IBC for Allowable Stress Design or the IBC for Load and Resistance Factor Design.
- Steel plates, angles and channels shall conform to ASTM A36
- Square or rectangular steel tubing shall conform to ASTM A500, Grade B and Steel pipe shall conform to ASTM A53, Grade B.
- All connection bolts shall be high-strength bolts conforming to ASTM A325N or slip critical.
- Bolts indicated as machine bolts or anchor bolts shall conform to ASTM A307 for carbon steel and A153 for galvanized steel.
- All welds shall be performed by AWS-certified welders and shall conform to AWS D1.1, latest edition.
- Stainless steel, Type 304 or Type 316 as appropriate, shall be used for bolts, fasteners, and so forth where corrosion concerns dictate, unless the Engineer specifies other material that is better suited for the conditions to be used.

TS 16.9 - Miscellaneous Materials

- Aluminum design per the Aluminum Association *Specifications for Aluminum Structures*.
- Open web metal (steel) roof truss design and specifications per the Steel Joist Institute Standard Specifications and Load Tables.
- Metal (steel) deck design and specifications per the American Iron and Steel Institute (AISI) Specifications for the Design of Light Gauge, Cold-Formed Steel Structural Members.
- Metal grating per the National Association of Architectural Metal Manufacturers *Metal Grating Manual and Heavy Duty Metal Grating Manual*.
- A manufactured-aluminum three-rail system for handrail/guardrail.

TS 16.10 - Metal Roof Deck

Design and fabrication of metal roof decks shall be in accordance with the latest specifications of the Steel Deck Institute. Steel used in the fabrication of deck units shall conform to the requirements of the AISI "Light Gauge Cold-Formed Steel Design Manual".

TS 17.0 – Process and Mechanical Equipment

The D-B will be responsible for obtaining the licenses and patent agreements necessary to construct and operate the unit treatment processes. The D-B will use a system for asset numbering and equipment tagging for all process and mechanical equipment that is compatible with the County's system. The D-B will provide information on all process and mechanical equipment needed for management of these assets and in a form compatible with the County's asset management plan.

Similar pieces of equipment, including but not limited to pumps, valves, blowers and gates, will be furnished by the same manufacturer to maintain uniformity. The design and construction of the facilities will incorporate the equipment and piping system layout guidelines as follows:

- Drawings will show the amount of space required for equipment removal, replacement, and maintenance.
- The minimum clear space around equipment will be as required by applicable codes, recognized industry standards of prudent practice, or four feet, whichever is greater. Maintenance access requirements, especially on large equipment, will be taken into account when establishing the layout. Maintenance access will take into account the need to completely remove each piece of equipment at some future time.
- Arrange equipment and piping to prevent tripping hazards.

- Maintain a minimum of 10 feet vertical clearance from the floor to the centerline for all piping that may impact equipment access. Piping that would limit personnel access will have a minimum of 7' 6" vertical clearance above the floor.
- Equipment and panels will be mounted on equipment pads (minimum of 6 inches thick) to protect them from washdown.
- A minimum clearance of 4 feet will be provided on all sides around rotating equipment over 10 horsepower (hp).
- At least 4 feet of clearance will be provided between the outermost extremities of adjacent pieces of equipment or between a wall and a piece of equipment.
- Clearance in front of any equipment face or panel requiring maintenance will be 4 feet.
- Pressure vessels will be located at least 2 feet from the back wall and 3 feet apart. Sufficient space in front of the vessel will be provided for the face piping plus 4 feet.
- Provide stairs, catwalks, platforms and hatches for accessing and removing equipment. Generally, ladders should not be used for this purpose where frequent access is required.
- Provide lifting eyes for equipment weighing 100 pounds or more.
- Motorized hoists, monorails, or cranes will be provided where equipment component weights exceed 2,000 pounds and/or when frequent lifting for maintenance is necessary. Portable gantry cranes or load-rated lifting eyes will be used where more elaborate lifting mechanisms are not practical or cost effective.
- Leave space for installing future equipment where future needs are defined or readily discernable from the Facility expansion criteria.
- Install large or critical equipment motors and actuators above grade and above potential flooding levels, or otherwise select motors and actuators that can operate in a submerged condition periodically.
- Adequate lifting headroom will be provided for all equipment.
- Adequate headroom will be provided for removal of vertical turbine pumps; and shafts, shaft enclosure tubes, and columns will be specified to be in sections that are removable.
- Locate washdown drains and secondary drains for proper maintenance of equipment and buildings.
- Hose bibs will be located in logical areas to facilitate washdown and pipe flushing. In general, utility stations will be located so that the maximum length of hose required is 50 feet.
- For pumps, compressors, and other rotating equipment where parallel units are provided, the orientation of the drive and the rotation will be identical unless equipment layout dictates a more efficient layout arrangement.

TS 17.1 - Piping, Valves and Gates

The D-B will provide piping that meets all applicable codes, that have a minimum expected life of 50 years, and that are sized to meet the hydraulic performance requirements of the Project. In general, where future piping upgrades as part of an ultimate Facility expansion to 100 MGD would require removal and replacement of existing structures or structural penetrations, or require excavation and replacement of existing pipelines, piping will be provided for a 100 MGD facility.

Piping material will be compatible with the fluid transported within the pipe. Piping will be color coded with the system used for the Tres Rios WRF. That color coding system is shown in Attachment 3 To Appendix C.

The D-B will use valves appropriate for wastewater applications.

The following guidelines will be applied to the design and construction of pipelines:

- Leave adequate clearance at pipe flanges to facilitate disassembly of piping.

- Provide flexible connections for easily assembling and disassembling piping and for connections to equipment. Ensure that adequate thrust restraint is provided at each flexible coupling.
- Show or otherwise clearly define the location and type of all piping anchors and expansion joints on the design drawings or specifications. At a minimum pipes 18-inches in diameter and larger should have anchor and expansion joints shown on the drawings.
- Allow ample space for access to and maintenance of valve and gate operators. Provide adequate clearances for rising stem valves and gates in all positions.
- Water lines or ductwork will not be located above electrical equipment.
- Piping will be located with adequate headroom and such that it is not a tripping hazard, a head-banger, or a barrier to equipment access.
- Piping above blowers, compressors, large valves and gates, or pumps will be limited to facilitate lifting.
- In general, piping will be laid out close to walls where it can be supported easily, particularly in spaces with high ceilings.
- Manual air vents will be located in high points to permit purging of air from the pipeline while it is being filled with water for all pipes 6 inches in diameter and greater.
- A manual drain valve will be located on the low point of pipelines for all pipes 6 inches in diameter and greater.
- Provide adequate seismic bracing and support of all piping.
- Include operators (chain wheels) or access platforms for easy operation of all valves in piping elevated more than seven feet (centerline) above the finished floor.
- All yard piping will be ductile iron or steel or other material that is appropriate for the process service, soil conditions of the site and service life requirements.
- The minimum depth of cover for buried pipelines will be 3 feet.
- A minimum 10-foot horizontal separation and a minimum 18-inch vertical separation will be maintained between potable water and waste water pipelines, with the water pipelines located above the waste water pipelines.
- Provide sufficient numbers of valves to allow isolation of potential problem areas.

316 or 304 Stainless steel (or other material that is appropriate for the operating conditions) slide gates will be used unless the seating/unseating head requirements, or other considerations, require the use of a sluice gate. All gates will be designed for a maximum leakage of 0.1 gallon per minute per lineal foot of seating perimeter. In general, gates will be of unseating head design so that they can be serviced from the dry side when necessary. Sluice gates will be cast iron or stainless steel.

TS 17.2 - Pumps and Pumping Systems

General requirements for pumps and pumping systems are given below:

- Critical speed of all rotating members and the critical speed frequency of the motor will be at least 25 percent above the maximum motor operating speed.
- Vibration levels of the pumping unit when installed on the structural foundation will not exceed the limits recommended by the Hydraulic Institute. Vibration will be monitored.
- Provide bearings having a minimum L10 life of 50,000 hours under any normal pump operating condition. Bearings will include sensors for monitoring heat and temperature.
- Use premium efficiency motors when the anticipated duty cycle exceeds 200 hours per year.

- Size motors to operate within their nameplate horsepower ratings under all conditions of operation and provide a 1.15 service factor.
- Pumps will be selected and sequenced so they operate within their Allowable Operating Region as defined in HI 9.6.3-1998.
- Pump NPSH margins will be based on the suction energy level and water application as recommended in HI 9.6.1-1998.
- The pump intakes will be designed in accordance with the requirements of HI 9.8-1998.
- Pump seals will generally be specified as single mechanical type. Flushing water will be service water.
- For clean water services, mechanical seals without flushing water may be specified.

TS 18.0 – Architectural Features and Finishes

The purpose of this section is to summarize architectural design standards for the Facility.

TS 18.1 - Aesthetic Concept

The D-B will provide a Facility that is aesthetically attractive, compatible with surrounding uses and consistent with the Architectural Guidelines “IRWRF Architectural Theme & Character by Swaback Partners” established by the County for the Facility.

The overriding architectural requirement is to provide functional buildings that present an image of quality and good design, using durable, low-maintenance, corrosion-resistant, energy efficient, and environmentally responsible materials.

Some of the process structures may be equipped with a flat roof design featuring openings for sun/shade control.

TS 18.2 - Architectural Design

All materials selected will be chosen for their durability, weather resistance, low maintenance, and/or ease of maintenance. High quality materials and methods of construction will be employed complying with the requirements of the appropriate materials standards organizations. Construction systems will be of at least a “commercial” grade, with custom or premium levels of finishes.

TS 18.2.1 - Major Exterior Systems

Exterior surfaces for new structures will be aesthetically pleasing, low maintenance, and energy efficient. For the Facility, the appearance of the structures will be in conformance with the Architectural Guidelines, “IRWRF Architectural Theme & Character by Swaback Partners”

Materials and construction will be such that the County will be able to obtain, using good faith effort, a LEED silver certification for the primary operations building. If the County is unable to obtain the silver certification, the D-B will be responsible for adding or changing materials and construction such that the County can obtain LEED silver certification.

TS 18.2.2 - Architectural Materials

Requirements for materials are listed below:

Structure

- Below-Grade Structure:
- Above-Grade Structure:

Material

Cast-in-place concrete
Concrete, concrete masonry, or exposed and/or enclosed steel framing

Structure

- Submerged and Periodically Wetted Structures:

Material

Cast-in-place concrete with or without coating protection, or steel properly protected from corrosion by high quality coatings (timber construction may be considered for chlorine contact baffles).

- Exterior Walls:

Concrete (with architectural finishes), concrete masonry, or brick

- Window Walls:

Aluminum frame with low-e glazing

Structure

- Roofing-Sloped:

Refinished (fluoropolymer coating over galvanized steel sheet or stainless steel) standing seam

- Roofing-Flat:

Concrete or metal deck with double membrane, and if at grade concrete with double membrane, soil, and plantings.

- Floors-Process Areas:

Concrete with sealer and steel troweled or broomed finish and slip-resistant surface (concrete stain may be considered). Hardener will be applied in high wear or traffic zones.

- Floors-Chemical Storage Areas:

Sealed or coated concrete

- Floors-Laboratories:

Concrete with seamless epoxy coating, or rubber

- Interior Partitions:

Concrete masonry in wet areas; concrete masonry, metal stud and drywall in non-wet areas

- Exterior Windows:

Anodized aluminum or epoxy-painted or powder coated, galvanized hollow metal. Double pane, argon filled, low-e glazing

Special attention will be paid to ensure that the Facility design and construction achieves a high quality appearance of concrete surfaces on expansive (long and/or tall) building elements that are exposed to view in the completed Facility.

[TS 18.3 - Occupancy and Construction Classifications](#)

The occupancy classifications of the component structures will be established in accordance with Applicable Law.

[TS 18.4 - Americans with Disabilities Act \(ADA\)](#)

All design considerations will include Americans with Disabilities Act (ADA) compliance, including, but not limited to, the Control Building, maintenance buildings, electrical building(s) and equipment buildings, and any other plant facilities not exempt from ADA compliance.

[TS 19.0 – Building Services](#)

The following building services narrative addresses the heating, ventilation, and air conditioning (HVAC), plumbing, and fire-protection design concepts and provide certain minimum design criteria.

[TS 19.1 - Heating, Ventilating, and Air Conditioning \(HVAC\)](#)

HVAC will be provided for all buildings on the Facility Site. The HVAC components will be sized in conjunction with the ventilation requirements for the odor control system. The HVAC system will be designed in accordance

with American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standards and in compliance with Applicable Law. Offices, lavatories, locker rooms, laboratories, visitor facilities, and shop areas will be provided with separately zoned, thermostatically controlled heating.

Offices and other normally occupied areas will be provided with adequate air conditioning and ventilation to maintain temperatures and air quality in compliance with ASHRAE Standards 55 and 62 and in compliance with Table 3-4.

TS 19.1.1 - Outdoor Design Conditions

Climatic data for the HVAC systems will be based on County historical data. Degree day data will be taken from *Climatology of the United States*, No. 81, Supplement No. 2, dated 1971-2000, and the 2012 Pima County International Energy Conservation Code (IECC) Amendments. Prevailing wind data will be taken from the National Climatic Data Center, Climatic Wind Data for the United States during the period of 1930-1996.

Climatic data will be used for the design of HVAC systems servicing buildings that are exempt from energy code compliance. Exempt HVAC systems may include those installed in process buildings. Further climatic data will be provided for the design of HVAC systems servicing buildings that require compliance with the IECC, including areas treated by mechanical cooling and any Administration Buildings, if extensive renovation is involved. Data will be obtained from the 2005 ASHRAE Handbook of Fundamentals for Pima County and the 2012 Pima County International Energy Conservation Code Amendments.

TS 19.1.2 - Energy Code Compliance

HVAC systems and equipment for all facilities will be specified to perform at levels dictated by the IECC, as applicable. Process buildings are unmanned facilities, not designed primarily for human occupancy, and may be exempted from the energy code according to the scope of the 2012 IECC, Paragraph 101.2.

In general, the construction envelope for buildings containing conditioned spaces will be insulated in accordance with the IECC Climate Zone 2 for Pima County, Arizona.

TS 19.1.3 - Ventilation Design Criteria

Ventilation rates for HVAC systems will comply with the following standards and requirements. This list is not all inclusive or a substitute for complete compliance with all applicable Contract Standards:

- NFPA 820, "Fire Protection in Wastewater Treatment and Collection Facilities."
- ASHRAE Standard 62, "Ventilation for Acceptable Indoor Air Quality."
- All applicable building, fire, and mechanical codes.

TS 19.1.4 - Cooling System Selection

Selection of the mechanical cooling systems for each individual space will be based on its specific design requirements and will include, at a minimum, normally occupied spaces.

TS 19.1.5 - HVAC General Design Criteria

A description of the HVAC design intent for each general space usage, including ventilation rate criteria, ventilation system types, heating/cooling system types, basic operating control intent, and ventilation equipment will be provided. In addition to the information in Table 3-4, the provisions of NFPA 70 must be met. Hazardous areas will be provided with flow sensors and alarms.

**Table 19-1
General HVAC Design Criteria**

Space Type	Indoor Design Cond ¹		Ventilation Occupied/Unoccupied	Cooling System
	Heating, °F	Cooling, °F		
Electrical Rooms ¹	55	85	Based on code & space heat gain.	Self-contained rooftop air conditioning units with economizer (free cooling).
Control Rooms ¹	70	75	Based on code & heat gain.	Split system AC units with economizer (free cooling).

¹ Instrumentation and PLCs and sophisticated control panels will be controlled to a maximum of 75°F.

TS 19.2 - Plumbing Systems.

TS 19.2.1 - Insulated Plumbing Piping

Insulation will be provided for the following piping: potable water (PW), potable hot water (HW), hot water recirculation (HWR), tempered water (TW), non-potable water (NPW) and roof drains.

TS 19.2.2 - General Freeze Protection

Outdoor plumbing connections will be freeze protected.

Indoor plumbing and fire sprinkler systems will be freeze protected by building heating provided by HVAC systems. Piping exposed to the elements will be heat traced, unless otherwise noted.

TS 19.2.3 - Emergency Safety Equipment

Combination emergency safety showers/eyewash units located in process areas require a water-flow switch, light, and alarm bell. Each water-flow alarm device will consist of the manufacturer's standard product. Power requirements will be coordinated with the electrical supply available to each area.

TS 19.2.4 - Cross-Connection Control

Cross-connection control will be provided in accordance with the Uniform Plumbing Code (UPC) and Arizona Administrative Code (AAC) R18-4-215.

TS 19.2.5 - Roof Drainage

Roof drainage and overflow systems for the various buildings will be sized to meet local rainfall criteria and coordinated with the architectural roof design. Roof drains will be collected by a Facility Site storm water drain system or main plant-wide drain system for use as irrigation water to the extent practical.

TS 19.3 - Fire Alarm and Suppression System

The system will be designed to Northwest Fire District, NFPA and insurance requirements. The fire alarm will be installed to alarm at an alarm monitoring company approved by the Northwest Fire Department.

Code analyses will determine the areas in need of fire suppression systems. Fire suppression systems will be automatic wet-pipe sprinkler systems designed in accordance with NFPA 13. Facility Site fire flow requirements will be developed subject to verification by the Northwest Fire Department. The quantity and location of fire

hydrants will be coordinated with the Fire Marshal. Where chemical storage areas require a fire sprinkler system, the need for secondary containment will be provided.

The fire alarm monitoring system will be compatible and integrate to the existing SimplexGrinell Fire Alarm Monitoring System presently installed and in use at the Tres Rios WRF.

TS 20.0 – Instrumentation and Controls

TS 20.1 – General

The D-B will design and configure the Instrumentation and Control System (ICS) to include the necessary process monitoring and control to continuously meet the Performance Guarantees. The D-B will provide an ICS compatible with the existing County facilities. The ICS will provide complete control, monitoring, alarm processing, trending and data archiving capabilities. The ICS will apply hardware and software consistent with existing County standards and practices.

The ICS will consist of field-mounted instruments, local equipment control panels, programmable logic controller (PLC) control panels, thin client workstations and communication networks. The ICS will integrate with the existing supervisory control and data acquisition (SCADA) system that is in production at the Tres Rios WRF.

The ICS will include all necessary field instrumentation, panel instrumentation and PLC-based SCADA equipment calibrated, aligned and configured in such a way which allows effective, efficient, reliable manual and automatic control and monitoring of the Facility with provision for future expansion. The ICS will store operational data for use in reporting and optimizing Facility operations and performance.

Prime operation will be through the ICS' distributed system architecture. PLCs located within conditioned areas in the Facility will perform the remote monitoring and control functions. All field input and output signals will be connected (using homerun wired connections) to the programmable logic controllers. The PLCs will be interconnected to a Local Area Network (LAN) within the Facility. LAN-connected, thin client terminals within the Facility will display the Facility arrangement and its controls using the existing Tres Rios WRF Human Machine Interface (HMI) application. The ICS will apply an open system architecture using Component-Off-The-Shelf (COTS) hardware allowing components supplied by multiple vendors to be used in any future additions or expansion.

There will be sufficient local manual control, indication and alarming to allow safe operation of the Facility equipment and its operation in the event of a controller or SCADA system failure. The ICS will be configured to allow equipment and processes to be operated and controlled both remotely or locally as selected by the operator.

TS 20.2 - Control System Integration (CSI) Specification

D-B will be responsible for properly configuring, programming and successfully testing the PLC units as well as programming a recent release of Wonderware System Platform (the SCADA Platform). County SCADA systems has been standardized to use Allan Bradley PLC components.

The control system integration must work seamlessly integrate with the existing Tres Rios Facility. All such work must conform to the County's existing PLC coding style, provide internal PLC documentation, and apply the existing PLC tag naming convention. In addition, the , work must conform to the existing System Platform style and implementation requirements which are presently in use within all of County SCADA systems.

TS 20.3 - SCADA Fiber Optic Cabling (FOC) Specification

D-B will design, install, and successfully test a dual-homed redundant fiber optical cable (FOC) backbone to the new Facility. The dual-homed fiber backbone configuration will apply dissimilar physical paths to provide redundancy in the event of fiber segment problems.

The Facility's FOC backbone that will convey data to and from the existing SCADA Server array at Tres Rios is mission critical.

The D-B must familiarize itself with the existing fiber optic infrastructure applied throughout PCRWRD facilities and ensure that the Work is fully compatible with that infrastructure and conforms to County ITD Fiber Optic Infrastructure standards. The D-B will install, terminate, and test all fiber optic cabling needed to support a redundant, dual-homed connection arrangement to the existing two core SCADA switches at the Tres Rios WRF. The D-B will also install, terminate and test any fiber optic cabling required within the Facility.

TS 20.4 - SCADA Network Infrastructure Components

The existing Tres Rios WRF SCADA network employs a cybersecurity implementation defined within the confidential cybersecurity chapter of the PCRWRD SCADA Master Plan. The existing SCADA cybersecurity implementation has been recently reviewed by the Department of Homeland Security (DHS) and the methods employed were found to be acceptable to protect a critical infrastructure environment.

The Pima County ITD Network Group is presently responsible for managing and monitoring all of the existing SCADA networks and deploying PCRWRD's underlying SCADA cybersecurity implementation. All SCADA network switches are managed and monitored remotely in real time by Pima County's Network Operations Center (NOC).

The delivery and installation of all pre-configured managed networking switches will performed by the County. The County ITD Networking Group will procure, configure, and install all managed network switches within the Facility.

The D-B will prepare a network diagram of all Ethernet over Copper (EoC) connected network nodes (e.g. PLCs, Packaged Systems, Thin Clients, etc.). EoC connected network nodes will aggregate onto one or more managed network switches within the Facility. If there are multiple managed switches within the Facility, the D-B will select one switch to serve as the main incoming network switch (for the dual home FOC facility connection) and all other network switches will utilize a trunk over optical cable.

Each EoC connected node will be made via industrially rated Category 6 (1000 Mbps Gigabit) plenum cabling. All EoC connections will be limited to a length of less than 100 meters. Any network connections requiring a greater distance will be made using single mode fiber.

Pima County ITD Network Group will deliver and install configured Cisco Industrial Ethernet 3000 Layer 2 / Layer 3 Series Switches (IE3000) managed network switches (and any required expansion modules) to the Facility.

The coordination of Facility network infrastructure components between the Builder and County will be through the County's SCADA Manager (primary) and/or the County Project Manager (alternate).

TS 20.5 - Reference Standards

In addition to the County I&C/SCADA standards and IT standards provided Section 3.9.8, the following organizations have generated standards that are to be used as guides in assuring quality and reliability of components and systems; govern nomenclature; define parameters of configuration and construction:

- International Society of Automation, (ISA).
- National Institute of Standards and Technology, (NIST).
- Underwriters' Laboratories, Inc., (UL).
- American Water Works Association, (AWWA).
- National Electrical Manufacturer's Association, (NEMA).
- Occupational Safety and Health Administration, (OSHA).

- American National Standards Institute, (ANSI).
- National Fire Protection Association, (NFPA).
- Scientific Apparatus Manufacturer's Association, (SAMA).
- National Fire Protection Association 79, Annex "D" Standards, (NFPA).
- Institute of Electrical and Electronic Engineers, (IEEE).
- National Electrical Code, (NEC).

TS 20.6 - Environmental Conditions

The following environmental conditions will be applied to all components of the control systems as required.

TS 20.6.1 - Unclassified Field Locations

Field equipment located in interior areas, which are not classified as hazardous locations, as defined by Article 500 of the National Electrical Code, are subject to ambient temperatures varying from +10 to +120 degrees F. with relative humidity ranging from 40 to 95 percent non-condensing. There may be incidental quantities of hydrogen sulfide gas and dust. Therefore, the equipment will be designed with materials for use in corrosive areas.

In exterior areas, ambient temperatures vary from +10 to +120 degrees F. with strong direct radiation from the sun. The relative humidity in these areas may range from 10 to 90 percent with condensation occurring. All areas may have trace quantities of hydrogen sulfide gas with windblown dust, sand, and rain.

All PLC panels which are mounted outdoors must contain an air conditioning unit appropriately sized to accommodate the expected combined Tucson solar radiation and installed equipment heat load.

PLC control panels will be located in environmentally conditioned areas wherever possible.

TS 20.6.2 - Classified Field Locations

The equipment located in classified areas will be designed to meet the classification of the area in accordance with the National Electric Code, Class 1, Division 1 or Class 1, Division 2 as required.

Use of classified field locations for PLCs, panels, etc., will be avoided wherever possible.

TS 20.6.3 - Corrosive Locations

The equipment located in areas that are subject to corrosive fumes or spills will be designed of materials for use in these corrosive areas.

Use of corrosive area locations for PLCs, panels, etc., will be avoided wherever possible.

TS 20.6.4 - Equipment Enclosures and Panel Construction

All equipment enclosures will meet the following requirements:

- NEMA 12 – General purpose indoor areas – control rooms.
- NEMA 4 – Outdoor areas.
- NEMA 4X – Corrosive and/or outdoor corrosive areas.
- NEMA 7 or other NEC compliant systems for hazardous areas – Explosive (hazardous) areas.
- All control panels will be constructed to meet the UL 508A Industrial Control Panel Standard.

- All control panels will provision power from a Facility-wide UPS source.
- All PLC control panels will provision room to accommodate a Cisco IE3000-8TC network switch.
- All PLC control panels must provision sufficient room to accommodate a small Ethernet patch panel for each end of an EoC connection (each Cat 6 cable lands at a RJ45 receptacle within the enclosure). The accepted patch panel types are defined within the Pima County ITD Infrastructure Specification.
- In the event a PLC control panel exceeds a raceway length of 100 meters to the Facility's main (or a sub) network switch, the panel must provision sufficient room to accommodate a light interface unit (LIU) for termination of single mode optical fiber. The accepted types are defined within the Pima County ITD Infrastructure Specification.
- All PLC control panels will apply Allen Bradley pre-wired module cable assemblies and field I/O termination units.
- All field I/O wiring made to PLC panels must be a homerun connection.

TS 20.6.5 - Sunshields

All field instruments that are mounted outdoors with local indicating displays will be equipped with sunshields to allow viewing of the displays and to shield the instrument enclosures from the heating effects of direct sunlight. In addition, outdoor indicating instrument displays will be north facing wherever possible to prevent direct sun exposure.

Any outdoor control panel which applies a localized operator interface panel display (e.g. an Allen Bradley Panelview Terminal) will be equipped with a suitably NEMA rated, deep hinged window kit, with a UV resistant window, to protect the panel display from the outdoor environment and shield the display from the heating effects of direct sunlight.

TS 20.7 - SCADA System Design

TS 20.7.1 - Control System Compatibility and Philosophy

The Facility ICS will provide compatibility with the existing County SCADA systems and conformance to SCADA standards in effect at the time of construction.

The ICS will provide for local manual, remote manual and remote automatic control modes of operation. The remote control modes of operation will be made available from the Facility HMI screens. In the event there is no automatic control mode requirement, then only local and remote manual control modes will be made available from the Facility HMI screens.

Process set points and operator-set alarm set points will be adjustable from the Facility HMI. Process set points will be programmed within the HMI to be bounded in value as defined by the Designer's control narrative.

Set point boundaries for any Engineer-set process limit(s), process equipment capability limit(s) or process equipment safety limit(s), operator process safety exposure alarm limit(s) (e.g. LEL, H2S etc.) will not be permitted to be changed by an operator from any HMI screen.

Manual operation will be provided for all Facility equipment and processes to include any necessary wired interlocks and process safeties.

TS 20.7.2 - SCADA Controls

When the local control station selector switch is set to REMOTE, the equipment will be provided with two control modes that are selectable from the SCADA graphic display: MANUAL and AUTOMATIC. In MANUAL, the equipment can be started and stopped manually from the graphic display. In AUTO, the equipment will be controlled according to the PLC automatic control logic strategy. If there is no automatic control logic, then only

the manual control will be available from the Facility HMI. Process control and alarm set points will be available from the SCADA graphic displays. (See details noted above in preceding Section 3.9.5.1).

TS 20.7.3 - General Equipment Monitoring Requirements

Equipment status and selected operating modes will be displayed on the SCADA system. Facility HMI presentation will follow existing PCRWRD's Situational Awareness presentation design model as defined within the PCRWRD SCADA Master Plan.

Individual equipment runtime and equipment start counts will be accumulated, historically logged, and displayed by the SCADA system.

Contacts from wired equipment interlocks and field process limit switches will be provided as direct inputs to the PLC with associated alarms produced within the PLC to be monitored by the SCADA Platform. All Facility alarms will be annunciated and acknowledgeable via the Facility HMI.

TS 20.7.4 - Existing SCADA Architecture

The Facility ICS will be an integral part of the existing Tres Rios WRF HMI (System Platform 2014 R1) and the existing Tres Rios WRF facility PLCs. Thin client terminals will provide operator access to the existing Tres Rios HMI and the new Facility for monitoring and control purposes.

The existing Tres Rios SCADA software (System Platform 2014 R1) provides collection and archiving of all Tres Rios plant process historical trending and reporting data. The new Facility HMI will adopt and utilize the existing redundancy and robust design architecture provided by the existing System Platform SCADA Infrastructure currently in production at Tres Rios.

There is sufficient capacity within the existing redundant System Platform implementation:

- The existing System Platform implementation can accommodate the addition of a new I/O instances supporting all of the Facility's PLCs.
- The existing System Platform implementation can add in excess of 20,000 tags to the existing redundant primary process Historian pair for the new Facility. The existing redundant Historian pair provides process data to the trend displays, records alarm history and process data. Client tools are already in place to query process data and to generate reports. The present Historian arrangement also replicates process data into second tier Historian located within a cyber secured demilitarized zone (DMZ) for access from the Pima County Business Enterprise network.
- There is existing sufficient capacity to support the needed equipment object instances for the Facility HMI.
- Up to four thin client terminals can be applied within the Facility. The thin client terminals will be supported by the existing redundant and load-balanced production Terminal Server pair. ACP ThinManager Platform 8 is presently used to configure the behavior of all the PCRWRD thin client terminals.

SCADA Workstation graphics will be developed based on those currently in use on the County's existing SCADA systems and standards.

Access to process control capability will require entry of a username, password, and domain authentication. The level of control access granted is dependent on which domain group the user is a member.

TS 20.7.5 – D-B Control System Integration Pre-Construction Training

The County's PCRWRD SCADA Group will provide two days of pre-construction training to the D-B. This training is to familiarize the D-B with PCRWRD's:

- PLC Programming Style and coding requirements
- System Platform Implementation - programming conventions and requirements

- Cybersecurity Implementation and login credential issuance.

TS 20.7.6 - Interaction between D-B and County during Construction

TS 20.7.6.1 - County PLC Program Submittal Requests

The County will review and approve the programming of the PLCs by on-demand programming review submittal. The submittals are to ensure ongoing conformance with the County's PLC Programming Standards (e.g. controller organization, tag naming convention, tag descriptions, rung comments, and controller program housekeeping). County will submit specific requests to D-B.

TS 20.7.6.2 - D-B Use of Existing Wonderware System Platform Development Sandbox

D-B will develop its System Platform application for the new Facility using the County's existing private virtual sandbox development Galaxy Repository.

D-B will record and log all newly created Facility template names, graphic object names, and object instance names produced for the Facility's SCADA application. The log record will be used for future template and object migration to the Tres Rios WRF production Galaxy and its subsequent deployment.

TS 20.7.6.3 - System Platform Programming Inspections

The County will periodically inspect the D-B's ongoing System Platform work. The inspection will ensure ongoing conformance with the County's existing System Platform design conventions and validation that the D-B's work will migrate properly with the existing Tres Rios System Platform application.

Inspection requests will be transmitted from the County to the D-B.

TS 20.7.6.4 - Migration from Development Sandbox to TRW Production System

County will assist the D-B with the template, graphic and object instance migration to the existing Tres Rios production system as needed during the course of construction.

TS 20.8 - Local Control Stations

Controls mounted adjacent to the motorized controlled equipment will be provided with a LOCAL/REMOTE selector switch, a START pushbutton and a LOCKOUT-STOP pushbutton.

Valves and similar equipment will be provided with a LOCAL/REMOTE selector switch and OPEN/STOP/CLOSE pushbuttons, or identical functionality available at the valve operator.

Disconnects will be provided adjacent to process equipment in non-hazardous areas up to and including 200A, and disconnects will be provided adjacent to process equipment in hazardous areas up to and including 100A. Larger loads will utilize the MCC or switchboard disconnect. Local disconnects will allow isolation of equipment from the electrical service for maintenance. Local disconnect status (CLOSED status true) will be provided to the ICS for all disconnect switches.

Local control stations for equipment with variable frequency drives (VFDs) will also include a speed control potentiometer (and R/I convertor) at the local control station. For bumpless transfer from local into remote, the PLC will track its speed feedback from the VFD (the LOCAL commanded speed) to its remote speed command with the VFD while LOCAL control is selected.

TS 20.8.1 - MCC Controls

Standard piloting controls will be provided on all motor control starters (e.g., start and stop pushbuttons with pilot lamps, fault alarm reset pushbutton with alarm lamp, a local/remote selector and, if applicable, localized VFD

controls). All low voltage MCCs will employ intelligent electronic motor protection offered by the Eaton E441 Motor Insight motor protection relay.

In general, MCC connections to the PLC would be a run status, local/remote status, motor overload (or common protective relay fault alarm status), status from any process limit switches and a remote run command.

VFDs will also be connected to the PLC via hardwired controls using homerun connections. Local control stations will be provided at each piece of equipment controlled by a VFD.

TS 20.8.2 - Programmable Logic Controllers and Locations

PLCs will be used to automate the process via a distributed control system. Facility Supervisory Control PLCs will be located in a conditioned environment, such as an MCC Room.

Each PLC will be powered by an Uninterruptible Power Supply (UPS) electrical source within the Facility. The UPS will provide a reliable source of uninterruptible power with no break in AC output power during a complete or partial interruption of incoming line power. The UPS will include audio/visual alarms and will be UL listed. The UPS capacity rating will be adequate to provide uninterrupted conditioned power to fully loaded conditions (for all of the connected critical PLC loads) for a minimum of thirty minutes. The status of the UPS will be monitored by the ICS. The minimum acceptable UPS status requirement is monitoring of the UPS Loss of Utility Power and UPS Low Battery alarm conditions.

Distributed PLC processors, redundant PLC power supply units, control networks and UPS power will provide system reliability for the PLC and thin client-based HMI in the Facility control system.

Communications from the Facility to the Tres Rios WRF system will be via fiber optic cable, enclosed in conduit, provided and installed by the D-B, in accordance with County ITD standards.

The D-B will provide, configure, and program all PLCs at the Facility. The D-B will program the PLCs to be able to provide the required process control, data and alarms to the existing Tres Rios WRF production SCADA System (based on Wonderware System Platform 2014 Patch 01).

User Defined Types (UDTs) and ControlNet networking will be applied for synchronized status and control messaging between a Facility master PLC and associated process area PLC(s) whenever sequential operational control or continuous shared deterministic control is required.

Communication links between all PLCs and facilities will be continuously monitored and safe operating modes assumed whenever a communication failure has occurred. Normal remote operation modes may resume when communications have been restored, depending on the process, safety issues, etc. Restart procedures following a communication or power failure will be defined for each process during preliminary design and documented within the control narratives.

The licensed software required for PLC and OIT programming is comprised of the following:

- Rockwell Automation RSLogix5000 (Version 20, PLC configuration software).
- Rockwell Automation RSLinx (OPC client to CIP communications software).
- RSNetWorx for ControlNet (Communications synchronization software).
- RSView Studio Machine Edition (Version 9, Panelview Terminal programming software).

TS 20.8.3 - Packaged Systems

Package System PLCs are permitted to be located in proximity of its package system within the Facility process (plant floor) area. All Package Systems will be connected to any Facility master PLC(s) via ControlNet.

The Package System Operator Interface Terminal (OIT) will be selected from the Allen Bradley Panelview 1000 or 1500 family. The OIT will be programmed using Rockwell Automation RSVIEW Studio Machine Edition Version 9 (or later).

User Defined Types (UDTs) will be defined within any Facility master PLC and Package System PLC to communicate information to and from any Package System applied within the Facility's design.

Remote control modes of operation will be made available from the Facility HMI screens to any Packaged System. Conversely, the Packaged System will be prepared to support remote control operation from the Facility HMI. The Packaged System will annunciate their package system alarms on their local OIT. Alarms from a Package System PLC should be passed to a Facility master PLC allowing all Package System alarms to be available on the Facility HMI.

TS 20.9 - Safety Interlocks

All safety and equipment protection shutdown/lockout interlocks will be implemented through hardwired connections to the motor control circuit. Interlocking for personnel and equipment safety and equipment protection will not be performed by the PLC. Hardwired interlock logic will provide for a local RESET pushbutton function. Shutdown/Lockout and RESET functions will be monitored by the PLC and SCADA systems. In the event a PLC is signaled of a shutdown/interlock event, the PLC will suspend any automated control logic in use and apply any logic necessary needed to return the equipment and its process to a safe shutdown state.

TS 20.10 - Field Process Commissioning

The County and/or their representatives reserve the right to witness any or all instrument and control systems testing within the Facility.

TS 20.11 – Deliverables

Deliverables will be supplied in two forms hardcopy and electronic. 5 hardcopy sets should be supplied to the County's Project Manager.

Electronic deliverables will be delivered on 2 sets of USB Drive media. Drawings will be supplied both Adobe .PDF format and AutoCAD .DWG format. For control systems, the preferred drawing size is ANSI B elongated. Rockwell Automation PLC configuration files will be supplied in their native .ACD format. Rockwell Automation RSVIEW Studio panel configuration files will be supplied as either a project archive (.APA) file or a compiled image (.MER) file.

TS 20.11.1 - Design Deliverables

Consistent with the County review and approval process provided in the Scope of Work, D-B will deliver the following to County:

- All Piping and Instrumentation Diagrams for the entire Facility.
- A SCADA Network Communications Block Diagram (indicating all EoC, FOC and ControlNet nodes) for the entire Facility.
- A complete set of process narratives for the entire Facility, organized by increasing control loop number. The process narratives should describe the available control modes, process interlocks, automatic control action and anticipated set point(s) to achieve expected system performance for each process area's process unit or process unit group. The process narratives should be sufficiently descriptive to allow application into functional PLC and HMI configurations.
- A detailed Instrument List for the entire Facility.
- A sample ISA 20 compliant Instrument Specification Form for instrument installation and quality assurance.

- A sample Field I/O check sheet.

TS 20.11.2 - Construction Deliverables

At completion, D-B will deliver the following to County:

- Copies of all completed and signed Field I/O Check sheets.
- Copies of all annotated ISA 20 compliant Instrument Specification Forms.
- All control panel wiring diagrams applied within the Facility (to include any control panel diagrams associated with any applied Packaged Systems).
- All field loop wiring diagrams (organized by PLC control panel and increasing loop number) applied within the Facility (to include any field wiring diagrams of any applied Packaged Systems).
- Electronic submission of any applied Package System PLC configuration.
- Electronic submission of any applied Package System OIT configuration.
- Electronic submission of all Facility PLC configurations.

TS 21.0 – CORROSION CONTROL

During the Design Phase, the proposed Facility will be analyzed to determine chemicals that are used during the process and what affect the corrosivity of the water has as it moves through the Facility.

TS 21.1 - Site Soil Corrosivity

The D-B will evaluate corrosion potential of Project Sites soils, based on its analysis of geotechnical information gathered by the D-B.

TS 21.2 - Wastewater Corrosivity

TS 21.2.1 - Hydrogen Sulfide

Appropriate materials of construction or coatings and linings will be provided to resist deterioration from hydrogen sulfide corrosion.

TS 21.2.2 - Considerations for Concrete Surfaces

Appropriate methods will be used to protect concrete surfaces from damage due to acidic conditions.

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EXHIBIT 1 TO APPENDIX A (5 pages)

Exterior Coating Color/Labeling Scheme for Plant/Process Piping (for labeling see specification Section TS 17.1 – Piping, Valves and Gates)									
Flow Stream	Service Name	* Pipe Material	Color	Bands	Comments on Color Choice	Tnemec #	ICI Paint #	Carboline #	Devoo Paints #
CA	Compressed Air	COP	Green	Red	per ROMP	SC07	“Safety Green”	2383	Match defined colors
CHD	Chemical Drain	PVC	Yellow	--	Match existing piping	BW56	“Medium Yellow”	6666	Match defined colors
CO	Classifier Overflow	CLDI	Dark Brown	--	Match other sludge piping	YB23	“Warm Brown”	9218	Match defined colors
CT	Centrate	CLDI	Dark Brown	--	Match other sludge piping	YB23	“Warm Brown”	9218	Match defined colors
CW	Chilled Water	STL	--	--	Provide labels outside of insulation jacket.	--	--	--	--
CWR	Chilled Water Return	STL	--	--	Provide labels outside of insulation jacket.	--	--	--	--
DCW	Domestic Cold Water	COP & CLDI	Blue	--	Match potable cold water in ROMP	SC06	“Safety Blue”	S150	Match defined colors
DHWC	Domestic Hot Water Circulation	COP	Blue	Red	Match potable hot water in ROMP	SC06	“Safety Blue”	S150	Match defined colors
DHW	Domestic Hot Water	COP	Blue	Red	Match potable hot water in ROMP	SC06	“Safety Blue”	S150	Match defined colors
DS	Digested Sludge	CLDI	Dark Brown	--	Match existing piping	YB23	“Warm Brown”	9218	Match defined colors
DWS	Dewatered Sludge	CLDI	Dark Brown	--	Match other sludge piping	YB23	“Warm Brown”	9218	Match defined colors
FA	Foul Air	FRP	White	--	Gel coat per Section 23 31	--	--	--	--

Exterior Coating Color/Labeling Scheme for Plant/Process Piping (for Labeling see specification Section 10 14 00)

Flow Stream	Service Name	* Pipe Material	Color	Bands	Comments on Color Choice	Tnemec #	ICI Paint #	Carboline #	Devroe Paints #
					16.16				
FC	Ferric Chloride	CPVC	Yellow	--	Match other chemicals in ROMP	BW56	"Medium Yellow"	6666	Match defined colors
FPW	Fire Protection Water	STL	Red	--	Per AHJ	SC09	"Safety Red"	5555	Match defined colors
FS	Float Sludge	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
FSP	Foam Spray	COP	Light Grey	Orange	per ROMP	EN14	--	C731	Match defined colors
FT	Filtrate	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
FW	Flush Water	CLDI			Color will depend on the source – if PW = blue; if SW=purple				
GT	Grit	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
HE	Headwork Effluent	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
HW	Heating Water Supply	STL	--	--	Provide labels outside of insulation jacket.	--	--	--	--
HWR	Heating Water Return	STL	--	--	Provide labels outside of insulation jacket.	--	--	--	--
IA	Instrument Air	COP	Green	--	per ROMP	SC07	"Safety Green"	2383	Match defined colors

Exterior Coating Color/Labeling Scheme for Plant/Process Piping (for Labeling see specification Section 10 14 00)									
Flow Stream	Service Name	* Pipe Material	Color	Bands	Comments on Color Choice	Tnemec #	ICI Paint #	Carboline #	Devroe Paints #

IMLR	Internal Mixed Liquor Recycle	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
IW	Irrigation Water	CPVC & CLDI	Purple	--	IW supplied via SW. Pipe supplied to the site purple in color per Section 32 84 23.	--	--	--	DC9600, "Safety Purple"
ML	Mixed Liquor	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
NAOCL	Sodium Hypochlorite	CPVC	Yellow	Dark Yellow	per ROMP	BW56	"Medium Yellow"	6666	Match defined colors
NG	Natural Gas	STL	Yellow	--	Match existing piping	BW56	"Medium Yellow"	6666	Match defined colors
NPHW	Non-Potable Hot Water	COP	Light Blue	Red	Match existing piping	J8161 2040	70BG 67/126	7107	Match defined colors
NPW	Non-Potable Water	CLDI	Light Blue	--	Match existing piping	J8161 2040	70BG 67/126	7107	Match defined colors
OD	Overflow Roof Drain	CISP	Dark Grey	Red	Match drains in ROMP	IN05-61	"Silver Grey"	2525	Match defined colors
P	Polymer	CPVC	Dark Green	--	Match existing piping	G4582	"Crylight Green", 90 GY 10/250	4372	Match defined colors
PA	Process Air	WS	Light Green	Red	Similar to CA, IA	AM52	"Parrot"	6361	Match defined colors
PD	Plant Drain	PVC	Dark Grey	Red	Match drains in ROMP	IN05-61	"Silver Grey"	2525	Match defined colors
PE	Primary Effluent	CLDI & WS	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors

Exterior Coating Color/Labeling Scheme for Plant/Process Piping (for Labeling see specification Section 10 14 00)									
Flow Stream	Service Name	* Pipe Material	Color	Bands	Comments on Color Choice	Tnemec #	ICI Paint #	Carboline #	Devoo Paints #
POS	Polymer Solution	CPVC	Dark Green	--	Match existing piping	G4582	"Crylight Green", 90 GY 10/250	4372	Match defined colors
PS	Primary Sludge	CLDI	Dark Brown	--	Match existing piping	YB23	"Warm Brown"	9218	Match defined colors
PW	Potable Water	COP & CLDI	Blue	--	Match potable cold water in ROMP	SC06	"Safety Blue"	S150	Match defined colors
RA	Pressurization Air	COP	Light Green	Red	Similar to CA, IA	AM52	"Parrot"	6361	Match defined colors
RAS	Return Activated Sludge	CLDI	Dark Brown	--	Match existing piping	YB23	"Warm Brown"	9218	Match defined colors
RD	Roof Drain	CISP	Dark Grey	Red	Match drains in ROMP	IN05-61	"Silver Grey"	2525	Match defined colors
RS	Raw Sewage	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
SB	Sodium Bisulfite	CPVC	Yellow	--	Match other chemicals in ROMP	BW56	"Medium Yellow"	6666	Match defined colors
SCNG	Screenings	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
SE	Secondary Effluent	CLDI	Dark Brown	--	Match other sludge piping	YB23	"Warm Brown"	9218	Match defined colors
SHWR	Sludge Heating Water Return	STL	--	--	Provide labels outside of insulation jacket.	--	--	--	--
SHWS	Sludge Heating Water Supply	STL	--	--	Provide labels outside of insulation	--	--	--	--

APPENDIX B

SUPPLEMENTAL PROVISIONS – CONSTRUCTION COSTING (5 pages)

ARTICLE 1 – GENERAL

Design-Builder will develop the Guaranteed Maximum Price (GMP) as provided for in this Contract and appendices. The GMP Proposal for the entire Work (or portions thereof) will be presented in a format acceptable to County and will include the clarifications or assumptions upon which the GMP Proposal is based.

A. Unless otherwise directed by County, each GMP proposal will include all of the following components:

1. Summary of the GMP: A summary of the GMP with a total for each of the components of the GMP defined in the Construction Provisions (i.e., “Cost of the Work”, “Design-Builder Contingency”, “Fee”) as described and as shown in **Attachment 1 to this GMP Appendix**. If there will be multiple GMPs, then the GMP Summary will be presented in a spreadsheet format with each successive GMP in a separate column with the total GMP in the rightmost column.
2. Description of Work: a brief description of the Work to be performed for the Project or phase(s) to which the GMP proposal applies. Exclusions must be clearly stated.
3. List of Plans and Specifications used for GMP Proposal: A list of the Plans and Specifications with latest issuance date including all addenda used in preparation of the GMP proposal. (Date stamped and signed by Design-Builder).
4. List of clarifications, assumptions and exclusions: A list of the clarifications, assumptions, and exclusions by Design-Builder with regard to the Scope of Work in the GMP proposal, to supplement the information contained in the documents.
5. Project Schedule in Critical Path Method format: A Critical Path Method (CPM) diagram construction schedule. An updated Project Management Plan will also be submitted with each GMP proposal.
6. A calendared spend plan to show a cash-flow forecast based on the proposed construction schedule, schedule of values and GMP. If the construction covered by the GMP overlaps construction performed under a prior GMP, their cash flows will be consolidated into a single cash-flow statement.
7. Subcontractor Selections / SBE Requirements / Utilization Form / Letters of Intent: A summary of the subcontractor selections, including an SBE requirements section addressing the goals set for the Project and the current status on meeting the Project goals. The Utilization Form and Letters of Intent must be attached when subcontractor selection has been made prior to final GMP submittal. Subcontractor selections must conform to the approved Subcontractor Selection Plan provided by Design-Builder.

B. Design-Builder must keep the submittal package as simple as possible and submit it on 8 ½ x 11-inch paper. Color or shading must be kept to a minimum. If used, the color or shading must not affect the reproduction of the submittal in black and white.

C. The Parties may, by agreement, use a simplified GMP format for smaller projects or phases, so long as the documents supporting the GMP clearly delineate the Work—or that portion of the Work—to which the GMP applies and provide a schedule for completion of the Work.

ARTICLE 2 – COST OF THE WORK

The term “Cost of the Work” means costs necessarily incurred by Design-Builder in the proper performance of the Work. Such costs will be at rates not higher than the standard paid at the place of the Project except with prior consent of County. The Cost of the Work includes only the items set forth in this Article.

1. Wages of direct employees of Design-Builder performing the Work at the site or, with County's agreement, at locations off the site, provided, however, that the costs for those employees of Design-Builder performing design services shall be calculated on the basis of prevailing market rates for design professionals performing such services or, if applicable, those rates set forth in an exhibit to this Agreement.
2. Wages or salaries of Design-Builder's supervisory and administrative personnel engaged in the performance of the Work and who are located at the site or working off-site to assist in the coordination, production or transportation of material and equipment necessary for the Work.
3. Wages or salaries of Design-Builder's personnel stationed at Design-Builder's principal or branch offices and performing the payment of the salaries of Design-Builder's project management, estimating, administrative, scheduling, safety and other personnel when working on items of Work specifically related to the Project at Design-Builder's principal office, Design Consultant(s)' office, job site, field office or any other location for that portion of their time spent in the performance of the Work for the Project shall be included in the Cost of the Work. The cost of Vice Presidents and the President of Design-Builder is included in Design-Builder's Fee and is not part of the Cost of the Work. The reimbursable costs of personnel stationed at Design-Builder's principal or branch offices shall include a fifty percent (50%) markup to compensate Design-Builder for the Project related overhead associated with such personnel.
4. Costs incurred by Design-Builder for employee benefits, premiums, taxes, insurance, contributions and assessments required by law, collective bargaining agreements, or which are customarily paid by Design-Builder, excluding bonuses, to the extent such costs are based on wages and salaries paid to employees of Design-Builder covered under paragraphs 1 through 3 of this Article.
5. The reasonable portion of the cost of travel, accommodations and meals for Design-Builder's personnel necessarily and directly incurred in connection with the performance of the Work.
6. Payments properly made by Design-Builder to Subcontractors and Design Consultants for performance of portions of the Work, including any insurance and bond premiums incurred by Subcontractors and Design Consultants.
7. Costs incurred by Design-Builder in repairing or correcting defective, damaged, or nonconforming Work, provided that such defective, damaged, or nonconforming Work was beyond the reasonable control of Design-Builder, or caused by the ordinary mistakes or inadvertence, and not the negligence of Design-Builder or those working by or through Design-Builder. If the costs associated with such defective, damaged or nonconforming Work are recoverable from insurance, Subcontractors or Design Consultants, Design-Builder will exercise best efforts to obtain recovery from the appropriate source and credit County if recovery is obtained.
8. Costs, including transportation, inspection, testing, storage and handling, of materials, equipment and supplies incorporated or reasonably used in completing the Work.
9. Costs less salvage value of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned Design-Builder employees or subcontractors that are not fully consumed in the performance of the Work and which remain the property of Design-Builder, including the costs of transporting, inspecting, testing, handling, installing, maintaining, dismantling and removing such items.
10. Costs of removal of debris and waste from the project site.
11. The reasonable costs and expenses incurred in establishing, operating, and demobilizing the site office, including the cost of facsimile transmissions, long-distance telephone calls, postage and express delivery charges, telephone service, photocopying, and reasonable petty cash expenses.
12. Rental charges and the costs of transportation, installation, minor repairs and replacements, dismantling and removal of temporary facilities, machinery, equipment, and hand tools not customarily owned by the workers, which are provided by Design-Builder at the project site, whether rented from Design-Builder or others, and incurred in the performance of the Work.
13. Premiums for insurance and bonds required by the Contract or the performance of the Work.
14. All fuel and utility costs incurred in the performance of the Work.
15. Sales, use, privilege, or similar taxes, tariffs, or duties incurred in the performance of the Work.

16. Costs for permits, royalties, licenses, tests, and inspections incurred by Design-Builder as a requirement of the Contract Documents provided, however, that costs for re-tests and re-inspections are not included in the Cost of Work to the extent the re-tests and re-inspections result from re-work or re-testing due to Design-Builder's failure to meet County requirements under this Contract.
17. Deposits which are lost, except to the extent caused by Design-Builder's negligence or delay.
18. Costs incurred in preventing damage, injury, or loss in case of an emergency affecting the safety of persons and property except to the extent the emergency was caused by Design-Builder's negligence.
19. Other costs reasonably and properly incurred in the performance of the Work to the extent approved in writing by County.

ARTICLE 3 - COSTS NOT TO BE REIMBURSED

The following are excluded from the Cost of the Work:

1. Compensation for Design-Builder's personnel stationed at Design-Builder's principal or branch offices, except as provided for in paragraphs 1 through 3 of Article 2.
2. Overhead and general expenses, except as provided for elsewhere in this Contract, or which may be recoverable for changes to the Work.
3. The cost of Design-Builder's capital used in the performance of the Work.
4. Costs that would cause the GMP, as adjusted in accordance with the Contract Documents, to be exceeded.

ARTICLE 4 - DISCOUNTS, REBATES AND REFUNDS

- A. Cash discounts obtained on payments made by Design-Builder will accrue to County if (1) before making the payment, Design-Builder included them in an Application for Payment and received payment therefor from County, or (2) County has deposited funds with Design-Builder with which to make payments; otherwise, cash discounts will accrue to Design-Builder. Trade discounts, rebates, refunds, and amounts received from sales or surplus materials and equipment will accrue to County, and Design-Builder will make provisions so that they can be secured.
 1. Cost of the Work will be credited with all insurance policy discounts, performance and payment bond rebates or refunds, refunds or return premiums from any subcontractor default insurance, refunds or rebates from any Design-Builder controlled insurance programs applicable to the project, merchandise rebates of any nature, refunds of any nature, insurance dividends; and a portion of any volume rebates or free material credits earned with purchase of material or other goods and services charged to the job.
 2. "Cash" discounts which may accrue to Design-Builder will be limited to a maximum of one and one-half percent (1.5%) of invoice cost. Any portion of "Cash" discounts greater than one and one-half percent (1.5%) will automatically accrue to County if Design-Builder is eligible to take advantage of the discounts.
- B. Amounts that accrue to County in accordance with the provisions of Paragraph 4.A.1 will be credited to County as a deduction from the Cost of the Work.

ARTICLE 5 - CONTINGENCY FUND

Generally:

- A. The GMP may include a Design-Builder Contingency in the amount stated in the GMP Summary. Each line item of the GMP Summary for which risk remains for the Design-Builder after the Design and Preconstruction Phase will carry an agreed upon contingency that can be traced back to the initial cost model. Subject to the terms of the Contract Documents and with prior notification to and approval by County, Design-Builder may allocate from and apply against the Design-Builder Contingency increases in the Cost of the Work that could

not have been reasonably anticipated by a Design-Builder using the standard of care and skill that a professional Design-Builder in Arizona would exercise under similar conditions at the time the GMP was established or for increases in General Condition Costs. County may disallow such Design-Builder Contingency use and deny reimbursement in the absence of prior notice or if County determines that the use was not consistent with the Contract Documents.

- B. Design-Builder may not apply, use, or allocate from the Design-Builder Contingency any amounts for any of the foregoing purposes that are the result of a material breach or material failure to perform by Design-Builder, any Subcontractor, or vendor (except as necessary to replace any subcontractor, or vendor because of the bankruptcy or failure of such entity to perform), or any entity for which any of them are liable or responsible at law or under the Contract Documents, or for any non-allowable costs of the Work.
- C. Each application of the Design-Builder Contingency by Design-Builder will be reflected (with narrative explanation) on the Application for Progress Payment for the period during which Design-Builder makes such application. Application of Design-Builder Contingency to any particular risk event should not exceed the agreed associated amount of the Design-Builder Contingency previously assigned to the specific line item in the GMP. Any portion of the Design-Builder Contingency remaining unapplied at final completion will be a credit against and reduce the GMP. When Design-Builder utilizes Design-Builder's Contingency funds, Design-Builder will make the appropriate changes to the Schedule of Values with the next regular progress payment request. Design-Builder will deduct the amount of Design-Builder's Contingency funds used from Design-Builder's Contingency line item and add the same amount to the line item on the Schedule of Values where the funds were used. If Design-Builder's Contingency funds are used for a new line item that was not included in the original Schedule of Values, Design-Builder will so indicate.
- D. The Design-Builder Contingency is not cumulative across multiple GMPs.
- E. County's Contingency is a sum of money in the Contract but not included in the GMP that may be used at the discretion of County to cover any increases in Project costs that result from County-directed changes, changed site conditions, or additional costs of Allowance Items that exceeds the Allowance. County's Contingency will be added to the GMP amount provided by Design-Builder, the sum of which will be the full Contract price for construction. Markups for the Construction Fee, taxes, and overhead will be applied by Design-Builder at the time that County's Contingency is used.
- F. County's Contingency and the Design-Builder Contingency will not be combined into a single project contingency.

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ATTACHMENT 1 TO APPENDIX B

GMP Summary Format

CONSTRUCTION	AMOUNT
CONSTRUCTION COSTS:	
Cost of Construction	\$
Design-Builder Contingency	\$
<i>Subtotal Direct Construction Costs</i>	\$
INDIRECT CONSTRUCTION COSTS:	
General Conditions	\$
Overhead	\$
Insurance	\$
Payment and Performance Bonds	\$
Subtotal Direct Construction Cost + Gen Cond, Overhead, Bonds, Insurance	\$
Construction Fee (As a percentage of Subtotal above or to exclude any items above)	
Subtotal Direct Construction Cost + Gen Cond, Overhead, Bonds, Insurance and Fee	
Arizona Gross Receipts Tax	\$
Subtotal Direct Construction Cost + Gen Cond, Overhead, Bonds, Insurance, Fee and Tax	\$
GUARANTEED MAXIMUM PRICE (GMP)	\$
OTHER PROJECT COSTS:	
County Contingency	\$
TOTAL CONTRACT COST	\$

END OF APPENDIX B – SUPPLEMENTAL PROVISIONS—CONSTRUCTION COSTING

APPENDIX C

DESIGN-BUILDER GENERAL CONDITIONS (46 pages)

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ARTICLE 1 – GENERAL ARTICLES

1.1 MUTUAL OBLIGATIONS

County and Design-Builder (Design-Builder) which includes the Design Professional (DP) commit, at all times, to cooperate fully with each other, and proceed on the basis of trust, confidence, and good faith to permit each party to realize the benefits expected and afforded under the Contract Documents, which benefits include the satisfactory and timely completion of the Project and performance of all obligations required by or inferable from the Contract Documents.

1.2 BASIC DEFINITIONS

- 1.2.1 “Actual Cost of the Work” means the aggregate amount of Design-Builder Direct Construction Costs and Indirect Construction Costs properly and actually chargeable to County when calculated under the provisions of **Appendix B of the Design-Builder Contract** throughout the Project up to the time of Final Completion.
- 1.2.2 “Allowances” means items established by County in the GMP as estimates for the cost of items of included in the Work. To the extent that the Actual Cost of the Work is lesser or greater than the corresponding estimate, the GMP will be reduced or increased by Change Order with such amount being added to or taken from County’s Contingency.
- 1.2.3 “Bidding Contingency”, or “Design-Builder Contingency” means that part of the Guaranteed Maximum Price (GMP) the Design-Builder may use during the Bidding or Construction Phase as provided in these General Conditions at 7.11, to cover any excess of the amount bid by a subcontractor over the amount for that Work in the GMP, or to cover legitimate unforeseen construction expenses once construction begins. Contingency may not be used to cover the cost of any Work on the Project after issuance of the Certificate of Final Completion.
- 1.2.4 “Design-Builder Authorization” means Chapter 6 of Title 34, Arizona Revised Statutes
- 1.2.5 “Design-Builder” means the Design Builder and all persons and entities identified as members of the Design-Builder team including the registered professionals responsible for the design, in the Design-Builder’s response to County’s request for fee proposal that led to the Contract with all Contract Amendments, and any substitutes permitted under the terms of the Contract, and these General Conditions. The Design-Builder leads the Preconstruction Phase as set forth in Preconstruction Phase Services Contract by, among other things, developing design and a cost model and refining it during design to ensure construction costs remain within County’s budget, doing value engineering and reviewing constructability, preparing schedules, and identifying the life-cycle implications of alternate designs, systems, and materials. **During construction, the Design-Builder assumes all risk for price and schedule under the Contract and its GMP, except as otherwise provided in the Contract.**
- 1.2.6 “Construction General Conditions” means the following types of costs during construction: Project Director costs directly attributable to time expended in execution of the project, whether on- or off- site; payroll costs for project manager or construction manager for work conducted at the site; payroll costs for the superintendent and full-time general foremen; payroll costs for other management personnel resident and working on the site; general support workers not included in direct labor costs (e.g. loading/unloading, clean-up, etc.); on-site administrative office personnel; costs of offices and temporary facilities including office materials, office supplies, office equipment, minor expenses; utilities, fuel, sanitary facilities and telephone services at the site; and fees for licenses. General Conditions specifically exclude, without limitation, the following: Home (off-site) Expenses, Profit & Overhead; Home Office Personnel such as Corporate Executive, Project Executive; Home Office Staff Transportation & Travel Costs; Home Office Accounting & Contract Forms; Legal Expenses; Project Staff Moving Expense; off-site Staff Training & Education; Pre-Mobilization Office Space; off-site Equipment & Supplies; Forms; Estimating & Value/Constructability Analysis; Warranty Coordination; Legal Expenses,

Contractor Yard not Dedicated to Project, Contractor Association Fees, Licenses & Memberships; Cost over GMP, Corrective Work, Bonuses, Cost of Living Allowance, marketing expenses, corporate sponsorships and entertainment, and Promotional or Celebratory Expenses the Design-Builder incurs while performing and completing the Project. The Parties acknowledge that some portion of the General Conditions represent upfront costs associated with mobilization and startup of construction. These amounts will be deducted from the total amount of General Conditions in the GMP and the balance will be divided by the number of days allowed for performance to arrive at a fixed daily rate for use in estimating the amount, if any, of the adjustment for General Conditions associated with changes in Contract Time or for the number of workdays in any particular month.

- 1.2.7 “Construction Documents” means the plans and specifications prepared by the DP under the Design-Builder for the Project, approved by County, and incorporated into the Contract by reference after such approval, to be used to construct the Project. All Contract Amendments, Change Orders, and other modifications to the Construction Documents must be approved by County prior to incorporation into the Contract.
- 1.2.8 “Construction Phase Fee” means profit and unallowable costs. The Construction Phase Fee will initially be calculated not to exceed seven percent (7%) of Direct Construction Cost only, and then will be fixed as a dollar amount as mutually negotiated and agreed to by the Parties. Overhead will be treated as described in 1.2.24.
- 1.2.9 “Contract Float” means the number of calendar days between Design-Builder’s anticipated date for early completion of all or any such part of the Work and the corresponding specified Contract Time and provided that the CPM schedule of the Work anticipates early completion of all or any part of the Work. It is owned jointly by County and Design-Builder.
- 1.2.10 “Contract Time” means the time allotted in the Contract Documents for completion of the Work.
- 1.2.11 “Cost of the Work” means those items of Work which are paid for by County to the Design-Builder consisting of those Direct Construction Costs and Indirect Construction Costs set forth as allowable in **Appendix B Construction Costing**.
- 1.2.12 “Day” means a calendar day unless otherwise denoted.
- 1.2.13 “Deliverables” - the Work product prepared by the Design-Builder within the definition of the Scope of Work in the Contract. Some of these deliverables provided by the Design-Builder during the Preconstruction Phase included the Design Submission Documents, the Cost Model, Project Schedule, Schedule of Values, Evaluations of Alternatives, Procurement Strategies, proposed SBE Utilization, Subcontractor and Supplier bid packages and Contracts.
- 1.2.14 Design Professional (“DP”) means an individual contracted through the Design-Builder who is (a) a qualified professional properly licensed in the State of Arizona to furnish applicable design services (and construction administration services, if so designated by County), and (b) responsible for the review of submittals, responding to Design-Builder Requests for Information (RFI), and Substantial Completion, if so designated.
- 1.2.15 “Design Submission Documents” means the drawings, specifications, structural calculations and any the documents required to communicate the construction requirements and are submitted at specific milestones in the design effort by the DP and other documents prepared by the Design- Builder that are submitted for County’s approval for each milestone in Project design. Because design milestones may vary from project to project, County will notify Design-Builder in writing of the milestones applicable to the project covered by this Contract. Such milestones will be as binding as if set forth herein.
- 1.2.16 Direct Construction Cost means the sum of all applicable Construction General Conditions costs, subcontractor costs, costs of self-performed Work (if approved in writing in advance by County), Allowances and Contingencies. Contingencies specifically include Bidding and Construction Contingency, Design Contingency, and Schedule Contingency, as applicable.

- 1.2.17 “Final Completion” means 100% completion of all Work described by or reasonably inferred from the Project Criteria and Contract Documents, including but not limited to all punch lists, Close-Out Documents, and County training/start up activities, if included.
- 1.2.18 “Guaranteed Maximum Price” (GMP) means the dollar amount that the Design-Builder guarantees to be the maximum amount due from County to the Design-Builder under the Contract for Construction Phase services. It is the sum of Design-Builder’s Construction Phase Fee, the Cost of the Work, and Contingencies and Allowances established in accordance with the Contract. The GMP is subject to additions or deductions due to changes in the Scope of Work. All costs, which exceed the GMP and are not authorized by written Change Order, are to be paid by the Design- Builder and not County.
- 1.2.19 Governmental Agency means any unit of federal, state, or local government with regulatory authority over any aspect of the Work.
- 1.2.20 “Hazardous Material” means any waste, substance, object, or material deemed hazardous under federal, state, or local law, including “hazardous substance” as defined under CERCLA, “hazardous waste” as defined under RCRA, and “hazardous material” as defined under US DOT regulations (49 CFR 100-180).
- 1.2.21 Indirect Construction Cost means the sum of all applicable insurance costs, bond costs and applicable sales or use taxes, but excludes Construction Phase Fee.
- 1.2.22 “Legal Requirements” means all regulations, policies, procedures, and practices of County and all applicable rules, laws, codes, ordinances, and regulations of any federal, state, or local government or quasi-governmental entity having jurisdiction over the Work, the practices involved in the Work, or any Work performed.
- 1.2.23 “Open Book Cost” means the Actual Cost of the Work as compiled and recorded in accordance with the provisions of Subsection 2.1.14 of these General Conditions.
- 1.2.24 “Overhead” means those items specifically excluded from General Conditions in paragraph 1.2.6 except for Estimating and Value/Constructability Analysis and profit. Overhead will be separately stated in the GMP Summary. Job Overhead will be included in General Conditions.
- 1.2.25 “Partnering or Teaming” means a mutual effort by all parties involved in the Project, principally County, the DP contracted by the Design-Builder, to cooperate and coordinate efforts to achieve the final result intended by the Project criteria. All involved use their expertise for the benefit of all. Partnering requires flexibility and appreciation of the positions of other parties and willingness to make compromises for the benefit of all. County has the exclusive right to decide whether to use Partnering on the Project and will indicate its decision during the Preconstruction Phase.
- 1.2.26 “Design and Preconstruction Phase Fee” means all direct and indirect costs of Design-Builder in providing Design and Preconstruction Phase Services until completion of the Construction Documents and the award of all bid packages, plus associated overhead and profit. The Design and Preconstruction Phase Fee also includes the cost of the DP to develop the architectural program, design, document, attend meetings, etc. during the design phase of the project.
- 1.2.27 “Project Budget” means the funding available to County for the total cost of the Project, including the Design and Preconstruction Phase Fee, the GMP (including DP’s Construction Phase Fee, Construction Services, and Contingencies), permit fees, and other costs necessary to achieve Final Completion of the Project.
- 1.2.28 “Project Criteria” means criteria developed by or for County to describe County’s program, requirements and objectives for the Project, including use, space, price, time, site, utility, parking, and expandability requirements, as well as all submittal requirements and other requirements affecting Design-Builder’s performance of its Work. The Project Criteria may include conceptual documents, design criteria, performance requirements, and other Project specific technical materials and requirements prepared by or for County.

- 1.2.29 "Project Manager" means County's Representative who is responsible to County for the Project completion within County established Schedule, Budget and Scope. In this document "Project Manager" is the same as "County"
- 1.2.30 "Punch List" means those minor items of Work identified and listed by County and agreed to be completed by Design-Builder after Substantial Completion and prior to Final Completion, which do not prevent the Project from being fully used for the purpose for which it is intended.
- 1.2.31 "Savings" means the difference, if any, between the GMP and the Actual Cost of the Work and will be allocated as set forth in Article 7. Amount of savings is to be determined by County with such assistance as County requests of Design-Builder and is to be based on the GMP in effect on the date of Final Completion of the entire Work.
- 1.2.32 "Site" means the land and other areas on which the Project is located.
- 1.2.33 "Subcontractor" (of any tier) means any entity or person who performs a portion of the Work, on or off-site, directly on behalf of the Design-Builder, including any materials, workers and suppliers, and includes all employees, agents and authorized representatives of such entities or persons.
- 1.2.34 "Substantial Completion" means the date on which Design-Builder's Work, or an agreed upon portion of the Work, is sufficiently complete, as determined by the County's issuance of a Certificate of Substantial Completion, so that County can fully occupy and utilize the Project, or a portion thereof, for the purposes for which it is intended. In order to achieve substantial completion, all Work must be complete, including all tests and inspections, except for items included on the approved punch list.
- 1.2.35 "Total Float" means the number of calendar days by which the Work or any part of the Work may be delayed without necessarily extending a pertinent Contract Time. Total Float is at least equal to Contract Float.
- 1.2.36 "Value Engineering Proposal" means a modification to the Work proposed by the Design-Builder after the Effective Date of the Contract for the purpose of reducing the total cost of construction while still delivering a quality and functional Project. Value Engineering is part of the broader goal of obtaining optimum value for each dollar County spends on the Project.
- 1.2.37 "Work" means comprised of all activities required in order to complete the Project as defined by Appendix A – Project Scope of Work, the Project Criteria and other Contract Documents.

1.3 CONTRACT GENERAL CONDITIONS

The following are the mutual understanding and agreement of the Parties regarding the Contract general conditions or subjects addressed therein.

- 1.3.1 The Design-Builder shall design the Project.
- 1.3.2 The design for the Project may not be complete at a) the time the GMP is agreed to; b) the time of execution of the Contract; or c) both a and b.
- 1.3.3 Design-Builder will produce a completed design for the Project that is acceptable to County, as more fully described in the Contract Documents.
- 1.3.4 When the Design Documents are complete and requisite approvals obtained and County then accepts them, they become part of the Contract Documents without further action by the Parties as though they were specifically set forth therein at the time of execution of the Contract.

ARTICLE 2 – DESIGN-BUILDER’S SERVICES AND RESPONSIBILITIES

2.1 GENERAL SERVICES

- 2.1.1 Design-Builder’s Representative will attend all meetings and assist County during the Design and Preconstruction Phase in accordance with these General Conditions. During the Construction Phase, the Design-Builder’s Representative, and Superintendent as necessary, will be at the site at all times when Work is being performed, and will have the necessary expertise and experience required to properly supervise the Work. Design-Builder’s Representative will communicate regularly with County and be vested with the authority to act on behalf of Design-Builder as to all matters. The expectation is that meetings will be collaborative among County and the Design- Builder as described below.
- 2.1.1.1 The Design-Builder and County will attend all regular meetings, including rolling design reviews, and such additional meetings that are called as provided below.
- 2.1.1.2 During the Design and Preconstruction Phase Design-Builder will schedule all regular meetings with the agreement and approval of County. Unless otherwise agreed, meetings will be held weekly for the purpose of tracking design progress and consistency with County’s requirements. Design-Builder shall track and report on the design evolution log. At these meetings, Design-Builder is responsible for progressing the design, cost, and scope tracking; early identification of long-lead items; and making recommendations regarding constructability, construction sequencing, materials, and other factors that can have a material impact on cost or schedule. County will schedule all additional meetings.
- 2.1.1.3 During the Design Phase, Design-Builder will take minutes at each meeting and distribute draft minutes within three business days after each meeting. County will promptly review the minutes of each meeting and deliver any comments to the Design-Builder. The Design- Builder will promptly issue final minutes of each meeting, which will be approved by Design- Builder and County.
- 2.1.1.4 At the commencement of the Construction Phase, County and Design-Builder will meet to review cooperation, coordination, and if applicable, partnering during the construction phase and to establish procedures governing, among other matters, submittals and scheduling of site activities.
- 2.1.1.5 During the Construction Phase there will be weekly progress meetings of the Design-Builder and County. The Design-Builder will schedule and conduct the progress meetings during the Construction Phase. The weekly progress meetings will include joint discussions about such matters as procedures, progress, scheduling, submittals, requests for information (RFI), any Work deficiencies, any other actual problems or potential problems, fixes to and limits on actual problems, and ways to avoid, limit, or fix potential problems. At each meeting, the Design-Builder will provide and discuss a CPM-based look ahead schedule of construction activities to be accomplished in the next three weeks. Presentation of the look-ahead does not substitute for the 24-hour advance notice required in section 2.6.10.8 prior to all special inspections. County, and Design-Builder will contribute their good faith efforts in such discussions to find ways (i) to complete the Project within the Contract Time(s) in accordance with the Construction Documents and the other Design-Builder Contract Documents and within the Guaranteed Maximum Price; (ii) to limit and fix actual problems; (iii) to anticipate and then avoid, limit or fix potential problems; and(iv) to discuss and decide other matters brought up by County or Design-Builder. None of these discussions will affect or impair the respective rights, responsibilities and obligations of County and the Design-Builder.
- 2.1.1.6 During the Construction Phase, County or Design-Builder may request special on-site meetings as necessary to resolve issue and maintain the construction schedule and meet the requirement of the construction documents.

- 2.1.1.7 During the Construction Phase, the Design-Builder will take minutes at each meeting and distribute draft minutes within three business days after each meeting. The County will promptly review the minutes of each meeting and deliver any comments to the Design- Builder. The Design-Builder will promptly issue final minutes of each meeting, which will be approved by Design-Builder and County.
 - 2.1.1.8 Design-Builder, when requested by County, will attend, make presentations and participate as may be appropriate in public agency or community meetings related to the Project. Design-Builder will provide drawings and illustrations and Design-Builder will provide schedule diagrams, budget charts and other materials describing the Project when their use is required or appropriate in any such meetings.
- 2.1.2 During the Construction Phase, the Design-Builder will provide County, on a monthly basis, a written status report detailing the progress of the Work during that month. Design-Builder's monthly report shall state whether the Work is proceeding according to Schedule and include (1) an updated and current Critical Path Method (CPM) Schedule, (2) an updated and current Work cash flow projection for the duration of the Project, (3) copies of the construction Superintendent's daily site reports, (4) identification of any discrepancies, conflicts, or ambiguities existing in the Construction Documents that require resolution, (5) whether health and safety issues have arisen in connection with performance of the Work, and (6) whether other matters exist that require resolution so as not to jeopardize Design-Builder's ability to complete the Work for the GMP(s) on schedule and within the Contract Time(s). The Design-Builder's monthly report will also include a cost tracking report with the updated Cost Model, projected final cost, subcontract amounts and buy-out status, and status of contingency and allowance usage.
- 2.1.3 Within 30 days after executing the Contract, Design-Builder will prepare and submit to County:
 - 2.1.3.1 A Milestone Schedule for the Work including the activities in the Design Phase and the Construction Phase through bid and award. The Milestone Schedule must include three weeks of County review time for Design Submission Documents at each milestone and adequate time for Government Agency and for other regulatory-type reviews and for all other necessary approvals. The CPM Schedule will indicate the dates for the start and completion of the various stages of Work, including the dates when County information and approvals are required and all necessary shutdowns or suspensions of County or separate vendor activities on the site (if any). The Milestone Schedule must allow for such multiple bid packages and fast-tracked construction as may be required and include any contemplated completion date(s) earlier than those required by the Contract Documents.
 - 2.1.3.2 A Cost Model for construction of the project. The Cost Model must contain all of the costs that will be included in the GMP, including cost of the Work, general conditions, bonds, insurance, permits, taxes, including, without limitation, applicable sales taxes and transaction privilege tax, Design-Builder's construction fee, contingency, and any other costs in the Cost Model. As part of the Cost Model, the Design-Builder will also identify all areas of concern or risk and assign a separate and reasonable contingency to each of them. County will review these submissions and may request changes. Final contingency amounts will be as agreed by the Project Team. The statement of areas of concern/risks will be stratified by cost to enable the Project Team to focus in preconstruction on resolving or eliminating the costly uncertainties.
- 2.1.4 County and Design-Builder will have an initial meeting promptly after selection of the Design-Builder team to discuss issues affecting Project administration and to implement procedures to permit County and Design-Builder to perform their respective obligations under the Design-Builder Contract. Among other matters to be covered at this meeting will be procedures for efficient interaction during the Design and Preconstruction Phase so that each can perform its activities, functions, and obligations in an efficient, cooperative, coordinated, collaborative, and communicative manner. Among other subjects to be covered by the procedures will be:

- 2.1.4.1 Design-Builder will be responsible for (1) preparing Design Submission Documents, the Design-Builder's Construction Cost Estimates, as required during the development of Preliminary Design, Schematic Design, and Construction Documents; and (2) submitting each set of Design Submission Documents and the related Design-Builder Construction Cost Estimates to County for review and comment by County and for group discussion among the Design-Builder and County.
- 2.1.4.2 Arrangements that encourage frequent informal interaction, cooperation, coordination, collaboration, and communication among County and Design-Builder during the Design and Preconstruction Phase, especially between submissions of Design Submission Documents and Construction Cost Estimates. These will include among other activities, the Design-Builder offering value engineering and constructability recommendations on the design of the Project and the Design-Builder using that information in its design work on the Project.
- 2.1.4.3 A schedule for the activities of the Design-Builder and County during the Design and Preconstruction Phase.
- 2.1.4.4 Formal partnering for the Design Phase, at the option of County. Partnering is a mutual effort to cooperate and coordinate efforts in order to benefit and achieve the final result of an active and functional facility. Partnering requires that all parties use their particular expertise for the mutual benefit of all, rather than for the benefit of the one. Partnering requires flexibility, the ability to appreciate the positions of the other parties and to make compromises for the benefit of all. Partnering will be implemented through a formal partnering process developed as described above and presented in a separate workshop attended by Design-Builder, County and their key participants. Follow up sessions will

occur every three months or as mutually agreed to ensure that all commitments are updated and being followed by all parties. The cost of this partnering effort shall be shared by the Parties.
- 2.1.4.5 A responsibility matrix developed with the cooperation and collaboration of County, and Design-Builder.
- 2.1.5 No action, or attempted action, of cooperation, coordination, collaboration, or communication, and no failure to cooperate, coordinate, collaborate, or communicate, on any matter will affect or impair the respective rights and obligations of County and Design-Builder under the Design-Builder Contract. No failure by any one party to perform its obligations under this Article excuses any failure by another party to perform any obligation under other provisions of the Contract Documents, unless the obligation that the first party failed to perform is an essential predicate to performance by the second party. In such case, it is the second party's duty to make all reasonable efforts to perform its obligations.
- 2.1.6 The Design-Builder will interact and cooperate fully with County during the Design and Preconstruction and Construction Phases so as to keep the Work within County's budget and schedule limitations.
- 2.1.7 The Design-Builder agrees to furnish its best skill and judgment and to cooperate with County in furthering the interests of County. Design-Builder agrees to furnish efficient business administration and superintendence and to use its best efforts to timely complete the Work in an expeditious and economical manner consistent with the interests of County.
- 2.1.8 The Design-Builder and County, collectively the "Project Team", will cooperatively work together during all phases of the Work to achieve completion. The Design-Builder will provide leadership to the Project Team during the Design and Preconstruction Phase for all design, cost, schedule, or alternative systems issues, and all matters relating to construction. During the Design and Preconstruction phase the Design-Builder will provide to County a written evaluation of County's

Project Program and Project Budget and Schedule, each in relationship to the other with recommendations on the appropriateness of each.

- 2.1.9 The Contract Documents do not give any third party any claim or right of action against County or Design-Builder which does not otherwise explicitly exist in the Contract Documents.
- 2.1.10 The Design-Builder's initial Work consists of its services in connection with the Design and Preconstruction Phase. The Design-Builder's Services in that phase include the DP's Services. Design-Builder will prepare an itemized systems type cost estimate at the completion of the Schematic Design Phase, and at other times as agreed upon by the Project Team, in a format otherwise mutually agreed upon prior to the cost estimate preparation. Design-Builder will prepare Construction Specifications Institute (CSI) Master Formatted cost estimates at each submittal phase after the completion of Schematic/Conceptual Design, to verify that the Project is staying within the applicable portions of County's identified budget. Design-Builder will keep all Deliverables required of it up to date during the Design and Preconstruction Phase so that the Project activities will continue uninterrupted while progressing into the Construction Phase.
- 2.1.11 The Design-Builder will provide a GMP during the Design and Preconstruction Phase as required in **Section 3.2 of the Contract**.
- 2.1.12 Subject to the other provisions of these General Conditions, execution of the Contract by the Design-Builder is an assurance that the Design-Builder has visited the site, has become familiar with the locale and any specific conditions under which the Work is to be performed, and has correlated Design-Builder's personal observations with the requirements of County's Project criteria.
- 2.1.13 The Parties' intent is that the Contract Documents include all items and services necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by any one is binding as if required by all. Work not covered in the Contract Documents but that the Design-Builder considers necessary for the proper completion of the Work will be required of Design-Builder unless it is inconsistent with the Contract Documents, or is not reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations that have well known technical or trade meanings are used in the Contract Documents in accordance with their recognized meanings.
- 2.1.14 The organization of the Specifications into division, section, and article, and the arrangement of Drawings does not obligate or control the Design-Builder in dividing performance of the Work among subcontractors, or in establishing the extent of the Work to be performed by any one trade.
- 2.1.15 With respect to all Work performed by Design-Builder and its Subcontractors and Consultants, Design-Builder and its Subcontractors and Consultants will keep full and detailed accounts and exercise such cost controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and subject to review by County. During performance of the Work and for five years after Final Payment, the Design-Builder will retain and will also require all Subcontractors and Consultants to retain for review or audit, or both, by County all correspondence, meeting minutes, memoranda, electronic media, books, accounts, reports, files, time cards, material invoices, payrolls, and evidence of all communications, direct and indirect costs, and all other matters related to the Work. Upon request by County, Design-Builder will produce a legible copy or the original of any or all such records as are described above at any time during or after the Work. Upon request by County, the Design-Builder will submit to County copies of all payrolls, reports, estimates, records, Change Order costs and data, and any other data concerning Work performed or to be performed, materials supplied or to be supplied, including Subcontractor or Consultant payment applications or invoices and such Subcontractor's or Consultant's progress payment checks. The Design-Builder will include the requirements of this Article in all contracts between the Design-Builder and its Subcontractors and Consultants. County may exercise its rights under this Paragraph as often as reasonably necessary in County's sole judgment to assure County that it has a complete and accurate understanding of all Project costs.

2.2 DESIGN AND PRECONSTRUCTION SERVICES

The Design-Builder's primary responsibility during Design and Preconstruction is to apply its knowledge and experience to developing and keeping the design capable of being constructed within the budget and schedule. The Design-Builder must track costs on an ongoing basis and proactively advise County of lower cost or more effective means, methods, materials, design aspects, etc., or anytime when construction costs exceed, or threaten to exceed the budget, so the Project Team can take appropriate action.

- 2.2.1 The Design-Builder will develop a Construction Cost Model for the Project for County's review and approval. County will advise the Design-Builder in writing of the amount of County's Construction Budget. The Design-Builder will evaluate County's Construction Budget for cost realism and prepare construction cost estimates for the completion of the Work. Design-Builder's cost estimates must include all of the costs that will be included in the GMP, including labor, materials, general conditions, bonds, taxes, Design-Builder construction fee, Design-Builder's contingency, and all other GMP costs. Design-Builder with input from County will reconcile the differences between County's Construction Budget and the Design-Builder estimates, if any, to develop an agreed estimate for the cost of construction. If the agreed estimate exceeds County's Construction Budget, County, at its sole discretion, may (1) seek additional funding; (2) direct redesign or re-scoping of the Project to bring it within the available funding; or (3) any combination of 1 and 2; or (4) determine not to go forward with this Contract for all or part of the Project. Any adjustment to County's budget or scope must be in writing and approved by County
- 2.2.2 Unless otherwise agreed to by County, County may retain or authorize Design-Builder to retain surveyors, engineers, or other consultants in connection with the following items, provided such information is specifically requested by County:
- a. A survey of existing site conditions. A complete and accurate survey of the Project site and existing improvements including, but not limited to, grades and lines of streets, pavements, and adjoining properties, contours of the site, and full information as to sewer, water, gas, electrical service, telephone lines, or other utilities.
 - b. A report on subsurface investigations. Professional recommendations regarding local conditions accompanied by test borings, or test pits, soil bearing values, percolation tests, air and water pollution tests, ground corrosion, and resistivity tests including necessary operations for determining subsoil, air and water conditions, and chemical, mechanical, laboratory, or other tests.
 - c. Design-Builder may recommend such additional geotechnical or investigative tests, such as potholing, as Design-Builder believes may be necessary to support construction on the site.
 - d. As-built information in possession of County concerning any existing improvements that will remain on the site and that will be incorporated into the Project, to which the Project will be attached, or with which the Project will be interconnected.
 - e. Other tests recommended by Design-Builder and agreed to by County.

In addition to the above information, the Design-Builder is responsible for obtaining information concerning conditions of the site required by law or typically obtained within the DP's industry to assess conditions for similar projects and will advise County of any such information so obtained that may be significant to the Project.

County will deliver to Design-Builder a copy of all available surveys, reports, test results, and other information described in Article 2.2.2. These items, any other information concerning the site delivered by County to Design-Builder, and all information Design-Builder is obligated to obtain on its own initiative are referred to as the "site Information". The Design-Builder will thoroughly acquaint themselves with all site Information.

By making each submission of any Design Submission Documents (including, without limitation, the Construction Documents) the Design-Builder represents and warrants to County that Design-Builder has examined and evaluated the site Information and has taken the site Information into account in preparing the Design Submission Documents.

The Design-Builder has the right to rely upon surveys, soil test reports, other test reports and other information provided by County, but only to the extent provided in said reports or information. The Design-Builder will carefully examine all surveys, soil test reports, other test reports and other information, whether obtained by the Design-Builder or County, and will promptly report to County any obvious or reasonably suspected errors, omissions, or inadequacies in such surveys, soil test reports, other test reports, and other information of which the Design-Builder becomes aware as a result of such examination or otherwise, and of any disagreement the Design-Builder may have with the conclusions of such surveys, soil test reports, other test reports, and other information. The Design-Builder's Consultants will make themselves available to the soils engineer and any other person retained by County to prepare any surveys, soils test reports, other test reports, or other information, for the purpose of reconciling such concerns.

2.2.3 The Design-Builder will submit to County all required Design Submission Documents to describe the Project's essential elements. The required Design Submission Documents required will include such drawings, specifications, and other documents as may be necessary to fully identify the Project scope and materials, together with the Design-Builder's Construction Cost Estimates. The Design-Builder will submit to County, detailed Construction Cost Estimates as part of each design submission. At the time of each scheduled submission, Design-Builder and County will meet and confer about the submission. During the meeting, the Design-Builder will identify, among other things, the evolution of the design and any significant changes or deviations from previously submitted Design Submission Documents and any changes in the Design-Builder's Construction Cost. Within three weeks following each design review meeting, County will approve or reject the Design Submission Documents, Design-Builder's Construction Cost Estimate. County may reject in full or in part any Design Submission Documents or Construction Cost Estimates (1) that do not conform to County's Project Criteria or overall Project concepts, (2) that exceed the Construction Budget, (3) are not within the Guaranteed Maximum Price, (4) are not consistent with the GMP Setting Drawings, Specifications, Assumptions, and Clarifications (unless the inconsistency was approved or requested by County), or (5) for any other reasonable cause consistent with the intent of the Design-Builder Contract Documents or the Design-Builder Contract Documents, as applicable. In the event of such rejection, the Design-Builder will bear the costs of redesign or of revising the construction costs estimates, unless the deficiencies upon which rejection is based are attributable to County-requested changes. All deviations from County's Project Criteria, the Construction Budget, the Guaranteed Maximum Price, or the GMP Setting Drawings, Specifications, Assumptions, and Clarifications must be approved in writing by County.

2.2.4 The Design-Builder will prepare a Project Management Plan (PMP), which will include:

- a. Project milestone dates and the Project Schedule, including the broad sequencing of the design and construction of the Project,
- b. Required and recommended investigations to be undertaken to ascertain subsurface conditions and physical conditions of existing surface and subsurface facilities and underground utilities,
- c. Alternate strategies for fast-tracking and/or phasing the construction,
- d. Permitting strategy,
- e. Cost estimate and basis of the cost model,
- f. Defined scope basis,
- g. Organization chart, and
- h. Procurement plan

The purpose of the PMP is to identify, coordinate, and record the tasks and activities to be performed by all of the Project Team members. The Project Team will utilize the PMP as a basis for managing and monitoring all members' compliance with the requirements of the Project. Project Team members are responsible for their compliance with the PMP requirements. A member's failure to complete a task does not excuse a subsequent failure by another member unless the first member's task is a direct prerequisite to the latter's performance provide, however, the latter team member must make reasonable efforts to mitigate impacts of the failure. Resolution of compatibility issues between the different tracking programs that may be used is the responsibility of the Design- Builder.

- 2.2.5 The schedule for performance of the Construction Work will be a CPM schedule with reasonable detail, including a time-scaled network and computer printout in accordance with the following requirements:

The Design-Builder will use scheduling software acceptable to County to develop the Project Schedule. The Project Schedule will be presented in graphical and/or tabular reports as agreed upon by the Project Team. If Project phasing, as described below, is required, the Project Schedule will indicate milestone dates for the phases, once determined.

The Project Schedule will provide three weeks for County to review Design Submission Documents at each sub-phase of the Design Phase and provide adequate time for Government Agency reviews and all other necessary approvals and permits. The Project Schedule will indicate the dates for the start and completion of the various stages of the Project, including, among others, the dates when County information and approvals are required and all necessary shutdowns or suspensions of County or separate vendor activities on the site (if any). Design-Builder will update and reissue the Project Schedule throughout the Design Phase and the Construction Phase, as necessary and appropriate to reflect adjustments in the schedule. Updates will be subject to approval by County

The Project Schedule will be in Days (five days constitutes one week, otherwise directed by County) and indicate task duration (earliest start/latest completion) for all activities. Float times for all activities will be shown. The CPM diagram will be presented in a time scaled graphical format for the Project as a whole.

The Project Schedule must indicate all relationships between activities.

The activities making up the Project Schedule will be in sufficient detail to assure that adequate planning has been done for proper execution of the Work so that it provides an appropriate basis for monitoring and evaluating progress of the Work.

The activities upon which the Project Schedule is based will coincide with the Schedule of Values.

The Project Schedule will show all submittals associated with each Work activity and the review time for each submittal.

The Project Schedule will show milestones, including milestones for all Project Team members.

The Project Schedule does not include anticipated rain delays. This will be addressed during the construction of the project.

Throughout the Design Phase, Design-Builder will provide updates and/or revisions to the Project Schedule for use by the Project Team, whenever required, but no less often than monthly. The Design-Builder will add detail to previous version of the Project Schedule to keep it current throughout the Design Phase, so that the Project Schedule is ready for implementation at the start of the construction phase. The update/revisions will include:

- a. A narrative showing progress to-date vs. planned
- b. The fast-tracking of any of the construction, or other chosen construction delivery methods
- c. Illustrate the requisite number of separate bidding/permit packages for advertisement.
- d. The status of the procurement of long-lead time equipment and materials

As phased construction is deemed appropriate for this project, and County and Design-Builder approve, Design-Builder will review the design and make recommendations regarding the phased issuance of Construction Documents to facilitate phased construction of the Work, with the objective of shortening the Construction Time and/or reducing the Cost of the Work. The Design-Builder will take into consideration such factors as natural and practical lines of Work severability, sequencing effectiveness, access and availability constraints, total time for completion, construction market conditions, labor and materials availability, effect on traffic or public access, and any other factors pertinent to saving time and cost. Design-Builder will adjust the Project Schedule to allow for phased construction or for portions of the Construction Work to be accepted separately by County, if required by County.

2.3 DESIGN PHASE AND GMP

- 2.3.1 Design-Builder will continuously and actively track Project costs throughout the design phase, will proactively advise County, and will make recommendations relating to construction costs and concerns regarding the feasibility and practicality of any proposed means and methods, selected materials, equipment, building systems, and labor and material availability, and long-lead items. Design-Builder will further advise County regarding proposed site improvements, excavation, utility coordination, traffic control and public access, or other issues, as well as any concerns regarding the coordination of drawings and specifications. Design-Builder will advise County any time that a design revision results in the Design-Builder's estimate of the Cost of Construction exceeding County's construction budget.

2.3.2 Program Verification/Schematic Design

- a. The Design-Builder will review County's Project Criteria to ascertain the basic requirements for the Project.
- b. The Design-Builder will prepare an expanded Project Program for review by County and for County's approval, which expands and refines the Project Criteria. The Program shall contain all space needs necessary for the operation of the facility including FFE. The description will include all site conditions affecting the Project, including utilities, drainage and flood control implications, and other requirements specified by County. County will promptly review the Program Document and approve, approve with comments or reject the document.
- c. The Design-Builder will develop a Schematic Design Submission for review by County. The submission shall include at a minimum site plan, floor plan, ceiling plan, roof plan, building elevations and sections and the preliminary calculations to understand utility requirements, metal building requirements, equipment selections, geotechnical requirements and other information necessary to develop the estimated cost of construction.
- d. The Design-Builder will develop and submit to County a conceptual Construction Cost Estimate.
- e. Depending upon the stage of the Project at the inception of this Contract, County, in its sole discretion, may decide to forgo performance of the activities under this Paragraph 2.3.2 in whole or in part without liability to Design-Builder.

2.3.4 Construction Documents

The Design-Builder will review the Schematic Design with County, solicit and receive comments and recommendations from County, confirm County's understanding of the subject matter, determine any additional, modified or alternative requirements, and obtain County's approval.

Based on the Schematic Design documents and any amendments thereto approved by County to the Project or the amount of County's Construction Budget, the Design-Builder will prepare 30%, 60%, and 90% Construction Documents for review with County and the Design-Builder and for County's approval. The CDs will consist of drawings and other documents to delineate and define the general design of the entire Project.

The Design-Builder for each submittal shall submit a Construction Cost Estimate for review and approval by County. The Design-Builder with County shall reconcile the estimate with County's construction budget and modify the design to meet the budget.

2.3.5 Final Construction Documents

Based upon the approved 90% Construction Documents and any further amendments thereto of any kind approved by County, the Design-Builder will prepare detailed Final Construction Documents setting forth the requirements for construction of the entire Project, including complete Drawings, Specifications, calculations and reports and any other information required for the building and other construction permits. If the GMP(s) is agreed to approved prior to the final CDs then a cost evaluation shall be provided. The Design-Builder must be aware of, and conform to, the **order of precedence provisions in Article 2.6.12.3**. The Construction Documents are subject to review and approval by County.

If the GMP has been agreed by County and Design-Builder before completion of the Construction Documents, the Construction Documents will be subject to review by Design-Builder for conformance with the GMP Drawings, Specifications, Assumptions, and Clarifications as provided in **Sections 3.2 to 3.5**.

All drawings and specifications included in the Construction Documents must bear the dated signature and seal of the Design-Builder's DP. The Design-Builder's is fully responsible for all designs it provides for the Project.

County will submit the Design-Builder's documents for the Building Construction Permit thru Pima County Development Services Department and the Arizona State Fire Marshal. The Design-Builder will be responsible for all other permits including those of a temporary nature required for the construction and related to the means and methods of the Design-Builder's construction plan. County will cooperate with the Design-Builder in preparing applications for necessary approvals, sign applications, and pay applicable fees. The Design-Builder will also assure that the Project meets all applicable statutory requirements for public works of the nature of the Project.

2.3.6 Design-Builder's Construction Cost Estimates

Each Design-Builder Construction Cost Estimate will include without duplication:

- a. All labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Construction Work, whether temporary or permanent, and whether or not incorporated or to be incorporated in the Construction Work. All fixed equipment, site improvements, utility and utility relocations, and equipment installations will also be included.
- b. General Conditions;

- c. The Construction Phase Fee;
- d. All bond and insurance premiums;
- e. All applicable taxes, including, without limitation, applicable sales taxes and transaction privilege tax; and
- f. Contingency as applicable.

The Design-Builder Construction Cost Estimates will include the costs of the Construction Work and will not include the Design-Builder's Design Phase Services Fee, Preconstruction Fee, costs of land, rights of way, financing, or other costs which are the responsibility of County. Design-Builder's allowable labor rates within rates or part of Construction General Conditions are restricted to direct labor costs, *i.e.*, actual salaries/wages plus associated costs required by statute or regulation (social security, Medicare employee's match, unemployment, etc.) and employee benefits (vacations, health insurance, etc.). Non-Project specific training costs, bonuses, cost of living allowances, education, and training are not allowable labor costs and are not reimbursable. Promotional or celebratory expenses the Design-Builder incurs while performing and completing the Project are not reimbursable as part of Construction General Conditions and must be paid out of the Design-Builder Construction Phase fee.

The Design-Builder will base each of their Construction Cost Estimates on the latest Design Submissions Documents. The Design-Builder will discuss the materials, equipment, component systems, and types of construction contemplated by the Design-Builder to the extent such items are not in the latest Design Submission Documents.

The Design-Builder, prior to and in preparing its estimates of Construction Costs and providing the GMP, will determine to the extent possible what materials, equipment, component systems, and types of construction are to be included in the Construction Documents and to make recommendations for reasonable adjustments in the Scope of Work, and to include in the Construction Documents such alternate items as County approves in writing.

The Design-Builder will take the lead in developing a cost model, preparing an estimate of Construction Cost as soon as major Project requirements have been identified, and updating the cost model and estimate for each submittal of the Design Submission Documents specified in 1.2.14 of the General Conditions. For all Bid Packages for Construction, the Design-Builder will prepare a quantity take-off cost estimate based on CSI formats. All estimates of Construction Cost must make allowance for bidding and price escalation. During the Preconstruction Phase, the Design-Builder will continually monitor the cost estimates and develop a cost estimate to help assure that the Cost of the Work remains within the applicable portion of the Project Budget or GMP, as applicable. No Construction Services or

Work to be performed under the Contract will commence until a GMP is established by the Design-Builder, submitted and accepted by County, and incorporated into this Contract by Contract Amendment.

All Design-Builder cost estimates will be based on quantitative takeoffs whenever possible, and will be completed in sufficient depth and organization to be used in preparing budgets based on sub-trades, combinations of sub-trades, building systems (if any), and Bid Packages. Lump sum estimates are not acceptable.

All Design-Builder Construction Cost Estimates will use a consistent method of allocating costs of the Construction Work, will follow the standard construction format, and will otherwise be in a form agreed to by County.

After County and Design-Builder agree on a GMP and in any event during the Construction Documents sub-phase of the Design Phase, Design-Builder will continually monitor costs and develop cost estimates to help ensure that the cost of the Construction Work remains within both County's Construction Budget and the GMP.

In the event the reconciled Cost Estimates are not within County's Construction Budget or GMP, the Design-Builder will:

- a. Notify County if it appears that the Design-Builder's Construction Cost Estimate will exceed County's Construction Budget or the GMP.
- b. Satisfactorily demonstrate the accuracy of its estimate in such detail as County may reasonably require.
- c. Make reasonable recommendations for corrective action to bring the estimates back within County's Construction Budget or the GMP, if the estimates exceed County's Construction Budget.

The overall design objective is to develop a design that can be constructed for an amount within County's Construction Budget. If, in connection with any submission of Design Submission Documents and Cost Estimates, the Cost Estimates exceed County's Construction Budget, then the costs of redesign and of revising the cost estimates will be allocated as follows:

- a. If the excess costs of the Design Submission Documents are attributable to County - directed design choices, unanticipated significant materials cost increases or other unforeseen market dislocations, or other causes beyond the control of Design-Builder, then the costs of revision will be the responsibility of County.
- b. If the excess costs are attributable to unapproved deviations from County's Final Schematic Design Report or County determines design choices unreasonable or negligent, then the costs of revision will be the responsibility of Design-Builder.
- c. If the excess costs are attributable to the application of unsubstantiated deviations from the cost model by Design-Builder, then the costs of revising the costs estimates will be the responsibility of Design-Builder.
- d. If the excess costs are attributable to any combination of the causes identified above, then the costs of design and or cost estimate revision will be allocated to each party in the percentage by which their cause contributed to the excess.
- e. In the event the excess costs are attributable to an unanticipated cause not identified above, then the costs of revision will be the responsibility of County.
- f. If the Parties are unable to agree on causation or the allocation of costs, then County will make a determination with respect thereto and provide a copy of the determination in writing to each of the other parties. County's determination will be final and conclusive unless, within seven calendar days from delivery of County's determination, the party or parties objecting to County's determination notifies each of the other parties in writing that they are initiating the Dispute Resolution procedure of the Contract. The notice will include a brief statement of the basis for the initiating party's objection to County's determination.

2.3.7 Budgeting and Guaranteed Maximum Price

- 2.3.7.1 The Design-Builder will provide its Design and Preconstruction Services for the Design and Preconstruction Phase Fee identified in the Contract. That fee will be earned based upon the amount of Design and Preconstruction Phase Work completed. That fee will be billed and payable monthly as a percentage of completion of Design and Preconstruction Services. The Construction Phase services of Design-Builder will be

provided based upon an Open Book Cost of the Work, plus the separate Construction Phase Fee for Design-Builder identified in the Contract.

- 2.3.7.2 As provided for in the Contract and when the design has sufficiently progressed, County will require the Design-Builder to propose a GMP for the construction that is to be based on the Cost of the Work. The GMP will be prepared in accordance with these Sections 2.3.7.2 and **Appendix B Construction Costing**.
- 2.3.7.3 County may accept the GMP submitted by Design-Builder, request that Design-Builder submit another GMP, or reject the GMP and terminate all contracts and agreements with the Design- Builder. In the event of such a termination, the Design-Builder will receive payment for services it has provided to date. In this situation, there will be no amounts paid for any termination cost, lost profits, lost opportunity or any other reason.
- 2.3.7.4 Once accepted by County, the GMP may be revised only by an approved Change Order or Contract Amendment.
- 2.3.7.5 In the event the Design-Builder elects, in its sole discretion, to maintain a construction contingency within the GMP, the criteria for the development of that contingency must be acceptable to County.

Thereafter, the Design-Builder must inform and receive approval from County of any intended usage of the contingency, with supporting itemized schedule and pricing documentation, to maintain complete records and confirm its appropriate use for the Project.

2.3.8 Intentionally Omitted

2.3.9 Other Preconstruction Services

- 2.3.9.1 The Design-Builder will review the Drawings and Specifications as they are being prepared, recommending alternative materials, alternatives, methods, means, constructability, and/or sequencing whenever design details affect construction feasibility, schedules, or cost.
- 2.3.9.2 The Design-Builder will make recommendations to County regarding the division of work in the Drawings and Specifications to facilitate the bidding and awarding of subcontracts, allowing for phased construction, if applicable, taking into consideration such factors as time of performance, availability of labor, overlapping trade jurisdictions, provisions for temporary facilities, and similar factors.
- 2.3.9.3 The Design-Builder will provide a written Constructability Review of all Drawings and Specifications, in a form acceptable to County. The Constructability Review will (a) minimize areas of conflict, errors, omissions, and overlapping of the Work to be performed by the various subcontractors; (b) confirm that the full Scope of Work has been included in the drawings; (c) endeavor to minimize cost and to Value Engineer where appropriate; and (d) allow for phased and/or fast-track bid packages and construction, as required. An acceptable and effective Constructability Review is a goal for the Design-Builder and County.
- 2.3.9.4 The Design-Builder will schedule and attend all regular meetings with County and the Design- Builder shall attend all meetings as part of the Design-Builder team. County will schedule all additional meetings.
- 2.3.9.5 The Design-Builder will investigate and recommend materials and equipment that County could purchase directly; consider long lead time procurement and mass purchasing power in making such recommendations; recommend a schedule for such purchases after coordination with the Design-Builder regarding the timetable for preparation of Construction Documents; and expedite and coordinate delivery of these purchases to facilitate their delivery by the required dates.

2.3.9.6 If County determines that Building Information Modeling (BIM) objectives will benefit the Project and it is or will be to the advantage of County or the Project to select certain subcontracting trades to participate in the design process during the Design and Preconstruction Phase, as well as provide Construction Services during the Construction Phase, then the following procedures will apply:

- a. Design-Builder will prequalify Subcontractors from the trades needed in the Preconstruction Phase.
- b. Upon acceptance of County, a Request for Proposal (RFP) will be requested from pre-qualified Subcontractors. The RFP will request additional qualification information in addition to pricing information, such as labor rates and overhead and profit factors.
- c. The Statement of Qualifications (SOQ) from the Subcontractors will be reviewed by a committee consisting of Design-Builder and County team members. The qualification and pricing information will be scored by a pre-determined weighted scoring system.
- d. The committee will develop a list of firms and determine if interviews are required and conduct the interviews.
- e. The Subcontractors will be ranked, and the highest ranked Subcontractor will be selected to provide the services.
- f. All Subcontractor selections will be in accordance with A.R.S. 34-603(C)(2)(e)(i) and Design Builder's Subcontractor Selection Plan.

For Subcontractors selected in this manner, the Design-Builder must establish to County's satisfaction that the Subcontractor's price submission is reasonable and appropriate by following the procedures outlined for the Design-Builder in Article 2.3.9.11 and 2.3.9.12.

2.3.9.7 The Design-Builder will: assist County in the preparation of the necessary and appropriate bidding information, bidding forms, and pre-qualification criteria for bidders; develop subcontractor interest; establish bidding schedules; advertise for bids; and conduct pre-bid conferences to familiarize bidders with the bidding documents and management techniques and with any special systems, materials, or methods. The Design-Builder will review all potential subcontractors with County and obtain County's approval of the pre-qualification of any subcontractor. If the Design-Builder becomes aware prior to any bid date that fewer than three pre-qualified subcontractors plan to bid any portion of any Bid Package or that anticipated bids from previously approved or pre-qualified subcontractors are likely to exceed the current Schedule of Values or estimate of Construction Cost, the Design-Builder will promptly notify County.

2.3.9.8 The Design-Builder's post-bid selection of any subcontractor must be based on qualifications alone, or on a combination of qualifications and price selection, but will not be based on price alone. The Design-Builder will receive and open bids when advertised, prepare a bid analysis, conduct pre-award conferences, and notify County concerning which bids from pre-qualified subcontractors will be accepted and awarded. The Design-Builder will notify County of the time and place of all bid openings and will permit County to attend such openings with their representatives and guests. Design-Builder will justify in writing any proposal to accept other than a low lump sum bid with sufficient detail to satisfy County, and the proposal will be subject to prior written approval by County, with no increase in the GMP. Once approved by County, Design-Builder may not replace any subcontractor without County's prior approval and any change in cost to Design-Builder will not be a responsibility of County and there will be no increase in GMP or contract price by reason of such change of subcontractor. Within

10 days after award, Design-Builder will furnish one fully executed subcontract for work or services on this Project to County together with all special or supplementary conditions applicable to the subcontract work.

- 2.3.9.9 The Design-Builder will provide County with requirements and assignment of responsibilities for safety precautions and programs as required for the execution of the Work, temporary Project facilities and for equipment, materials and services for common use of subcontractors and verify that all such information is included in the Construction Documents.
- 2.3.9.10 If the Design-Builder indicates it desires to self-perform any portion of the Construction Work, the following procedures will be followed: The Design-Builder must submit its qualifications to do the listed portion(s) of the Construction Work to County and if County is satisfied with Design-Builder's qualifications as to that portion of the Construction Work, County will designate the Design-Builder as a pre-qualified Subcontractor for that portion of the Construction Work. A bid package for each portion of the Construction Work as to which Design-Builder is a pre-qualified Subcontractor will be prepared in the same manner and content as bid packages for Subcontractors in other trades. Design-Builder will submit a proposed price for each of these portions of the Construction Work. This proposed price will include labor rates and certify that sub-sub trades and materials will be bid with a minimum of three pre-qualified bidders.
- 2.3.9.11 In order to evaluate the Design-Builder's Price Submission on self-performed Work, County may do any or all of the following: (i) engage an estimator selected by County to prepare an independent estimate of this portion of the Construction Work; (ii) engage other consultants to do a construction market study to confirm construction market impacts to the cost of this portion of the Construction Work; or (iii) take other action to evaluate the Design-Builder's Price Submission. In any event, Design-Builder is responsible to establish to County's satisfaction that the Design-Builder's Price Submission is reasonable and appropriate. If County is satisfied that the Design-Builder Price Submission is reasonable and appropriate, County will advise the Design-Builder that the Design-Builder is selected as Subcontractor for the respective portion of the Construction Work.
- 2.3.9.12 If at the conclusion of the review of the Design-Builder proposed price for self-performed work, County is not satisfied that the Design-Builder's Price Submission is reasonable and appropriate, County will so advise the Design-Builder and the Design-Builder will conduct a normal Subcontractor bid competition for selection of the Subcontractor to perform this portion of the Construction Work, in accordance with the procedures in Article 2.3.9.7, except that, notwithstanding any other provision of the Design-Builder Design Phase Services Contract Documents to the contrary, (i) the Design-Builder's Price Submission will be the Design-Builder's bid for that portion of the Construction Work in the Subcontractor bidding process; (ii) the Design-Builder must obtain bids for that portion of the Construction Work from a minimum of two other pre-qualified Subcontractors; (iii) the Subcontractor bids for that portion of the Construction Work must be delivered to County rather than the Design-Builder; and (iv) County will decide which Subcontractor bids to accept, in accordance with Article 2.3.9.8.

2.4 LEGAL REQUIREMENTS.

Design-Builder will perform all Work in accordance with all applicable Legal Requirements as described in Article 1.2.22 and otherwise will provide all notices applicable to the Work. It is the responsibility of the Design-Builder during the Design and Preconstruction Phase to assist County to ascertain that the Construction Documents under preparation are in compliance with all applicable laws, statutes, ordinances, building codes, rules, and regulations.

2.5 GOVERNMENTAL APPROVALS AND PERMITS

Unless otherwise provided in the contract documents County will obtain and pay for the building permit, Fire Marshal permit, utility permit applications and costs. The Design-Builder will assist in provided the necessary documents to obtain the permits and will assist in any coordination, corrections, etc. to obtain the permits. The Design-Builder will provide and pay or all temporary construction permits required for the construction means and methods such as dust control permits, NESHAP, etc. and include in the GMP.

2.6 DESIGN-BUILDER'S CONSTRUCTION PHASE SERVICES

- 2.6.1 Unless otherwise provided in the Contract Documents to be the responsibility of County or a separate Contractor(s), Design-Builder's construction phase services will include: team management and coordination, scheduling, cost controls and Change Order management, submittal process management, subcontracting, field management, safety program, closeout process, and warranty period services. This responsibility includes providing, through itself or its Subcontractors, all necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities, and other temporary facilities needed to complete construction of all Work consistent with the Construction Documents.
- 2.6.2 Design-Builder will perform all construction Work, services, and activities efficiently and with the requisite expertise, skill, quality, and competence necessary to satisfy the requirements of the Contract Documents. Design-Builder will at all times exercise complete and exclusive control over the means, methods, sequences, and techniques of construction.
- 2.6.3 Design-Builder will only employ Subcontractors (of any tier) who are properly licensed and fully able and committed to performing the Work in compliance with the Construction Documents and with the same degree of skill, quality and competence as Design-Builder.
- 2.6.4 Design-Builder is fully responsible for the work of its Subcontractors and any of their acts and omissions in connection with the performance of their work. Nothing in the Contract Documents creates any legal or contractual relationship between County and a Subcontractor (of any tier). In addition, nothing in the Contract Documents creates any third-party beneficiary rights.
- 2.6.5 Design-Builder is responsible for coordinating the activities and Work of all Subcontractors. If County is performing other work with separate Contractors under County's control, Design-Builder agrees to cooperate and coordinate its Work with the work of County's separate Contractors so that the Project can be completed in an orderly, efficient, and coordinated manner reasonably free of significant disruption to any party.
 - 2.6.5.1 County reserves the right to award other contracts related to the Project, or to perform certain portions of the Work itself. Any such other work may or may not be known to County or disclosed to the Design-Builder prior to execution of the Contract. The Design-Builder will afford County and such other contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and will properly coordinate its work with theirs in such manner as County may direct. The Design- Builder will also assure at its own cost reasonable access of other contractors to their site and their work.
 - 2.6.5.2 The Design-Builder with the DP as part of their team will provide Drawings, Specifications, Schedules or other needed data relating to such other contracts or work as may be necessary to meet Design-Builder's duty to coordinate. The Design-Builder will thoroughly examine these documents and within three work days of completing such examination will notify County in writing of any conflicts with the Work to be performed by the Design- Builder. In no event will such notice be given by Design-Builder so late as to interfere with or delay the Work to be performed by the Design-Builder. Failure of the Design-Builder to request, review, or provide written notice as provided above constitutes a waiver of any objections or claims the Design-Builder may otherwise have as a result of the necessity to coordinate the Design-Builder Work with other activities.

- 2.6.5.3 Should the Design-Builder sustain any damage through any act or omission of any other contractor or subcontractor, Design-Builder has no claim or cause of action against County for such damage and hereby waives any such claim. The Design-Builder does not waive any claim or cause of action against any other contractor or subcontractor to recover any and all damages sustained by reason of the acts or omissions of such other contractor or subcontractor. The phrase "act or omission" as used in this section includes, but is not limited to, any delay on the part of any such other contractor or subcontractor, whether due to negligence, gross negligence, inadvertence, or any other cause.
- 2.6.5.4 Should the Design-Builder cause damage to the work or property of any other contractor or subcontractor of County, the Design-Builder will upon receiving due notice of damage promptly attempt to settle with such other contractor by contract, repair, or otherwise to resolve the dispute. If any such separate contractor sues or initiates a proceeding against County on account of any damage alleged to have been caused by the Design-Builder or its subcontractors, County will notify the Design-Builder who will at its own cost indemnify and defend County in such proceedings, or pay the costs of County defending such proceedings, and if any judgment or award against County arises therefrom, the Design-Builder will pay or satisfy it and will reimburse County for all attorney's fees and court or other costs which County has incurred in connection with the matter.
- 2.6.6 Design-Builder will keep the site free from debris, trash, and construction waste to permit Design-Builder to perform its construction services efficiently, safely, and so as not to interfere with the use of any adjacent land areas, including the reasonable aesthetic appearance of the jobsite and all storage and staging areas. Design-Builder is also responsible for and will take precautions and measures to fully secure, safeguard, and protect the Work during the Construction Phase. Unless previously released of responsibility by County, Design-Builder's responsibility to secure, safeguard, and protect continues until final completion and acceptance.
- 2.6.7 Prior to Substantial Completion of the Work, or a portion of the Work, Design-Builder will remove all debris, materials, waste, equipment, machinery, and tools from the Work so as to permit County to safely occupy the Work or a portion of the Work for the use for which it is intended.
- 2.6.8 CONTROL OF THE WORK
- 2.6.8.1 The Design-Builder will supervise and direct the work of its employees and Subcontractors and coordinate the work with the activities and responsibilities of County so as to complete the Work in accordance with County's objectives of cost, time, and quality as set forth in the Contract Documents.
- 2.6.8.2 The Design-Builder will establish an on-site organization with lines of authority in order to carry out the overall plans for completion of the Work.
- 2.6.8.3 The Design-Builder will schedule, notice, conduct, and take and distribute minutes of weekly progress meetings at which County, and Design-Builder can discuss jointly such matters as procedures, progress, and problems.
- 2.6.9 DAILY LOG
- 2.6.9.1 The Design-Builder will maintain a daily log of construction activities for each calendar day of the Contract Time. In that log, the Design-Builder will document all activities at the Work site, including, but not limited to:
- a. Weather conditions showing the high and low temperatures during work hours, the amount of precipitation received on the job site, and any other weather conditions which adversely affect work at the site;
 - b. Soil conditions which adversely affect work at the site;

- c. The hours of operation by Design-Builder and individual Subcontractor personnel;
- d. The number of Design-Builder and Subcontractor personnel present and working at the site, by subcontract and trade, and updated schedule activity number;
- e. The equipment active or idle at the site;
- f. A description of the work being performed at the site by updated schedule activity number;
- g. Any delays, disruptions or unusual or special occurrences at the site;
- h. Materials received at job site; and
- i. A list of all visitors at the site.
- j. Any other relevant information as to activities on the site that day.

2.6.9.2 The Design-Builder will provide copies of the daily logs to County on a weekly basis. The daily log does not constitute written notice to County of any event or occurrence when such notice is required by the Contract Documents.

2.6.9.3 Any changes affecting previously approved work requires prior written approval of County.

2.6.10 SUPERVISION AND CONSTRUCTION PROCEDURES

2.6.10.1 The Design-Builder will supervise and direct the Work using the Design-Builder's best skill and attention. The Design-Builder is solely responsible for the coordination and accomplishment of all portions of the Work under the Contract Documents.

2.6.10.2 Design-Builder is responsible to County for the acts and omissions of Design-Builder's employees, Subcontractors of all tiers, their agents and employees, and any other persons performing any of the Work or furnishing materials under a contract with the Design-Builder.

2.6.10.3 The Design-Builder will not be relieved from its obligation to perform the Work in accordance with the Contract Documents either by the activities or duties of the Design-Builder in its administration of this Contract, or by inspections, tests, or approvals required or performed by persons other than the Design-Builder. Nothing contained in this paragraph precludes the Design-Builder from asserting any rights it may have under this Contract in the event of unreasonable delays to the Design-Builder in the conduct of any inspections, test, approvals, or other actions by the DP upon which Design-Builder's schedule depends.

2.6.10.4 The Design-Builder will employ a competent County-approved Superintendent and necessary assistants, who will be in attendance at the Project site during the progress of the Work. The Design-Builder will also employ a County-approved additional staff, such as project engineer, as may be reasonably required and appropriate to the stage of construction work. Once designated, the Superintendent and other staff of Design-Builder will not be changed except with the prior consent of County, unless the Superintendent or Representative proves to be unsatisfactory to the Design-Builder or ceases to be in its employ. The Superintendent and on-site staff will represent the Design-Builder and all communications given to the Representative are binding on the Design-Builder. All such communications will be confirmed in writing by Design-Builder.

2.6.10.5 The Design-Builder will at all times enforce strict discipline and good order among its employees and its Subcontractors' employees, and will not allow employment on the

Work of any unfit person or anyone not skilled in and capable of performing the task assigned to them.

2.6.10.6 The Design-Builder will at all times allow County, or any other designated representatives access to the construction work to observe progress and inspect the quality of work and conformance to the Construction Documents.

2.6.10.7 Any Work required to be inspected by County prior to being covered, which is covered up without prior inspection or without prior consent of County, must be uncovered by the Design-Builder, if requested by County, and then re-covered at no cost to County, notwithstanding the provisions of the following subsection. Design-Builder will notify County in writing at least 48 hours prior to the time at which County must be present to perform an inspection. Failure to provide such notice makes the Design-Builder solely responsible for all consequences of non-inspection and any required access to or uncovering of such Work.

2.6.11 ADMINISTRATION

2.6.11.1 Except as may be expressly provided to the contrary in the Contract Documents, the Design-Builder's Representative will forward all communications in writing and all documents simultaneously to County's Representative as listed below:

Design-Builder's	County's
Representative:	Representative:
(NAME)	(NAME)

2.6.12 DRAWINGS AND SPECIFICATIONS

2.6.12.1 The DP is an agent of the Design-Builder under this contract. The DP shall be responsible for providing the design documents with the competency and care as a technical registrant in the State of Arizona. Any DP members not under the jurisdiction of the State of Arizona shall meet the standards of any professional organization related to the field within their scope of services. The Design-Builder will study and compare the Construction Documents prior to beginning Work on each phase or portion of the Work and immediately report any material error, inconsistency, conflict, ambiguity, or omission that is discovered to the DP and County.

2.6.12.2 The Construction Drawings are intended to show general arrangements, design, and extent of Work and are not intended to serve as Shop Drawings. Where required, the Design-Builder will perform no portion of the Work without having Shop Drawings, Product Data, or Samples approved; any Work performed in violation of this provision will be solely at the Design-Builder's risk regardless of County's knowledge of such Work being performed.

2.6.12.3 In the event of any conflict or ambiguity, the Construction Documents will be interpreted as being complementary, requiring delivery by Design-Builder of a complete Project, or designated portion thereof. Any requirement occurring in any one of the Construction Documents is as binding as though occurring in all Construction Documents. In the event of any conflict or ambiguity, perceived or real, the Design-Builder will provide an interpretation before performing the Work. Generally, the Specifications address quality, types of materials, and contractual conditions while the Drawings show placement, sizes, and fabrication details of materials. In the event a conflict is discovered in the Construction Documents, the priorities stated below govern and control:

- a. Addenda govern over all other Construction Documents;
 - b. Subsequent addenda govern over prior addenda, but only to the extent modified;
 - c. In case of conflict between Drawings and Specifications, the Specifications govern;
 - d. Conflicts within the Drawings:
 - (1) Schedules, when identified as such, govern over all other portions of the Drawings.
 - (2) Specific notes govern over all other notes and all other portions of the Drawings, except the schedules described in 2.6.12.3(d)(1) above.
 - (3) Larger scale drawings govern over smaller scale drawings.
 - (4) Figured or numerical dimensions govern over dimensions obtained by scaling.
 - e. Conflicts within the Specifications: These General Conditions govern over all sections of the Specifications except for specific modifications thereto that may be stated in Special Conditions or addenda. No other section of the Specifications modifies these General Conditions; and
 - f. In the event provisions of codes, safety orders, Construction Documents, referenced manufacturer's specifications or industry standards are in conflict, the more restrictive or higher quality governs.
- 2.6.12.4 In the event of conflict between County's Technical Standards and the Drawings and Specifications, Design-Builder will promptly call the conflict to the attention of County and will defer the use of such Drawing until resolution of the conflict to County's satisfaction.
- 2.6.12.5 If the Construction Documents are not complete as to any minor detail of a required construction system or with regard to the manner of combining or installing of parts, materials, or equipment, but there exists an accepted trade standard for good and skillful construction, such detail will be an implied requirement of the Construction Documents in accordance with such standard. A "minor detail" includes (a) the concept of substantially identical components, where the price of each such component is small even though the aggregate cost or importance is substantial, and includes a single component which is incidental, even though its cost or importance may be substantial; and (b) the quality and quantity of the parts or materials so supplied will conform to trade standards and be compatible with the type, composition, strength, size, and profile of the parts or materials otherwise set forth in the Construction Documents.

2.6.13 SUBMITTALS, DRAWINGS AND SHOP DRAWINGS

- 2.6.13.1 The Design-Builder will maintain at the site, for the use of County, one copy of all Drawings, Specifications, bulletins, addenda, Change Orders, field orders, approved Shop Drawings, approved Submittals, supplementary instructions, requests for information, catalog data, manufacturers' operating and maintenance instructions, certificates, warranties, guarantees, and other contract-related documents and their modifications, if any, in good order and marked daily by the Design-Builder to record all approved changes made during construction. The Design-Builder at the time of Substantial Completion will turn these over to County for use by County.

- 2.6.13.2 The Design-Builder will submit, with such promptness as to cause no delay in its work or in the work of any other Contractor, all Submittals and Shop Drawings as are required by the Construction Documents, or are necessary to illustrate details of the Work.
- 2.6.13.3 Each Submittal and Shop Drawing must be accompanied by a Design-Builder transmittal letter containing a list of the titles and numbers of the Shop Drawings. Each series must be numbered consecutively for ready reference. Each Submittal and Shop Drawing will be marked with the following information:
- a. Date of Submission
 - b. Name of Project
 - c. Location of Project
 - d. Branch of Work (Specification Section)
 - e. Project Number
 - f. Name of Submitting Design-Builder
 - g. Name of Subcontractors
 - h. Revision Number
- County will identify Submittals that must be submitted to County for its review. During Construction Phase Design-Builder will promptly provide County with an electronic copy of all approved submittals.
- 2.6.13.4 The Design-Builder will review all Subcontractor Submittals and Shop Drawings prior to being submitted to the County and each must bear a written statement by the Design- Builder that the Submittals and shop drawings are consistent with the Construction Documents and other Contract Documents or, if not totally consistent, they must bear a written statement indicating all variances from the Construction Documents and other applicable Documents. Any submittals or shop drawings submitted without the statements will be returned for resubmission; the submittals or shop drawings will be considered as not having been submitted; and any delay caused thereby is the Design- Builder's sole responsibility. This review by Design-Builder of Subcontractor submittals and shop drawings is not Design-Builder approval of the design therein except that it is a representation that the letter accompanying the submittal or shop drawings does indicate all variations from the Construction Documents and other Contract Documents as required by Article 2.6.13.5.
- 2.6.13.5 The Design-Builder will include with Submittals and Shop Drawings, a letter indicating all variances from the Drawings and Specifications. Failure to so notify the County of such variances will be grounds for subsequent rejection of the related Work or materials. If, in the opinion of the County, the variances are not acceptable, the Design-Builder must furnish the item as specified or as indicated on the Construction Drawings.
- 2.6.13.6 The Design-Builder must check all of its Submittals and Shop Drawings and be fully responsible for them and for coordination with connecting Work. Submittals and Shop Drawings must indicate in detail all parts of an item of Work, including erection and setting instructions and engagements with work of other trades or other separate Contractors.

- 2.6.13.7 By the act of reviewing or submitting to County Submittals or Shop Drawings, the Design-Builder represents to County that it has determined and verified availability, field measurements, field construction criteria, materials, catalog numbers, and similar data, or will do so, and that it has checked and coordinated each Submittal and/or Shop Drawing with the requirements of the Work and of the Construction Documents. If any specified material item or part is not available, the Design-Builder must so indicate to County.
- 2.6.13.8 The County will review and approve Submittals and Shop Drawings and return them to the Design-Builder within 20 calendar days of receipt unless otherwise previously agreed in writing. For scheduling purposes, the Design-Builder must assume a 20-day review period for each Submittal or set of Shop Drawings, and 10 calendar days for resubmittals, except for complex submittals identified by the County as having significant deficiencies, in which event the resubmittal turnaround time will be within 20 calendar days. If review and approval are delayed beyond 20 calendar days, the County will notify the Design-Builder and County in writing stating the reason for the delay. Reviews of submittals and shop drawings by the County are the responsibility of the Design-Builder under this Design-Build Contract and any delays associated with the review are not the responsibility of County. Approval does not relieve the Design-Builder from the responsibility for variances from the drawings and specifications, unless it has been called to the County's attention, in writing, at the time of submission. Any modification will be approved only if it is in the interest of County to affect an improvement in the Work and does not increase the GMP or Contract Time. Any such modification is subject generally to all other provisions of the Construction Documents, and is without prejudice to any and all rights under any surety bond.
- 2.6.13.9 If the County returns a Submittal or Shop Drawing to the Design-Builder with the notation "rejected", "revise and resubmit", or "approved as noted", the Design-Builder, so as not to delay the Work, will promptly resubmit a Submittal or Shop Drawing conforming to the requirements of the Construction Documents and indicating in writing on the Submittal or Shop Drawing and on the transmittal what portions of the resubmittal have been altered in order to meet with the approval of the County. Design-Builder will also indicate any other differences between the resubmittal and the prior submittal on the Shop Drawing and on the resubmittal as a special note.
- 2.6.13.10 No extension of Contract Time will be granted to the Design-Builder because of its failure to submit Submittals or Shop Drawings in ample time to allow for review, possible resubmittals, and approval. Fabrication of Work will not commence until the Design-Builder has received written approval. The Design-Builder will furnish prints of its approved Submittals and Shop Drawings to all the Subcontractors whose work is in any way related to those Submittals or Drawings. Only prints bearing this approval will be allowed on the Site.
- 2.6.13.11 The County may review/comment on all submittals/shop drawings within the designated time for the review prior to completing their review and returning to the Design-Builder.
- 2.6.14 PRODUCT SAMPLES, TESTS, AND CERTIFICATES
- 2.6.14.1 The Design-Builder will furnish Product Samples of all items requested or required by the Specifications. Product Samples must be properly identified and submitted with such promptness as to cause no delay in Work or in the work of any other Contractor and to allow time for consideration by County. The County will review Product Samples in accordance with Articles 2.6.13.2 – 2.6.13.11 above.

- 2.5.14.2 Each Product Sample must be accompanied by a letter of transmittal containing the following information:
- a) Date of Submission
 - b) Name of Project
 - c) Location of Project
 - d) Branch of Work (Specification Section Number)
 - e) Project Number
 - f) Name of Submitting Design-Builder
 - g) Name of Subcontractor
- 2.6.14.3 The Design-Builder will furnish the County a certificate stating that material or equipment submitted by Design-Builder complies with Contract Documents. If a certificate originates with the manufacturer, the Design-Builder will endorse it and submit it to the County together with a statement of compliance in its own name.
- 2.6.14.4 No tests, inspections or approvals performed or given by County or others acting for County or any agency of Federal, State, or Local government nor any acts or omissions by County in administering this Contract relieve the Design-Builder from its duty to perform the Work in accordance with the Contract Documents and all applicable law or regulation or code.
- 2.6.14.5 Unless the County authorizes, at the time of submittal to return samples at the Design-Builder's expense, rejected samples will be destroyed.
- 2.6.14.6 After delivery of materials by Design-Builder, the County may make such tests, as it deems necessary, with samples required for such tests being furnished by and at the cost of the Design-Builder. Any test is for the benefit of County and does not relieve Design-Builder of the responsibility for providing quality control measures to assure that the Work strictly complies with the Construction Documents. No test implies acceptance of materials, Work, workmanship, equipment, accessories or any other item or thing.
- 2.6.14.7 Materials, workmanship, equipment, or accessories may be rejected by County on the basis of the test results even though general approval has been previously given. If items have been incorporated in the Work, the County has the right to cause their removal and replacement by items meeting Construction Document requirements, with the cost therefor being borne by the Design-Builder and not County, or to demand and secure appropriate reparation to or price adjustment for the benefit of County from the Design-Builder.
- 2.6.15 AS-BUILT DRAWINGS
- 2.6.15.1 The Design-Builder shall maintain a set of as-builts on-site that show the changes that have occurred including changes to the following dimensions, product changes, clarifications, RFIs, ASIs, work that is concealed in walls, slabs or ceilings, underground utilities, etc. The as-builts shall be reviewed at a minimum of once a month by the County.
- 2.6.15.2 Prior to Final Payment, the Design-Builder will complete and turn over to the County the digital file of the Red Line Drawings kept current at the Project site by Design-Builder. Red Line Drawings will consist of a set of digital drawings that clearly indicate all field changes that were made during contract performance to adapt to field conditions, changes resulting from Change Orders and all buried and

concealed installation of piping, conduit and utility services. All buried and concealed items both inside and outside the facility must be accurately located on the Red Line Drawings as to depth and in relationship to not less than two permanent features such as interior or exterior wall faces. The Red Line Drawings must be clean and all changes, corrections, and dimensions will be given in a neat and legible manner in a contrasting color. The County will use the Design-Builder Red Line Drawings to finalize the As Built Drawings (Record Drawings) which, in turn, will be turned over to County at the end of construction.

2.6.15.3 With respect to any changes or corrections in the Work which are made subsequent to Substantial Completion, such revisions must be submitted to the County for approval prior to Final Payment.

2.6.15.4 The County shall review the Red Line Drawings prior to the acceptance and approval to County by Design-Builder of the monthly payment application to ensure the As-Built Drawings are updated and represent the construction progress of the Project. If the As-Built Drawings do not reflect the current progress the payment application shall not be approved by the County until that are brought up to a satisfactory level.

2.6.16 SCHEDULE AND COORDINATION

2.6.16.1 The Design-Builder will schedule and coordinate the Work of all of its Subcontractors on the Project including their use of the site. The Design-Builder will keep the Subcontractors informed of the Project CPM Schedule to enable the Subcontractors to plan and perform their Work properly.

2.6.16.2 At the time of the submission of the GMP, the Design-Builder will submit to County a detailed CPM Schedule for the Work, which will provide for the expeditious and practicable execution of the Work. The CPM Schedule will be consistent with and build upon any previous schedules issued during the Design and Preconstruction Phase. The CPM Schedule is not to exceed time limits under the GMP/Contract Documents and must be related to the entire Work to the extent required by the Contract Documents.

2.6.16.3 The CPM Schedule required for the performance of the Work will include reasonable detail including a time scaled network and computer printout in accordance with the following requirements:

- a. no activity may be longer than 14 calendar days (i.e. task line item duration in the CPM Schedule) in length except fabrication and delivery activities;
- b. each activity must be logically tied to another activity to show its interdependency with other activities;
- c. installation activities must be logically tied to submittal/approval, fabrication and delivery;
- d. only a single critical path is allowed; and
- e. all activities on the schedule must be clearly designated.

2.6.16.4 The GMP will prepare and keep current, for the County, a submittal schedule which is coordinated with the Design-Builder's CPM Schedule for the Work and allows the County the specified time to review submittals. The schedule must allow for the review periods and take into account lead times for products and materials.

2.6.16.5 The Design-Builder will revise the CPM Schedule monthly to reflect actual conditions in the field and transmit it monthly to County with a copy and a Narrative

Report including a description of current and anticipated problem areas, delaying factors and their impact and corrective action taken or proposed. This update is to be submitted to County by Design-Builder with each Application for Progress Payment. County's review of the CPM Schedule update does not relieve Design-Builder of its complete and exclusive control over the means, methods, sequences, and techniques of construction. The monthly updated CPM Schedule will be the basis for the analysis and granting or rejection of time extensions by County in accordance with Article 9 of these General Conditions.

- 2.6.16.6 In addition to the monthly CPM Schedule update, the Design-Builder will also revise its schedule at appropriate intervals as required by the conditions of the Work or as directed by County with an electronic copy of the revision submitted to County in a format acceptable to County.
- 2.6.16.7 The Design-Builder will perform the Work at all times during the Construction Phase within the identified times of the most recent County-approved schedule and consistent with the established Contract Time.
- 2.6.16.8 If the Design-Builder submits an original or updated CPM schedule which shows the Project and/or individual Milestone(s) for the Project completing earlier than required by the adjusted contractual completion date(s), the differences between the forecasted early completion and the required completion will be considered Project-owned float available for use by both County and the Design-Builder.
- 2.6.16.9 Since float time within the CPM Schedule is jointly owned, County will grant no time extensions and will pay no delay damages until a critical path activity delay occurs which extends the Work beyond the adjusted contractual completion date. Since float time within the CPM Schedule is jointly owned, County-caused delays on the Project may be offset by County-caused time savings which result in a critical path activity savings of time to the Design-Builder. In that event, the Design-Builder is not entitled to receive a time extension or delay damages until all County-caused time savings are exhausted and the applicable contractual completion date or milestone date is also exceeded. The Design-Builder is not entitled to a time extension due to failure by the County to respond to clarifications in the construction documents, delays in submittal reviews or any other delay attributed to the County's delay in providing information as part of the Design-Builder Team to keep the construction schedule.
- 2.6.16.10 No time extensions will be granted or delay damages paid unless (1) the delay is clearly demonstrated by the updated CPM Schedule and the current and supporting narrative as of the month the change was issued or occurred, or the delay took place, and (2) the delay cannot be mitigated, offset, or eliminated through such actions as revising the intended sequence of Work or other reasonable or industry recognized means of mitigating schedule slippage.

2.7 DESIGN-BUILDER'S RESPONSIBILITY FOR PROJECT SAFETY

- 2.7.1 Design-Builder recognizes the importance of performing its Work in the safest manner possible so as to prevent damage, injury or loss to (a) all individuals at or in the vicinity of the Work, whether working or visiting the Project; (b) all Work, including materials and equipment incorporated or stored on or off-site; and (c) all property adjacent to the site. On that basis Design-Builder assumes sole responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work and will submit a Safety Plan in complete form to County at the time of issuance of the Notice to Proceed with the Work. Design-Builder will, prior to commencing construction, designate a safety manager with the necessary qualifications and experience to supervise the implementation of the plan and the monitoring of all safety precautions and programs related to the Work. The safety manager will make routine daily inspections of the Work site, and will hold at least weekly safety meetings with Design-Builder's personnel and Subcontractors.

- 2.7.2 Design-Builder and its Subcontractors will comply with all legal requirements relating to safety, as well as any County specific safety requirements set forth in the Contract Documents. Design-Builder will immediately report, in writing, to County's Representative and all government or quasi- government authorities having jurisdiction over matters involving the Work, any injury, loss, damage, or accident occurring at the site of the Work.
- 2.7.3 Design-Builder's responsibility for safety under this Article 2.7 is not intended to relieve Design-Builder's Subcontractors (of any tier) from applicable obligations and responsibilities for complying with all legal requirements, including those related to health and safety matters, and their taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages, or accidents resulting from their performance of the Work.

2.8 WARRANTY

- 2.8.1 Design-Builder warrants to County that the construction, including all materials and equipment furnished as part of the Work, will be new, unless otherwise specified in the Contract Documents; of good quality, in conformance with the Contract Documents; and free of defects in materials and workmanship. Design-Builder's warranty obligation excludes defects caused by abuse, alterations, or unreasonable failure to maintain the Work by persons other than Design-Builder, Design-Builder's subcontractors, or others under Design-Builder's control. Nothing in this warranty by Design-Builder limits any manufacturer's warranty which provides County with greater warranty rights than set forth in this Article 2.8 or the Contract Documents.
- 2.8.2 Design-Builder will provide County with all manufacturers' warranties and Operation and Maintenance Manuals upon the date of Substantial Completion of the Work. Design-Builder will provide County a two-year warranty for all portions of the Work, which warranty commences upon Substantial Completion and acceptance by County of the final phase of the Project. All statutory or other warranties, express or implied, related to latent defects will remain in force and are not limited or superseded by this provision.
- 2.8.3 The Warranties identified herein do not limit or control other remedies available to County at law or their limitation periods, if any.

2.9 CORRECTION OF DEFECTIVE WORK

- 2.9.1 If any portion of the Work is covered over by Design-Builder or its subcontractor contrary to the request of County, or as required by the Construction Documents, or the applicable building standards or codes if requested in writing by County, that Work or portion thereof must be promptly uncovered for observation at the Design-Builder's own expense.
- 2.9.2 If any portion of the Work, other than those portions required to be inspected by County, or others, prior to being covered, has been covered over, County may request that it be uncovered for observation. If such portion of the Work is found to be in accordance with the requirements of the Construction Documents, the cost of uncovering it will be charged to County as a Change Order. If such portion of the Work is found not to be in compliance with the requirements of the Contract Documents, the Design-Builder shall bear such costs to uncover, to remove and replace, or to repair. Unless a specific written waiver of such non-conformance has been provided to the Design-Builder, Design-Builder will promptly correct any Work that is found not to be in conformance with the Contract Documents, whether previously inspected by County's representatives or not. This obligation of Design-Builder continues for a period of two years from the date of Substantial Completion. Nothing in this Article waives any other rights or remedies that County may have under applicable law.
- 2.9.3 Design-Builder, upon receipt of written notice from County that the Work is not in conformance with the Contract Documents, will, within seven days (except in the case of an emergency or an item on the schedule critical path, which will require immediate response) commence correction of such nonconforming Work, including the correction, removal, or replacement of the nonconforming Work and any damage caused to any other parts of the Work affected by the

nonconforming Work. In the event Design-Builder fails to commence the necessary corrective steps within seven days of the Notice, County, in addition to any other remedies provided under the Contract Documents, may at the end of the seven-day period commence to correct or cause the correction of such nonconforming Work with its own or other forces. Design-Builder is responsible for all costs and expenses that County incurs in remedying any such Work not in conformance with the Contract Documents, including at County's sole discretion, any of its own staff time costs. County will notify Design-Builder of its intent to make such corrections at or before the commencement of the corrective work.

- 2.9.4 The two-year warranty period referenced in Article 2.8.1 applies only to the Design-Builder's obligation to correct Work not in compliance with the Construction Documents, and does not constitute a period of limitations with respect to any other rights or remedies County may have with respect to Design-Builder's other obligations under the Contract Documents. Design-Builder acknowledges that, for purposes of statutes of limitations, County is a body politic and corporate of the State of Arizona acting in its governmental capacity for the general good.

ARTICLE 3 – RESERVED

ARTICLE 4 COUNTY'S SERVICES AND RESPONSIBILITIES

In addition to its responsibilities outlined in Article 2,

- 4.1 County will, throughout the performance of the Contract, cooperate with Design-Builder and perform its responsibilities, obligations and services in a timely manner so as not to delay or interfere with Design-Builder's performance of its obligations under the Contract Documents.
- 4.2 County's Representative is responsible for processing and delivery of County-supplied information and approvals or rejections in a timely manner to permit Design-Builder to fulfill its obligations under the Contract Documents. County's Representative will also provide Design-Builder with reasonably prompt notice if and when it observes any failure on the part of Design-Builder to fulfill its contractual obligations, including errors, omissions, or defects in the Design-Builder's performance of its Work. Failure of County or its representatives to notify the Design-Builder hereunder will not alter the duties and obligations of Design-Builder under the Contract Documents.
- 4.3 County will provide reviews and approvals or rejections of the Design-Builder's cost estimate portion of the Design Submission within three weeks of receipt of those documents. County will review documents submitted by the Design-Builder and render any decisions pertaining thereto without unreasonable delay.
- 4.4 County is responsible for all Work performed at the Project by parties under County's control other than Design-Builder. County will contractually require such parties to cooperate with and coordinate their activities with Design-Builder so as not to unreasonably interfere with Design-Builder's ability to complete the Work in a timely manner, consistent with the Contract Documents.
- 4.5 County will interact and cooperate with the Design-Builder to keep the Work within the portions of the Project Budget or GMP, as may be applicable, including but not limited to giving appropriate and reasonable consideration to all reasonable recommendations of the Design-Builder, approving redesign, deductive alternatives or reductions in the Work, consideration of any requested additional Value Engineering, making modifications to the Contract Documents, or exercising such other rights or remedies as may be available elsewhere under this Contract including termination for convenience. If at any time, it is apparent that the cost of the Work cannot be kept within the Project Budget or GMP, County may terminate this Contract in accordance with the termination for convenience provisions set forth below.
- 4.6 The DP acting through the Design-Builder, will furnish County a sufficient quantity of documents and information required for the Design-Builder's performance of its Design and Preconstruction Services.

ARTICLE 5 – HAZARDOUS MATERIALS AND UNFORESEEN PROJECT SITE CONDITIONS

5.1 HAZARDOUS MATERIALS

- 5.1.1 Design-Builder is solely responsible for properly removing and disposing of any Hazardous Materials in the Project identified as such in the Contract Documents by County. Design-Builder, upon encountering any Hazardous Materials not identified in the Contract Documents, will stop work immediately in the affected area and notify County and, if required by applicable rules, all governmental or quasi-governmental entities with jurisdiction over the Project. County has responsibility to take the necessary measures required to properly remove and dispose of Hazardous Materials not identified in the Contract Documents as being the responsibility of the Design-Builder.
- 5.1.2 Design-Builder will be entitled, in accordance with the provisions of these General Conditions, to an adjustment in the GMP or Contract Time(s) of performance, or both, to the extent that the Design-Builder's costs or time of performance have been adversely and materially impacted by the presence of unforeseen or undisclosed Hazardous Materials.
- 5.1.3 County is not responsible for Hazardous Materials introduced to the site by Design-Builder, Design-Builder's Subcontractors (at any tier), or anyone else for whom the Design-Builder is responsible unless the Contract Documents explicitly call for either the provision or removal of the specific Hazardous Materials.
- 5.1.4 Design-Builder will indemnify, defend, and hold harmless County and others under County's control, and the officers, directors, employees and agents of each of them, from and against all claims, losses, liabilities, costs and expenses, including but not limited to attorney's fees and expenses, arising out of or resulting from Design-Builder's importation, improper handling, storage, abatement, removal, remediation, or disposal of any Hazardous Materials.
- 5.1.5 Upon any release of any Hazardous Material in connection with the Work, whether relating to a pre-existing condition or to acts or omissions of Design-Builder, Design-Builder will take immediate action reasonably necessary to contain the release and if the Hazardous Material release is not a Design-Builder release, County will pay Design-Builder the reasonable costs incurred by Design-Builder in taking such containment action. County may elect to have Design-Builder control and carry out any removal and remediation activity needed, provided that if the release is not a Design-Builder release, County will be responsible to pay Design-Builder for such Design-Builder removal and remediation activities in accordance with the Change Order provision set forth in Article 10.4 of these General Conditions, including allowance of additional Contract Time.

5.2 UNFORESEEN PROJECT SITE CONDITIONS

- 5.2.1 If Design-Builder encounters, during the performance of the Work, concealed or latent physical conditions or subsurface conditions at the Project which (a) materially differ from the conditions indicated in the Contract Documents; or (b) are of an unusual nature which differ materially from the conditions ordinarily encountered and generally recognized as inherent in the sort of work provided for in the Contract Documents, Design-Builder will immediately provide written notice to County apprising County of the unforeseen conditions encountered. Design-Builder will not disturb or modify such conditions without County's prior written consent. County will promptly investigate Design-Builder's notice of an unforeseen site condition and advise Design-Builder of its findings and determination.
- 5.2.2 If County determines that the conditions encountered by Design-Builder under Article 5.2.1 are an unforeseen Project site condition, Design-Builder will be entitled, in accordance with the provisions of these General Conditions, to an adjustment in its GMP or Contract Time(s) of performance, or both, to the extent that Design-Builder's cost or time of performance have been adversely impacted by the unforeseen conditions. Adjustments to GMP will be for the actual direct cost impact incurred by Design-Builder to address and resolve the unforeseen conditions.

- 5.2.3 County will not consider or allow any claim by the Design-Builder for an increase in the GMP or in Contract Time(s) without compliance with the advance notice requirement set forth above, submission of verifiable documentation of specific direct cost impact, and an adequate opportunity for County to investigate. Extensions of Contract Time(s) will be considered and allowed only when based upon submission of an updated CPM Schedule and supporting narrative showing an actual unavoidable delay to the Project Critical Path due to the unforeseen Project Site Conditions.
- 5.2.4 In no event will the Contract Time or GMP be adjusted for conditions that Design-Builder could or should have identified through past work or its investigations or survey of existing conditions prior to submission and establishment of the GMP and the GMP Schedule.
- 5.2.5 If County determines Design-Builder has no entitlement to an adjustment in GMP or Contract Time for what Design-Builder contends is an unforeseen Project Site Condition, Design-Builder may only proceed in pursuit of its position or claim in accordance with the Dispute Resolution provisions of the Contract.

5.3 ARCHEOLOGICAL CONDITIONS:

If in the course of performing the Work, the Design-Builder, any subcontractor, or other persons or entities under the control of Design-Builder, encounter any Native American burial site or other archeological artifacts, Design-Builder will immediately notify County and suspend any Work or activity in the vicinity of the burial site or artifact. County will determine with reasonable promptness what action, if any, needs to be taken and advise Design-Builder how to proceed or adjust the Work. Any claim for adjustment in Contract Time or GMP will be handled under 5.2.2 above.

ARTICLE 6 – RESERVED

ARTICLE 7 – PAYMENT

7.1 GUARANTEED MAXIMUM PRICE; SAVINGS.

- 7.1.1 County will pay the Design-Builder for the Design-Builder's performance and the Design-Builder accepts the Design and Preconstruction Phase Fee in full payment for Preconstruction services, and the Actual Cost of Work (as defined in Appendix B hereto) plus the Construction Phase Fee for construction services, provided, however, that the amount paid to Design-Builder will not exceed the GMP as originally fixed or as adjusted from time to time as provided in these General Conditions.
- 7.1.2 Savings will be calculated and paid upon Final Completion of the Work. One hundred percent of all savings will be allocated to County. Savings returned to County will not include return of Construction Phase Fee for the amount of the savings but will include an appropriate percentage of bonds and insurance premiums and taxes attributable to the savings amount. One hundred percent of allocations to GMP for allowance and contingency items that remain unused upon Final Completion will be returned to County.

7.2 SCHEDULE OF VALUES.

- 7.2.1 Before issuance of the Notice to proceed and commencement of the Work in the Construction Phase, the Design-Builder will submit to County, and County and the Design-Builder shall agree upon, a complete Schedule of Values on the items constituting the GMP following the sample outline in **Appendix B**, setting forth the various portions of the Work, and the portions of the GMP allocated to each portion of the Work. This Schedule of Values will also be the basis for payment as the Work progresses. Those portions of the Schedule of Values allocable to Work to be performed by Subcontractors of the Design-Builder will be finalized as and when the Subcontracts are executed. All estimated construction costs not specifically allocated to a Subcontract (including Work self-performed) or to Construction General Conditions will be allocated to "Bidding Contingency" and will, upon approval of County, be available for later use

by the Design-Builder as Construction Contingency, for reallocation to other line items as provided for in these General Conditions.

7.3 APPLICATIONS FOR PROGRESS PAYMENTS.

- 7.3.1 Design-Builder will deliver to County (or such other person as is designated by County) on the last day of each month a sworn application for progress payment in the format specified by County. Each such application for payment will be based on the Schedule of Values and be in an amount determined by the percentage of completion of the Work in the month being billed. It will show the percentage of completion of each category of the Work performed in the billing period. The payment application must be accompanied (as separate documents) by (a) an updated CPM Schedule and narrative schedule update report as provided for herein; and (b) conditional lien waivers from each subcontractor or supplier entitled to progress payment thereunder. In addition, the Design-Builder will provide the following documentation upon specific request by County: (a) a written accounting in a form agreed by Design-Builder and County of the actual cost of the Work completed; (b) a report by Design-Builder on Subcontractor buy-out status, contract sums, and subcontractor pay applications; (c) a copy of job cost ledger; (d) a copy of timecards for all employees charged to the Project; and (e) a copy each of Construction General Conditions invoices and purchase orders for the time periods periodically requested by County.
- 7.3.2 The Design-Builder Construction Phase Fee and the Construction General Conditions will be paid monthly by County, in accordance with the percentage of completion of the Work. The amount approved by County, and paid for progress achieved in the month billed for is not final acceptance of the Work and is subject to final adjustment at the time of Final Acceptance and Final Payment. At no time may the cumulative value of past progress payments plus the current requested progress payment on any pay application exceed the GMP as it may be adjusted under these General Conditions.
- 7.3.3 County, within seven days after receipt of Design-Builder's application for progress payment, and no later, will either issue (a) a certificate of approval for payment of such amount as is invoiced in the payment application; or (b) specific written findings setting forth those items in detail in the estimate of the Work in the pay application that are not approved for payment under the Contract. All items in the payment application are considered approved that are not made the subject of the written detailed finding of non-approval.
- 7.3.4 County may withhold an amount from the progress payment to be made for the time period billed for a sufficient sum to pay the expenses that County reasonably expects to incur in correcting the deficiencies set forth in the written finding issued by County as to the items not approved for payment.

7.4 PAYMENT AND RETAINAGE.

- 7.4.1 The County shall review the payment application prior to approving to verify that the work completed is consistent with the percentage identified in the payment application, stored materials documentation is provided to County, and retention amounts are accurate. Within 14 days following approval for payment and the written detailed findings of items not approved, if any, County will pay the amount due on the progress payment application to the Design-Builder. Payment will be limited to 90% of the value approved of the Construction Work in place and for materials suitably stored in accordance with Article 7.6.1, below, of these General Conditions during the month being billed. County will retain the remaining 10% until the Contract is 50% complete, at which time County may, in its sole discretion, reduce the retainage to 5%; provided that: (a) the Design-Builder is making satisfactory progress on the Contract; and (b) in County's sole judgment, there is no specific cause or claim requiring a greater amount than 5% to be retained. Thereafter, County will pay the Design-Builder 95% of the value of the Construction Work and materials on approved progress billings, unless and until County determines, in its sole discretion that satisfactory progress is not being made, at which time County may reinstate 10% retainage. Such 10% reinstatement is equal to 10% of the total Contract value of

Construction Work in place and materials stored. County's determinations concerning the satisfactory progress of the Work for retainage adjustment purposes is final.

- 7.4.2 Within 60 days after the issuance of the Certificate of Final Completion by the County and receipt by County of all other documents required from Design-Builder by the Contract Documents, County will pay all retained amounts to Design-Builder as part of Final Payment, provided, however, (a) the Final Payment is not due from County until the Design-Builder delivers full and final unconditional lien releases in statutory form from all Subcontractors and major Suppliers (any claim filed thereafter is the responsibility of the Design-Builder), and (b) if any claim remains unsatisfied after all payments are made by County, the Design-Builder will immediately, upon demand, refund to County all monies that County may be compelled to pay in discharging such unsatisfied claims including all costs, interest, and attorneys' fees.

- 7.4.3 For the avoidance of doubt, no retainage will be withheld on payments to Design-Builder for Design and Preconstruction Phase.

7.5 EARLY RELEASE OF SUBCONTRACTOR RETAINAGE.

If a Subcontractor has completed its portion of the Work (including all Punch list items) pursuant to its Subcontract, the Design-Builder may ask County to disburse the amount of Retainage allocable to such Subcontractor after delivering to County, when required by County, consent to such disbursement from such Subcontractor's surety, in a form satisfactory to County, and a final lien release from the Subcontractor. If County is satisfied that the Subcontractor's Work has been fully and finally completed in accordance with the Contract Documents, County may disburse said Retainage to Design-Builder for payment over to the Subcontractor. However, the two-year warranty period with respect to such Subcontractor Work will not commence until Substantial Completion of the entire Project.

7.6 PAYMENT FOR ON-SITE AND OFF-SITE MATERIALS.

County will make progress payments when due to Design-Builder on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. County may similarly make payment to Design-Builder for materials and equipment suitably stored off the site, conditioned upon the Design-Builder furnishing satisfactory evidence to County that (a) title to the materials and equipment will pass to County upon payment for same;

(b) there are no claims of third parties; (c) the materials and equipment are adequately insured for full replacement value plus delivery; and (d) such other matters as County may reasonably request in order to protect its interests.

7.7 OWNERSHIP OF CONSTRUCTION WORK.

- 7.7.1 The Design-Builder warrants that title to all Construction Work included in an Application for Progress Payment will pass to County no later than the time of payment therefor. The Design-Builder further warrants and represents to County that upon submittal of an Application for Payment, all Construction Work for which Applications for Payment have been previously issued and payments received from County will, to the best of the Design-Builder's knowledge, information and belief, be free and clear of liens, claims, security interests, or encumbrances in favor of the Design-Builder, its Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work.
- 7.7.2 As a condition precedent to Final Payment from County the Design-Builder will provide unconditional waivers of lien in statutory form from all Subcontractors, material suppliers, and other persons or entities having provided labor, materials and equipment relating to the Work.

7.8 SUBSTANTIAL COMPLETION.

When the Design-Builder believes the Work, or a portion thereof which County wants and agrees to accept separately, is Substantially Complete, the Design-Builder will notify County and will submit to County a comprehensive list of items to be completed or corrected as to that Work or all Work. Within five working days of receipt of the Design-Builder's notice and list, County and Design-Builder will jointly inspect the Project to determine whether Substantial Completion has in fact occurred. If County determines that the Work, or the relevant portion thereof, is Substantially Complete, County will issue the Punch List and the Certificate of Substantial Completion stating the date of Substantial Completion, which certificate will be executed by County and the Design-Builder. The Design-Builder will thereupon proceed promptly to complete or correct Punch List items. Failure to include an item on the Punch List does not alleviate or alter the responsibility of the Design-Builder to complete all Work in accordance with the Contract Documents.

7.9 FINAL COMPLETION AND FINAL PAYMENT

- 7.9.1 Completion of all outstanding Work items noted in the Substantial Completion "Punch List" for the entire Work, or relevant portion thereof, and other Contract requirements are necessary for County to certify Final Completion. Requirements for this certification also include, but are not limited to, completion of equipment operating training for County and the submission and approval by County of (a) all Record and Close Out Documents; (b) copies of all Construction General Conditions and Purchase Orders not previously provided; and (c) all required reports.
- 7.9.2 Neither Final Payment nor any final release of Retainage become due until such time as Design-Builder submits all of the following to County:
- a. An affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which County or County's property might be responsible or encumbered (less amounts withheld by County) have been paid or otherwise satisfied by Design-Builder;
 - b. A certificate evidencing that insurance required by the Contract Documents to remain in force after Final Payment is currently in effect and will not be canceled or allowed to expire until at least 60 days' prior written notice has been given to County;
 - c. Consent of Sureties to final payment;
 - d. Unconditional waivers of lien in statutory form from all Subcontractors, material suppliers, and other persons or entities having provided labor, materials, and equipment relating to the Work;
 - e. If required by County, other data establishing payment or satisfaction of obligations, such as receipts; releases; and waivers of liens, claims, security interests, or encumbrances arising out of the Contract Documents;
 - f. All Project warranty documents;
 - g. Final Subcontractor List;
 - h. All approved Submittals and Shop Drawings (electronic copy);
 - i. Schedule of Required Maintenance;
 - j. Operation and Maintenance Manuals (electronic and hard copies);
 - k. As-Builts (electronic copies, hard copies and BIM Model, if any);
 - l. Any required County training provided by Design-Builder;

- m. State Fire Marshal and State Elevator Inspection approvals and certificates received, if applicable;
- n. Commissioning completed and reports received, if applicable; and
- o. Any other items identified by County, and agreed to by Design-Builder in Contract Documents, to be received by County.

7.9.3 If, after Substantial Completion of the Project has been achieved, Final Completion is materially delayed through no fault of the Design-Builder, or by the issuance of additional Change Orders by County, County may at its sole discretion, upon request of the Design-Builder, and without terminating the Contract, make payment to Design-Builder of the balance due for that portion of the Work fully completed. If the remaining balance for Work not fully completed is less than the Retainage, and if bonds have been furnished, the written consent of surety to payment for that portion of the Work fully completed must be delivered by the Design-Builder to County, and such payment will be made under the terms and conditions governing Final Payment, except that such payment does not constitute a waiver of claims by either the Design-Builder or County.

7.9.4 Acceptance of Final Payment by the Design-Builder constitutes a waiver of all affirmative claims by the Design-Builder in connection with the Contract and construction of the Project. Final Payment by County constitutes a waiver of claims by County, except those arising from (a) liens, claims, security interests, and encumbrances arising out of the Work after final payment; (b) latent defects which County becomes aware of after Final Payment; or (c) the terms of warranties required by the Contract Documents and other rights provided under applicable law.

7.10 ALLOWANCES.

The Design-Builder will include in the GMP all allowances required by County. Items covered by allowances will be supplied for such amounts and by such persons or entities as County may direct, but the Design-Builder is not required to employ persons or entities against which the Design-Builder makes reasonable objection. Unless otherwise provided in the Contract Documents:

- a. County will select materials and equipment under an Allowance within a reasonable time frame as defined in County-approved Project CPM Schedule;
- b. Allowances will cover the cost to the Design-Builder of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- c. Allowances will not include professional or construction fees, Construction General Conditions, bond and insurance premiums;
- d. Allowances will cover Design-Builder's costs for unloading and handling at the site, labor, installation costs and other expenses;
- e. Whenever costs are more than or less than Allowances, the GMP may be adjusted accordingly by Change Order in accordance with provisions of Article 10. The amount of the Change Order will reflect the difference between Actual Costs and the Allowances plus Fee on such difference in accordance with Article 10 hereof if the Actual Costs are greater than the allowances.

ARTICLE 8 – INDEMNIFICATION

8.1 PROPRIETARY RIGHTS, PATENT AND COPYRIGHT INFRINGEMENT

- 8.1.1 Design-Builder will defend any action or proceeding brought against County based on any assertion or claim that the Work, or any part thereof, or the operation thereof or use of the Work or any part thereof, constitutes infringement of any proprietary rights or United States patent or copyright, now or hereafter issued. County agrees to give prompt notice in writing to Design-Builder of any such action or proceeding and to provide authority, information and assistance in

the defense of same. Design-Builder will indemnify and hold harmless County from and against all damages and costs, including attorney's fees, awarded against County or Design-Builder in any such action or proceeding. Design-Builder further agrees to keep County informed of all developments in the defense of such actions or proceedings.

- 8.1.2 In the event that County is enjoined from the operations or use of the Work, or any part thereof in connection with any proprietary rights, patent suit, claim, or proceeding, Design-Builder will at its sole expense take reasonable steps to procure the right or license to operate or use the Work. If Design-Builder cannot so procure the aforesaid right within a reasonable time, Design-Builder will then promptly, at Design-Builder's option and at Design-Builder's expense (a) modify the Work so to avoid infringement of any patents, or copyrights; or (b) replace said Work with Work that does not infringe or violate any such proprietary rights, patent, or copyright.
- 8.1.3 Articles 8.1.1 and 8.1.2 above do not apply to any action or proceeding based on infringement or violation of a proprietary right, patent, or copyright (a) relating solely to a particular process or the product of a particular manufacturer specified by County and such processes or products are something other than that which has been offered or recommended by Design-Builder to County; or (b) arising from modifications to the Work by County or its agents after acceptance of the Work.
- 8.1.4 Design-Builder's warranty and indemnification obligations survive expiration or termination of this Contract unless otherwise specifically stated.
- 8.1.5 The obligations set forth in this "Proprietary Rights, Patent and Copyright Infringement" section constitute the sole agreement between the parties relating to liability for infringement or violation of any proprietary rights, patent or copyright.

8.2 GENERAL INDEMNITY

To the fullest extent permitted by law, Design-Builder will defend , indemnify, and hold harmless County and its officers, officials, agents, and employees (hereinafter referred to as "Indemnitees") from and against any and all claims, actions, liabilities, damages, losses, or expenses (including court costs and reasonable attorneys' fees) (hereinafter referred to as "Claims") arising out of actual or alleged bodily injury or personal injury (including death), or loss or damage to tangible or intangible property caused, or alleged to be caused, by any acts or omissions of Design-Builder or any of its owners, officers, directors, agents, employees, or subcontractors, arising out of performance of the Work or this Contract, or in connection with the Project or defects in the Work, or any materials supplied. This indemnity includes any claim or amount arising out of or recovered under the Workers' Compensation Law or arising out of the failure of such Design-Builder to conform to any federal, state, or local law, statute, ordinance, rule, regulation, or court decree. County indemnitees will, in all instances, except for Claims arising solely from the acts or omissions of County Indemnitees, be indemnified by Design-Builder from and against any and all Claims. or other deficiencies in all products of its efforts and other services provided. Design-Builder will be responsible for primary loss investigation, defense, and judgment costs where this indemnification is applicable. In consideration of the award of this Contract, the Design-Builder waives all rights of subrogation against Indemnitees for losses arising from the Work performed by the Design-Builder for County. This duty to indemnify will survive the expiration or termination of this Contract. The Parties agree that any indemnification provision inconsistent with A.R.S. § 34-226 is, in all cases, not void, but will be interpreted and applied as if it were consistent with A.R.S. § 34-226.

8.3 CUMULATIVE RIGHTS

The rights of indemnification in this Article 8 are cumulative and in addition to any other rights of indemnification under this Contract. Nothing in this Article 8 limits or otherwise impairs any other right of indemnification in this Contract.

ARTICLE 9 – TIME AND DELAY

- 9.1.1 All time limits set forth in the Contract Documents for performance are of the essence of this Contract. Design-Builder agrees that it will commence performance of the Work, achieve Substantial and Final Completion of the entire Project, and achieve any interim Milestones for Substantial and Final Completion in compliance with all contractual time requirements.
- 9.1.2 Time is of the essence of each and every part of the Contract Documents and of the Specifications wherein a definite and certain length of time is fixed for the performance of any act or activity whatsoever. Where, under the Contract Documents, additional time is allowed for the completion of any Work, the new time limit fixed by such extension is also of the essence of this Contract.
- 9.1.3 Failure of the Design-Builder to achieve the completion dates for Substantial or Final Completion set forth in the Contract will result in the assessment of Liquidated Damages as required by the Contract. Design-Builder will pay the per diem amount for Liquidated Damages provided for in the Contract for each and every calendar day that the Design- Builder is not in full compliance with the time(s) stipulated in the Contract for completing the Work. The Liquidated Damages per diem amount is fixed and agreed upon by and between the Design-Builder and County because of the impracticality and extreme difficulty of fixing and ascertaining the actual damages County would in such event sustain. County may withhold any such sums from Final Payment due hereunder or from retainage.
- 9.1.4 If Design-Builder is delayed in the performance of the Work and such delay actually and directly delays the timely achievement of a critical path activity, element, or component, based upon an analysis of the current CPM Schedule due to acts, omissions, conditions, events, or circumstances beyond its reasonable control or prevention and due to no legal fault of its own or those for whom Design-Builder is responsible under the terms of the Contract Documents, the time for Substantial Completion of the Work, and to the extent applicable, any interim milestones or Substantial Completion dates for portions of the Work will be extended by written Change Order for the amount of time attributable to such events or circumstances. By way of example only, such acts, omissions, conditions, events, and circumstances which would entitle Design-Builder to an extension of the Contract Time(s), include acts or omissions of County, or anyone under County's control, including changes made by separate contractors in the Work by County, unforeseeable Project site conditions, wars, floods, labor disputes, unusual delay in transportation, and unusually adverse weather conditions.
- 9.1.5 The Design-Builder has included a specified number of days of weather related delays within the CPM Schedule which County has approved, and that number of days is incorporated herein by reference. If the Project experiences weather-related delays beyond the contractually specified number of weather days, the Design-Builder is entitled to a commensurate extension of time.
- 9.1.6 Design-Builder is entitled to an appropriate adjustment of its GMP for extended Construction General Conditions only for mutually determined delays directly caused by the actions, omissions, or inactions of County and upon proof of the actual, direct additional cost to the Design-Builder for such delays.
- 9.1.7 Design-Builder will provide notice of any delay in performance of the Work that Design- Builder attributes to County in writing to County immediately but in no event later than twenty-four (24) hours after discovery of the event giving rise to the delay. The Design- Builder will then provide additional details concerning the delay in writing to County within seven (7) calendar days from the delay notice. Failure to satisfy each of these time requirements will absolutely bar any and all later delay claims. The detailed notice will indicate the cause of the delay, the anticipated length of the delay in reasonable detail, the probable effect of such delay upon the progress and Cost of the Work, and possible mitigation plans. If the cause of the delay is ongoing, the Design-Builder must give further detailed notice every month at the same time it submits the updated progress Narrative Report to County.

- 9.1.8 Design-Builder will, upon discovering an event giving rise to a delay, as promptly as possible, make all reasonable efforts to mitigate the impact of the delay.
- 9.1.9 Within 15 calendar days after elimination of any such delay, the Design-Builder will, unless the time is extended in a Change Order approved by County, submit further documentation concerning the delay and, if appropriate, a formal written request requesting an extension of time for such delay and any compensation sought for the delay. The written request for time extension will state the cause of the delay, the number of days of extension requested and the compensation sought and provide a fully documented analysis of the Progress Schedule, including any data demonstrating a delay in the critical path of the Work or individual milestone or the overall Project completion. If the Design-Builder does not timely comply with the notice and documentation requirements set forth in this Article 9.1.9, the Design-Builder's claim for delay is barred.
- 9.1.10 In the event the Design-Builder gives notice to County of compensable delay alleging that County is responsible for the delay as to which the notice was given and the delay is unreasonable under the circumstances and was not within the contemplation of County and Design-Builder when they entered into the Contract, County will enter into negotiations with Design-Builder as to Design-Builder's damages, if any.

ARTICLE 10 – CHANGES TO THE CONTRACT PRICE AND TIME

10.1 CHANGES

- 10.1.1 After the Contract is signed, modifications to the Contract, including any changes to GMP, the Contract Time(s) or Scope of Work, may only be made by a written Contract Amendment or written Change Order.
- 10.1.2 The Design-Builder will not proceed with the Work on any change involving an increase or decrease in cost or time without prior approval of the Change Order or Contract Amendment by the Board of Supervisors or the Procurement Director, as required by Section 11.16.010(C) of the Pima County Procurement Code. If the Design-Builder proceeds with any change involving an increase or decrease in cost or time without written authorization from County as required by this paragraph, the Design-Builder hereby waives all rights or claims Design-Builder may have in connection with or as a result of the change.
- 10.1.3 County's right to make changes in the Work will not invalidate this Contract, relieve the Design-Builder of any responsibility, or require County to give notice to the Surety. Any requirement of notice to the Surety of a change in the Work is the sole responsibility of Design-Builder.
- 10.1.4 A Contract Amendment or Change Order is a written instrument issued after execution of the Contract signed by County and Design-Builder, stating their agreement upon all of the following:
- a. The scope of the change in the Work;
 - b. The amount of the adjustment, if any, to the GMP; and
 - c. The extent of the adjustment, if any, to the Contract Time(s) for performance set forth in the Contract Documents.
- 10.1.5 All changes in the Work authorized by a Contract Amendment or Change Order will be performed under the applicable terms of the Contract Documents, and County, and Design- Builder will negotiate in good faith and as expeditiously as possible on the appropriate adjustments, if any, in Contract Time or GMP. No GMP adjustment on account of a Change Order will include the Design-Builder's or Subcontractor's profit, fee, home office overhead, or a formula allocation of indirect costs except as allowed in Article 10.3.1 below unless otherwise specifically allowed under these General Conditions.

10.2 MINOR CHANGES IN THE WORK

- 10.2.1 County may make minor changes in the Work consistent with the intent of the Contract Documents providing such changes do not involve an adjustment in the GMP or Contract Time(s) of performance and do not materially affect or alter the design, quality, or performance.

10.3 PRICE, TIME, OR SCOPE OF WORK ADJUSTMENT

- 10.3.1 The cost of or credit to County resulting from a change in the Work will be determined in one or more of the following ways:

- a. By unit prices stated in the Contract Documents;
- b. By cost, as defined below, and described in Appendix C, properly itemized and supported by sufficient data reduced to meaningful unit prices for each assembled component of the Work in order to facilitate evaluation. Such costs will be itemized by crafts as defined within the Schedule of Values, submitted in a format approved by County, and limited to items directly allocable to the change in the Work:

- 1) Cost of materials, including delivery;
- 2) Cost of labor, fully-burdened, including, but not limited to, payroll taxes, social security, old age and unemployment insurance, vacation and fringe benefits required by contract or routinely paid by Design-Builder, and workers' compensation insurance but excluding Subcontractor's labor;
- 3) Rental value of equipment and machinery to be established by rental receipts and not to exceed reasonable and customary rates for the locale of the Work. For owned equipment, Design-Builder must prove reasonable rental rate pursuant to actual ownership costs. County will not pay for equipment idle time unless the equipment is engaged in County- authorized force account or other time and materials work, and then only for the time it is engaged in such work. When the authorized force account or time and materials work is completed or the equipment ceases to be used for that work, payment for idle time stops;
- 4) As a guideline, on a not-to-exceed ("NTE") percentage of Direct Construction Cost only basis, the following overhead, general conditions and fee percentages will be utilized, and will be fixed as a dollar amount, unless otherwise established in the Contract, or otherwise mutually agreed upon and documented in the Change Order description:

Subcontractor Fee (profit):	5%
Subcontractor Overhead & General Conditions, NTE:	<u>10%</u>
Total Subcontractor Markups, NTE:	15%

Design-Builder Fee (profit), approximately or as per Design-Builder Contract: 5%

Design-Builder Overhead & General Conditions, NTE or as per Design-Builder Contract: 5%

Total Design-Builder Markups, NTE: 10%

- 5) The Contract may include provisions for some situations where larger amounts of Overhead and General Conditions are needed to address

extenuating site-related circumstances. However, the combined total fee, Profit, Overhead and General Conditions, including the Design-Builder and all levels or tiers of subcontractors, will not exceed twenty-five percent (25%) of the total direct costs of materials, labor, rental equipment, and subcontractor insurance and bonds.

- c. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to facilitate evaluations; provided that such lump sum will not exceed that amount calculated under (b) above.
- 10.3.2 Any dispute regarding the pricing methodology or cost of a change does not relieve the Design-Builder of the obligation to proceed with work on the change. Any such dispute will be preserved by inclusion in the Change Order or Contract Amendment.
- 10.3.3 A County-approved written Contract Amendment or Change Order is full and final settlement of all entitlement claims for direct, indirect, delay, disruption, inefficiency, productivity, and any other consequential costs related to items covered or affected, as well as for related delays. Design-Builder irrevocably waives any such claim not presented for inclusion in the Contract Amendment or Change Order prior to signature.
- 10.3.4 In the event that County and the Design-Builder disagree upon whether Design-Builder is entitled to be paid for any Change Order services required of Design-Builder by County, or as to amount of compensation in the event of any other disagreement over the Scope of Work or proposed changes to the Work, County and Design-Builder will resolve all such disagreements consistent initially with Article 10 of these General Conditions and thereafter if not resolved, in accordance with the Dispute Resolution provisions of the Contract. As part of the negotiation process, Design-Builder will furnish County with a good faith estimate of the costs to perform the disputed services or Work in accordance with County's interpretations. If the parties are unable to agree, and County expects Design-Builder to promptly perform the services in accordance with County's interpretations of the documents, Design-Builder will proceed to perform the disputed services, conditioned upon County issuing a written order to Design-Builder directing Design-Builder to proceed and specifying County's interpretation of the services that are to be performed.
- 10.3.5 The requirements set forth above as to Design-Builder providing detailed, itemized pricing on subcontractor Change Orders is fully applicable to Change Orders from Design-Builder to subcontractor where there is no comparable Change Order between County and Design-Builder.

10.4 EMERGENCIES

In any emergency affecting the safety of persons or property, Design-Builder will promptly act, at its discretion, to prevent threatened damage, injury or loss. Any increase in the Guaranteed Maximum Price or Contract Time(s) of performance or both claimed by Design-Builder on account of emergency work will be determined as provided in this Article.

ARTICLE 11 – STOP WORK AND TERMINATION

11.1 COUNTY'S RIGHT TO STOP WORK OR TERMINATE FOR CONVENIENCE

- 11.1.1 County at any time may, without cause and for its convenience, order Design-Builder in writing to stop or suspend the Work, for a period not to exceed 60 calendar days. In that event, Design-Builder may seek an adjustment of the GMP or Contract Time(s) of performance or both under Article 10 of the General Conditions to the extent that its Work has been adversely impacted by any such suspension or stoppage of the Work by County, unless actions, omissions or inactions of the Design-Builder are the cause of County stopping or suspending the Work.
- 11.1.2 Upon seven days written notice to Design-Builder, County may, without cause and without prejudice to any other right or remedy of County, elect to terminate the Contract for convenience

of County. In such case Design-Builder will be paid (without duplication of any items): a) for completed and accepted Work executed in accordance with Contract Documents prior to the effective date of the termination, including fair and reasonable sums for overhead and profit on such Work; b) for expenses sustained prior to termination in performing services and furnishing labor, materials, and equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; c) for all claims, costs, losses, and damages incurred in settlement of terminated contracts with subcontractors, suppliers, and others; and d) for reasonable expenses directly attributable to termination.

- 11.1.3 Upon receiving a Notice of Termination for Convenience, the Design-Builder will proceed as follows: a) stop Work as specified in the Notice; b) place no further subcontracts on purchase orders; c) terminate all subcontracts to the extent they relate to the Work terminated; d) assign to County all rights of the Design-Builder under terminated subcontracts, in which case County has the right to settle or to pay any termination settlement proposal arising out of these terminations; and e) submit complete termination inventory schedules to County no later than 120 days from date of the Notice of Termination.

11.2 COUNTY'S RIGHT TO TERMINATE FOR DEFAULT AND PERFORM

- 11.2.1 If Design-Builder persistently fails to (a) provide a sufficient number of skilled workers, the materials required by the Construction Documents, or both; (b) comply with applicable legal requirements; (c) pay, without cause, its Subcontractors or suppliers; (d) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time(s) as may be from time to time adjusted; (e) maintain contractor, business, or other required licenses or authority; (f) otherwise perform the Work and its obligations in compliance with the Contract Documents; or (g) if, for any reason, Design-Builder curtails or ceases business or business operations to a degree that would substantially impair or preclude Design-Builder's performance of this Contract, County has the right, in addition to any other rights and remedies provided in the Contract Documents or by law, after seven (7) days' written notice of default to Design-Builder and its surety and Design-Builder's (or its surety's) failure to cure within that seven day period, to (i) perform and furnish through itself or through others it selects any such labor, materials, or Work, and to deduct the cost thereof from any monies due or to become due to Design-Builder under the Contract Documents; or (ii) terminate the Contract with Design-Builder for all or any portion of the Work, enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment scaffolds, tools, appliances, and other items thereon, all of which Design-Builder hereby transfers, assigns, and sets over to County for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment, and other items; or (iii) both (i) and (ii) above. Upon exercising its right to Terminate for any reason set forth above, County, at its discretion, may also exercise the right to have each or any of Design-Builder's subcontractor and supply contracts assigned to County, or County's nominee, provided however, County will have no responsibility or liability for acts or omission of Design-Builder under such Contracts and the sole recourse of subcontractors on pre-termination events will be against Design-Builder. Design-Builder will ensure that a clause providing for this conditional assignment on the foregoing terms is included in each subcontract.

- 11.2.2 In the event of such termination for default:

- 11.2.2.1 Design-Builder is not entitled to recover any further payment until the Work is completed and will then only be entitled to be paid for all acceptable Work performed prior to its date of default minus costs incurred by County to complete the Project exceeding the GMP as described below. In the event County's cost and expense of completing Design-Builder's Work exceeds the GMP, then Design-Builder or its surety will promptly pay the difference to County. Such costs and expense will include not only the cost of completing the Work to the satisfaction of County and of performing and furnishing all labor, services, tools, equipment and other items required in the Contract Documents, but also losses, damages, costs and expense,

including consultant and attorney's fees and expenses incurred in connection with any additional procurement and the defending of claims, if any, arising from or related to Design-Builder's default.

11.2.2.2 All finished and unfinished As-Builts, shop drawings, documents, data, studies, surveys, drawings, photographs, reports, and other information in whatever form, including electronic, acquired, or prepared by Design-Builder for this project become County's property and will be delivered to County not later than five (5) business days after the effective date of the termination.

11.2.2.3 County may withhold payments to Design-Builder arising under this or any other Contract for the purpose of set-off until such time as the exact amount of damage due County from Design-Builder is determined.

11.2.3 In the event that County terminates the Contract for default and such termination is ultimately determined to be improper or wrongful, the termination for default will be automatically converted to a termination for convenience and the provisions of 11.1 of these General Conditions will apply.

11.2.4 If Design-Builder institutes or has instituted against it a proceeding under the United States Bankruptcy Code, such event is a default that may impair or frustrate Design-Builder's performance of its obligations under the Contract Documents. Accordingly, if such event of default occurs, County is entitled to request Design-Builder, its trustee, or other successor, to provide adequate assurance of future performance. If Design-Builder or Design-Builder's trustee, or other successor fails to comply with such request within 10 days after receiving notice of the request, County, in addition to any other rights and remedies provided by the Contract Documents, or by law, is entitled to terminate the Contract. County will thereupon be entitled to perform and furnish through itself or through others any such labor, materials, or equipment necessary for the completion of the Work and necessary to maintain the Contract Time(s) of performance, and to deduct the costs from any monies due or to become due Design-Builder under the Contract Documents pending receipt of adequate assurances of performance and actual performance in accordance herewith. In the event of any such bankruptcy proceedings, the Contract will terminate if Design-Builder rejects the Contract or if there has been a default under the Contract Documents, and Design-Builder is unable to give adequate assurances that it will perform as provided in the Contract Documents or otherwise is unable to comply with the requirements for assuming the Contract under the applicable provisions of the Bankruptcy Code.

11.3 DESIGN-BUILDER'S RIGHT TO STOP WORK AND TERMINATE FOR CAUSE

11.3.1 Design-Builder may, in addition to any other rights afforded it under the Contract Documents or by applicable law, either stop Work or terminate the Contract for cause upon County's failure to timely pay an amount in excess of \$100,000 properly due to Design-Builder under any Design-Builder Application for Payment. In this regard Design-Builder will provide County with written notice indicating that such non-payment condition has occurred, and that it is Design-Builder's intention to stop Work or terminate the Contract only if the non-payment condition is not cured within seven days from County's receipt of Design-Builder's notice. In the event that Design-Builder elects to only stop Work, it may nonetheless later indicate its intention to terminate the Contract by providing County with written notice that Design-Builder will terminate the Contract within seven days from receipt of Design-Builder's notice; unless the alleged cause of termination is cured in the interim.

11.3.2 In the event Design-Builder properly and lawfully elects to stop Work under Article 11.3.1 for non-payment and then resumes Work, Design-Builder will be entitled to make a claim for adjustment to the GMP and Contract Time(s) of performance to the extent Design-Builder has been adversely impacted by the stoppage of Work. In the event that Design-Builder elects to terminate the Contract on the basis permitted under Article 11.3.1, Design-Builder will be entitled to recover the same costs it would be permitted to recover had County terminated this Contract for convenience under Article 11.1 of these General Conditions.

- 11.4 If the Contract is terminated for any of the reasons set forth above, Design-Builder's contracts with its subcontractors and suppliers, at County's option and without further action by Design-Builder, will be assigned to County; provided however, that County will have no liability for any pre-existing acts or omissions or default by Design-Builder under such contracts and the sole recourse of such subcontractors and suppliers for any such events will be against Design-Builder.

End of Appendix C – Design Builder General Conditions



August 1, 2023

James Johnson and Judy Cooper, Procurement Officers
Pima County Procurement Department
150 West Congress Street, 5th Floor
Tucson, AZ 85701

Re: SFQ-PO-2300014 Design-Build Services for Sidestream Anitamox Process, rev.1

Dear Mr. Johnson,

We are pleased to provide this quotation for Design and Pre-Construction Services for the Sidestream Anitamox Process. Please see the below description of the scope of work for preconstruction services, hourly rates, task detail sheet, and corresponding information from Hazen and Sawyer. Backup for overhead markup rates has been sent to Pima County in separate communications from both Kiewit and Hazen. This scope is expected to be performed on a cost reimbursable basis with amount not to exceed \$1,075,652.68, with an additional \$75,000 in allowances to be used at Pima County's discretion.

- I. DESIGN ENGINEERING – PLEASE SEE ATTACHMENT ‘A’
- II. PROJECT MANAGEMENT
 - A. Provide general project oversight and facilitate communication with Pima County and third-party stakeholders
 - B. Prepare and Submit the Project Execution Plan
 - C. Prepare and Submit Monthly Project Status Reports
- III. MEETINGS
 - A. Attend monthly design progress meetings organized by Hazen and Sawyer
 - B. Organize monthly project status meetings with Pima County
 - C. Attend meetings to plan for tie-ins and MOPO during construction
 - D. Participate in design workshops
- IV. PROJECT CONTROLS
 - A. Conduct overall budget tracking toward NTE
 - B. Setup and maintain document control systems
 - C. Accounts payable/receivable and cost projections to Pima County

V. DESIGN SUPPORT

A. Design Review and Risk Mitigation

1. Technical Risk Assessment – Engage discipline Subject Matter Experts (SME) to perform Technical Risk Review utilizing our internal SOP to identify and mitigate risks in the design.
2. Review of Preliminary and Final BODR for Constructability and Completeness
3. Drawing and Specification Reviews for constructability, consistency, and adequacy for solicitation packages.

B. Design Management/Oversight and shared service support

1. Review design concepts for constructability and efficiency
2. Oversee design related tasks and manage Hazen schedule and budget
3. Attending Kickoff meeting and Task Force Meetings
4. Overseeing technical portion of Alternatives Evaluation workshop
5. Moderate Planning sessions and brainstorm sessions
6. Monthly Hazen invoice and Earned Value reviews
7. Estimate support (scope gap review this will feed Tech Risk Assessment)
8. Develop and maintain Comment Resolution Log (design phase)

C. Field Investigation and Site Support

1. Manage Potholing Operations – An Allowance of \$10,000 has been included in this proposal for potholing services and incidental expenses
2. Surveying – An allowance of \$15,000 is included for survey including target survey for potholes to support design, topographical survey as needed
3. Tie-In and MOPO Planning – 2 Coordination Meetings with Pima County are included for MOPO planning and review

VI. PERMITTING

A. Set up and maintain permitting responsibility matrix

- B. It is assumed that no additional permits need to be obtained or any fees will be paid by the county.

VII. ESTIMATING

- A. Cost Model initial setup and updates at each design revision
- B. Detailed estimate for the 60% design deliverable
- C. Estimate and Cost Model updates for Alternatives and Value-Engineering Options
- D. Set up and Maintain design innovations tracking log

VIII. PROCUREMENT

- A. Conduct an initial assessment of equipment lead time and escalation risk
- B. Sub/Supplier engagement throughout design and estimating efforts, performed at 30%, 60%, and 90% design levels
- C. Evaluation Plan for critical subs and suppliers – integration of technical and performance requirements into bid packages and commercial documents.

IX. SCHEDULING

- A. Preparation and maintenance of the baseline CPM Schedule
- B. Provide monthly update to the baseline CPM Schedule



DESIGN AND PRE-CONSTRUCTION SERVICES OVERALL PRICE SUMMARY

	Labor	Expenses	Total
Design Engineering - Hazen and Sawyer (not including Allowances)	\$ 740,486.00	\$ 7,031.00	\$ 747,517.00
Pre-Construction Services - KIWC	\$ 325,524.93	\$ 2,610.75	\$ 328,135.68
Total - Design and Pre-Construction	\$ 1,066,010.93	\$ 9,641.75	\$ 1,075,652.68

Allowance 1 - Potholing	\$ 10,000.00	\$ 10,000.00
Allowance 2 - Survey	\$ 15,000.00	\$ 15,000.00
Allowance 3 - Additional Engineering Services (Hazen)	\$ 30,000.00	\$ 30,000.00
Allowance 4 - Geotechnical Investigations (Hazen)	\$ 20,000.00	\$ 20,000.00
Total - Allowances	\$ 75,000.00	\$ 75,000.00

Table 1 - Pre-Construction Estimate by Task

Task	Task Description	PROJ MGR	CONST MGR	PRE-C MGR	EST	PROJ ENGR	BUS MGR	SCH	PROC MGR	SE	DBM	ACCT	TOTAL
		Project Manager	Construction Manager	Pre-Construction Manager	Estimator	Project Engineer	Business Manager	Scheduler	Procurement Manager	Structural Engineer	Engineering Manager	Accounting	Totals
4.1	Project Management												128
4.1.1	General Oversight										96		96
4.1.2	Project Safety Plan					8							8
4.1.3	Project Quality Plan					8							8
4.1.4	Project Management Plan	8				8							16
4.2	Meetings												174
4.2.1	Weekly Design Coordinaton Meetings	18	18								18		54
4.2.2	Preparation and Review of Meeting Minutes					8					8		16
4.2.3	Meetings with Local and State Agencies	2									2		4
4.2.4	Monthly Project Updates	11									11		22
4.2.5	Monthly Status Report	5									5		10
4.2.6	Project Kick-Off Meeting	4									4		8
4.2.7	Design Workshops	20	20								20		60
4.3	Project Controls												228
4.3.1	Budget Tracking and Reporting					..	44						44
4.3.3	InEight Document Setup												0
4.3.5	Manage Accounts Payable/Receivable					8	40					44	92
4.3.6	Cash Flow Projections	20				32	20				20		92
4.4	Design Support												328
4.4.1	Design Management / Oversight										96		96
4.4.2	Design Review and Risk Mitigation	16									72		88
4.4.3	Pre-Existing Site Assessment					4					4		8
4.4.4	Tie-In and MOPO Planning		16								16		32
4.4.6	Subsurface Utility Investigation / Potholing					8							8
4.4.7	Constructability Reviews	16	40										56
4.4.8	Alternatives Evaluation									40			40
4.5	Permitting												34
4.5.1	Permitting Matrix - Prepare	2				8							10
4.5.2	Permitting Matrix - Update/Maintain					24							24
4.6	Procurement												120
4.6.1	Vendor Outreach and Coordination	20				20			80				120
4.7	Estimating												386
4.7.1	InEight Cost Model Setup	8		80	40	8							136
4.7.2	Cost Model Update - 30%, 60%, 90%, 100%	8		32	32	8							80
4.7.3	Cost Model Updates - Alternatives and VE's	2		16									18
4.7.4	Detailed Estimate - 60%	16		40	80	16							152
4.8	Scheduling												130
4.8.1	Baseline CPM Development					16		60					76
4.8.2	Baseline CPM Updates	8	8			16		22					54
		184	102	168	152	200	104	82	80	40	372	44	1528
	Rate	\$ 261.18	\$ 229.56	\$ 261.18	\$ 173.11	\$ 150.53	\$ 143.01	\$ 210.75	\$ 184.40	\$ 219.06	\$ 248.05	\$ 132.08	
	Subtotal	\$ 48,056.53	\$ 23,415.59	\$ 43,877.70	\$ 26,313.37	\$ 30,106.84	\$ 14,872.78	\$ 17,281.32	\$ 14,752.35	\$ 8,762.29	\$ 92,274.68	\$ 5,811.46	\$ 325,524.93

Table 2 - Pre-Construction Hourly Rates

Category	Hourly Base Wage Rate	Total Benefits, Tax, Insurance	Overhead @ 133.897%	Profit @ 8%	Billable Rate
Project Executive	\$97.50	\$43.75	\$130.55	\$21.74	\$293.54
Pre-Construction Manager	\$86.75	\$38.92	\$116.16	\$19.35	\$261.18
Project Manager	\$86.75	\$38.92	\$116.16	\$19.35	\$261.18
Construction Manager	\$76.25	\$34.21	\$102.10	\$17.00	\$229.56
General Superintendent	\$67.50	\$30.29	\$90.38	\$15.05	\$203.22
Discipline Superintendent	\$60.00	\$26.92	\$80.34	\$13.38	\$180.64
Project Engineer	\$50.00	\$22.44	\$66.95	\$11.15	\$150.53
Field Engineer	\$42.50	\$19.07	\$56.91	\$9.48	\$127.95
Business Manager	\$47.50	\$21.31	\$63.60	\$10.59	\$143.01
Estimator	\$57.50	\$25.80	\$76.99	\$12.82	\$173.11
Scheduler	\$70.00	\$31.41	\$93.73	\$15.61	\$210.75
Mechanical Engineer	\$72.76	\$32.65	\$97.42	\$16.23	\$219.06
Electrical Engineer	\$72.76	\$32.65	\$97.42	\$16.23	\$219.06
Structural Engineer	\$72.76	\$32.65	\$97.42	\$16.23	\$219.06
Civil Engineer	\$72.76	\$32.65	\$97.42	\$16.23	\$219.06
I&C Engineer	\$72.76	\$32.65	\$97.42	\$16.23	\$219.06
Subject Matter Expert (Solar)	\$99.91	\$44.83	\$133.77	\$22.28	\$300.79
Architectural Engineer	\$72.76	\$32.65	\$97.42	\$16.23	\$219.06
Geotechnical Engineer	\$84.53	\$37.93	\$113.18	\$18.85	\$254.49
Process Engineer	\$72.76	\$32.65	\$97.42	\$16.23	\$219.06
Engineering Manager	\$82.39	\$36.97	\$110.32	\$18.37	\$248.05
Project Controls Analyst	\$43.87	\$19.68	\$58.74	\$9.78	\$132.08
Accounting	\$43.87	\$19.68	\$58.74	\$9.78	\$132.08
Document Control	\$36.38	\$16.32	\$48.71	\$8.11	\$109.53
Procurement Lead	\$47.50	\$21.31	\$63.60	\$10.59	\$143.01
Procurement Manager	\$61.25	\$27.48	\$82.01	\$13.66	\$184.40



Kiewit Travel Expenses Schedule

Mileage: per AZDOA rate - \$0.625/mile

Mileage from 3888 E. Broadway Rd. Phoenix is 97 miles

Air Travel estimated at \$600 R/T, will be billed at cost

Lodging is estimated \$145 (Nov-Mar) and \$104 (Apr-Oct); max per diem is \$54/day and \$40.50 on travel days per AZDOA

Car rental estimated @ \$75/Day, unlimited mileage, fill gas

Task	Plane Trips (RT)	Car Trips (1-Way)	Total Miles	Total Hotel Nights	Max Hotel Rate	Max Per Diem Rate	Mileage	Air Travel	Lodging	Per Diem	Car Rental	Total	Notes
Project Kick-Off and Site Visit (est. August '23)	1	3	291	1	\$104.00	\$ 54.00	\$ 181.88	\$ 600.00	\$ 104.00	\$ 324.00	\$ 75.00	\$ 1,284.88	3 people, 1 night lodging ea. In Tucson area
30% Workshop (est. November '23)			0		\$145.00	\$ 54.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	3 people, 1 night lodging ea. In Tucson area for 1 person
60% Workshop (est. February '23)	1	3	291	1	\$145.00	\$ 54.00	\$ 181.88	\$ 600.00	\$ 145.00	\$ 324.00	\$ 75.00	\$ 1,325.88	4 people, 1 night lodging ea. In Tucson area
90% Workshop (est. March '23)			0		\$145.00	\$ 54.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	4 people, 1 night lodging ea. In Tucson area
MOPO Coordination (est. February '23)			0		\$145.00	\$ 54.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	4 people, 1 night lodging ea. In Tucson area
Total							\$ 363.75	\$1,200.00	\$ 249.00	\$ 648.00	\$ 150.00	\$ 2,610.75	



ATTACHMENT 'A'

Pima County Tres Rios WRF Anitamox Proposal

Hazen and Sawyer 8/04/23



Hazen and Sawyer
1626 N. Litchfield Road, Suite 330
Goodyear, AZ 85395

August 4, 2023

Mr. Gabriel Gaytan
Project Manager
Kiewit Infrastructure West Co.
3888 East Broadway Road
Phoenix, AZ 85040

**Re: Tres Rios Water Reclamation Facility ANITA Mox Process Design Build
Proposal for Design Services**

Dear Mr. Gaytan:

We are herewith enclosing our scope, fee, hourly rate table, travel expense sheet, and schedule for Pima County Regional Wastewater Reclamation Department's Tres Rios Water Reclamation Facility ANITA Mox Process Design Build. It is anticipated that this phase consists entirely of design services encompassing the following general task items:

- Project Management
- Permitting Assistance
- Preliminary Design
- Detailed Design

The fee for these services is not to exceed \$747,517 in base services plus \$50,000 in allowances for a total of \$797,517.

Please do not hesitate to contact me if you have any questions. I can be reached by cell at 214-682-4996 or by email at AODEGARDBEGAY@HAZENANDSAWYER.COM.

Very truly yours,

A handwritten signature in black ink that reads "A.M. Odegard-Begay". The signature is fluid and cursive, with the first initials "A.M." clearly visible.

Andrea Odegard-Begay, PE
Senior Associate

Scope of Services – Phase 1
Pima County Regional Wastewater Reclamation Department
Tres Rios Water Reclamation Facility ANITA Mox Process Design Build

INTRODUCTION

Pima County Regional Wastewater Reclamation Department (COUNTY) has selected the Kiewit (DESIGN BUILDER) and Hazen and Sawyer (ENGINEER) team for design and construction of a sidestream ANITA Mox treatment process at the Tres Rios Water Reclamation Facility (TRWRF) to improve the management of recycled nitrogen loads and allow the plant to meet more stringent ammonia limits in its discharge permit.

Work will be delivered in a phased approach as follows:

- Phase 1: Design / Pre-Construction
- Phase 2: Construction and Engineering Services During Construction

SCOPE OF SERVICES

Task 1: Project Management

Task 1.1 - Project Management

ENGINEER shall manage the design services required to complete the Project tasks. Project management consists of project administration including development of a project management plan, coordination and supervision of the project design team and resources, external project coordination, and management for project milestones and deliverables to meet the project schedule and budget.

ENGINEER shall provide project status information to the DESIGN BUILDER's Project Manager including a monthly progress report that includes design and schedule updates.

Deliverable(s):

- Project Management plan in electronic PDF format
- Monthly invoice with progress report submitted electronically to DESIGN BUILDER

Task 1.2 - Project Meetings

ENGINEER shall attend progress and coordination meetings throughout the duration of the project. Project meetings are anticipated to be attended by the DESIGN BUILDER and COUNTY. Such meetings shall serve as a forum for the exchange of information concerning the project, review of design progress, and discussion of any proposed changes in the scope of the project.

ENGINEER shall also meet with DESIGN BUILDER, COUNTY, and stakeholders to review design comments after each submittal and discuss constructability and value-engineering options.

Deliverable(s):

- Participation in project kick-off meeting to be held on-site
- Participation in virtual monthly project coordination meetings, totaling eleven (11) meetings for Phase 1
- 30% Design Review Workshop, including agenda and minutes, to be held on-site

- 60% Design Review Workshop, including agenda and minutes, to be held on-site
- 90% Design Review Workshop, including agenda and minutes, to be held on-site
- Participation in up to two (2) additional meetings/workshops to be held on-site

Task 1.3 – Quality Assurance/Quality Control Management

ENGINEER will maintain a Quality Control Program focused on providing a product that is in accordance with the industry's accepted standard of care. The program shall include quality control checklists and in-house reviews. QC reviews will be completed on each deliverable and review comments addressed before submission to the COUNTY.

Task 1 Assumptions:

- Phase 1 duration is estimated at 11 months from notice to proceed.
- ENGINEER will provide Project Management Plan to the DESIGN BUILDER to inform the development of the Project Execution Plan. DESIGN BUILDER will be responsible for the development of Project Execution Plan and for establishing and maintaining a Management Information System to govern communication between DESIGN BUILDER, ENGINEER, and COUNTY.
- All project documentation and deliverables are to be provided electronically.
- In-person meetings will be attended by up to three (3) ENGINEER staff

Task 2: Permitting Assistance

ENGINEER will coordinate with the COUNTY for submission of applicable permit applications and will provide design information required for submission including drawings, specifications, and sealed design calculations, as required.

Task 2 Assumptions:

- Payment of permit fees will be made by others.

Task 3: Preliminary Design

Task 3.1 - Data and Information Collection

ENGINEER will prepare and submit to the COUNTY a data request for pertinent available information not already in ENGINEER's possession. ENGINEER shall review the pertinent existing information as provided by the COUNTY on this task or previously, including existing operating conditions; historical flow and loading data; alkalinity; record drawings of existing facilities, electrical systems, other electrical components and processes impacted by the design; and operations and maintenance information. Review of data will be used to validate the previously established design flows and loads.

Deliverable(s):

- Data request letter in electronic PDF format

Task 3.2 - Preliminary Design Report

The deammonification process will be designed to treat the full volume of centrate sidestream waste 24/7, 365 days per year and achieve an effluent ammonia concentration of approximately 150 mg/L. Following review of the data obtained in Task 3.1, ENGINEER will confirm flow and loading design criteria for current and future conditions. Basis of design concentrations will also be used to calculate

the current and future aeration demands of the deammonification process to ensure the air supply system is adequately sized from the existing blower facility.

Additionally, ENGINEER will evaluate the following:

- Modifications required to provide the necessary volume within Building 7 for the sidestream treatment system. Modifications to Building 7 may include installing additional walls in the interior of the clarifier, flattening of the bottom of the clarifier, and installing walkways/support bridges for equipment and instrumentation.
- Whether supplemental alkalinity is necessary now that the NuReSys system is online.
- Process energy and heat calculations to better understand the needs at the TRWRF and identify special measures that may be required to maintain stable process operation.
- Instrumentation, including process instruments and system architecture.
- Routing of electrical conduit to supply power to new equipment.

ENGINEER will prepare a report describing the basis of design criteria for all components of the project. Report shall summarize the evaluations and analyses completed during this task and identify the design parameters, criteria, and concepts necessary for preparation of detailed plans and specifications.

Task 3.2.1 – Modifications for THP

ENGINEER will evaluate the modifications necessary for the deammonification process to implement THP in the future:

- Calculate the increase in nutrient loading to the deammonification process when implementing THP.
- Evaluate modifications to the MBBR deammonification system process which include: increase in reactor size, conversion of process from MBBR process to IFAS process (additional clarifier necessary), RAS pump station, and micronutrient tote/pump system.
- Perform hydraulic calculations to ensure a future clarifier can fit in the hydraulic profile and air calculations to ensure pipe size is appropriate for future THP air demands.

Evaluation results will be included in Basis of Design Report and will include 15 percent level design of the mechanical components to ensure compatibility and ease of future expansion.

Deliverable(s):

- Draft and Final Basis of Design Report in electronic PDF format

Task 3.3 - 30% Design

Once the basis of design loadings and reliability and redundancy has been confirmed with the COUNTY, the ENGINEER will proceed with preliminary design consisting of 30% level drawings. The intent of this phase is to lock in the design concept. The design components that will be evaluated include:

- Preliminary site layout, including sidestream treatment system in Building 7
- Yard piping tie-ins including:
 - Centrate storage tank to sidestream treatment system; existing connection from centrate storage tank to head of plant will remain to bypass sidestream treatment system in case of reactor upset
 - Sidestream treatment system to head of plant or BNR Basins

- Air to diffuser system
- Reactor basin drains to plant drain
- Electrical/I&C components

Deliverable(s):

- 30% drawings in electronic PDF format
- Specification list

Task 3 Assumptions:

- Veolia has been pre-selected as the sidestream treatment process technology provider.
- As oversizing for future loads/flows will result in significant operational and control challenges in the near term, ENGINEER will design for current conditions and provide a clear roadmap for phasing the sidestream facilities, as necessary, with future TRWRF expansions.
- The deammonification system will be constructed within Building 7 (the unused clarifier basin adjacent to the centrate storage basin).
- No work will be required within the centrate storage basin.
- The electrical building to the southwest of Clarifier #4 has sufficient space to power the sidestream deammonification equipment.
- Odor control will not be required.

Task 4: Detailed Design

Task 4.1 - 60% Design

At the 60% stage, ENGINEER will provide definite design conclusions based on the continued design development and on the comments received during 30% stage review. The plans will have further developed the approved 30% stage.

Deliverable(s):

- 60% drawings and specifications in electronic PDF format

Task 4.2 - 90% Design

ENGINEER will have built upon the comments received during the 60% stage review and will be nearly complete design plans. At this stage, ENGINEER anticipates that there will be no major design alterations from the plans approved during the 60% stage. This submittal will likely form the basis of any required regulatory agency submittals. Upon approval of this stage of the plans by the COUNTY's Representative, ENGINEER will begin execution on the final construction documents.

Deliverable(s):

- 90% drawings and specifications in electronic PDF format

Task 4.3 - 100% Final for Construction/Signature Design

ENGINEER will provide a complete set of plans and technical specifications necessary to construct the project. This submittal will resolve any outstanding issues from the 90% stage and be fully coordinated between all disciplines, utilities, regulatory agencies, and projects. During development of the final construction documents, we will prepare any remaining governmental submittals.

Deliverable(s):

- 100% drawings and specifications in electronic PDF format

Task 4 Assumptions:

- Design documents will be prepared in compliance with the County's design standards.
- Construction documents shall be prepared by an Arizona registered professional engineer.
- Drawings and specifications will use ENGINEER's standard format.

OTHER DIRECT COSTS (ODCs)

Direct costs including travel to attend project-related meetings and workshops.

ALLOWANCES**Additional Engineering Services**

Allowance for additional engineering services not identified in Tasks 3 or Task 4. The scope, level of effort, and associated cost for additional engineering services will be as determined and agreed upon by the COUNTY, DESIGN BUILDER, and ENGINEER before the work is performed.

Geotechnical Investigation

Allowance for geotechnical investigation to confirm the integrity of Building 7 and assist in the design of new structures within the existing basin. The scope, level of effort, and associated cost for geotechnical investigation will be as determined and agreed upon by the COUNTY, DESIGN BUILDER, and ENGINEER before the work is performed.

Pima County Regional Wastewater Reclamation Department Tres Rios Water Reclamation Facility ANITA Mox Process Design Build													Fee Proposal Hazen 8/4/2023
Task No.	Description	VP	AVP	SA	A	SPE	PE	AE	SPD	D	Admin	Total	Total
		\$ 284.80	\$ 275.30	\$ 268.97	\$ 240.49	\$ 205.69	\$ 183.54	\$ 142.40	\$ 177.21	\$ 94.93	\$ 94.93		
Task 1	Project Management												
Task 1.1	Project Management	0	8	30	0	0	0	0	0	0	12	50	\$ 11,411
Task 1.2	Project Meetings	29	0	29	18	29	9	0	0	0	0	114	\$ 28,005
Task 1.3	Quality Assurance / Quality Control Management	48	0	96	48	0	0	0	0	0	0	192	\$ 51,035
Project Management Subtotal		77	8	155	66	29	9	0	0	0	12	356	\$ 90,451
Task 2	Permitting Assistance												
Task 2.1	Permitting Assistance	0	0	4	0	8	0	8	0	0	0	20	\$ 3,861
Permitting Assistance Subtotal		0	0	4	0	8	0	8	0	0	0	20	\$ 3,861
Task 3	Preliminary Design												
Task 3.1	Data and Information Collection and Review	4	0	12	0	8	0	16	0	0	0	40	\$ 8,291
Task 3.2	Preliminary Design Report	4	0	44	16	40	32	120	0	0	8	264	\$ 48,770
Task 2.3	30% Design	8	0	70	100	52	140	240	160	80	0	850	\$ 151,671
Preliminary Design Subtotal		16	0	126	116	100	172	376	160	80	8	1,154	\$ 208,732
Task 4	Detailed Design												
Task 4.1	60% Design	8	0	70	144	48	204	282	180	96	16	1,048	\$ 185,739
Task 4.2	90% Design	8	0	62	120	40	168	224	148	80	16	866	\$ 154,114
Task 4.3	100% Design	4	0	44	76	24	104	140	92	48	16	548	\$ 97,591
Detailed Design Subtotal		20	0	176	340	112	476	646	420	224	48	2,462	\$ 437,443
Other Direct Costs													
Other Direct Costs													\$ 7,031
Other Direct Costs Subtotal													\$ 7,031
Allowances													
Additional Engineering Services													\$ 30,000
Geotechnical Investigation													\$ 20,000
Additional Construction Administration and Inspection Allowance Subtotal													\$ 50,000
TOTAL		113	8	461	522	249	657	1,030	580	304	68	3,992	\$ 797,517

Labor Category	Rate
VP - Vice-President	\$ 284.80
AVP - Associate Vice-President	\$ 275.30
SA - Senior Associate	\$ 268.97
A - Associate	\$ 240.49
SPE - Senior Principal Engineer	\$ 205.69
PE - Principal Engineer	\$ 183.54
AE - Assistant Engineer	\$ 142.40
SPD - Senior Principa CAD/BIM Designer	\$ 177.21
D - CAD/BIM Designer	\$ 94.93
A - Administrative Assistant	\$ 94.93

Tres Rios Water Reclamation Facility ANITA Mox Process Design Build

Hazen Hourly Rates Table

Category	A Hourly Base Wage Rate	B Overhead	C Profit	D Billable Rate
Vice President	\$90.00	\$173.70	\$21.10	\$284.80
Associate Vice President	\$87.00	\$167.91	\$20.39	\$275.30
Senior Associate	\$85.00	\$164.05	\$19.92	\$268.97
Associate	\$76.00	\$146.68	\$17.81	\$240.49
Senior Principal Engineer	\$65.00	\$125.45	\$15.24	\$205.69
Principal Engineer	\$58.00	\$111.94	\$13.60	\$183.54
Assistant Engineer	\$45.00	\$86.85	\$10.55	\$142.40
Senior Principal CAD/BIM Designer	\$56.00	\$108.08	\$13.13	\$177.21
Principal CAD/BIM Designer	\$50.00	\$96.50	\$11.72	\$158.22
Senior CAD/BIM Designer	\$35.00	\$67.55	\$8.20	\$110.75
CAD/BIM Designer	\$30.00	\$57.90	\$7.03	\$94.93
Assistant CAD/BIM Designer	\$24.00	\$46.32	\$5.63	\$75.95
Administrative Assistant	\$30.00	\$57.90	\$7.03	\$94.93

(B) Overhead Rate = OHR x (A)

OHR =

193.00%

(C) Profit = PR x (A + B)

PR =

8.00%

(D) Billing Rate = (A + B + C)

Hazen Travel Expenses Schedule

Mileage: per AZDOA rate - \$0.625/mile

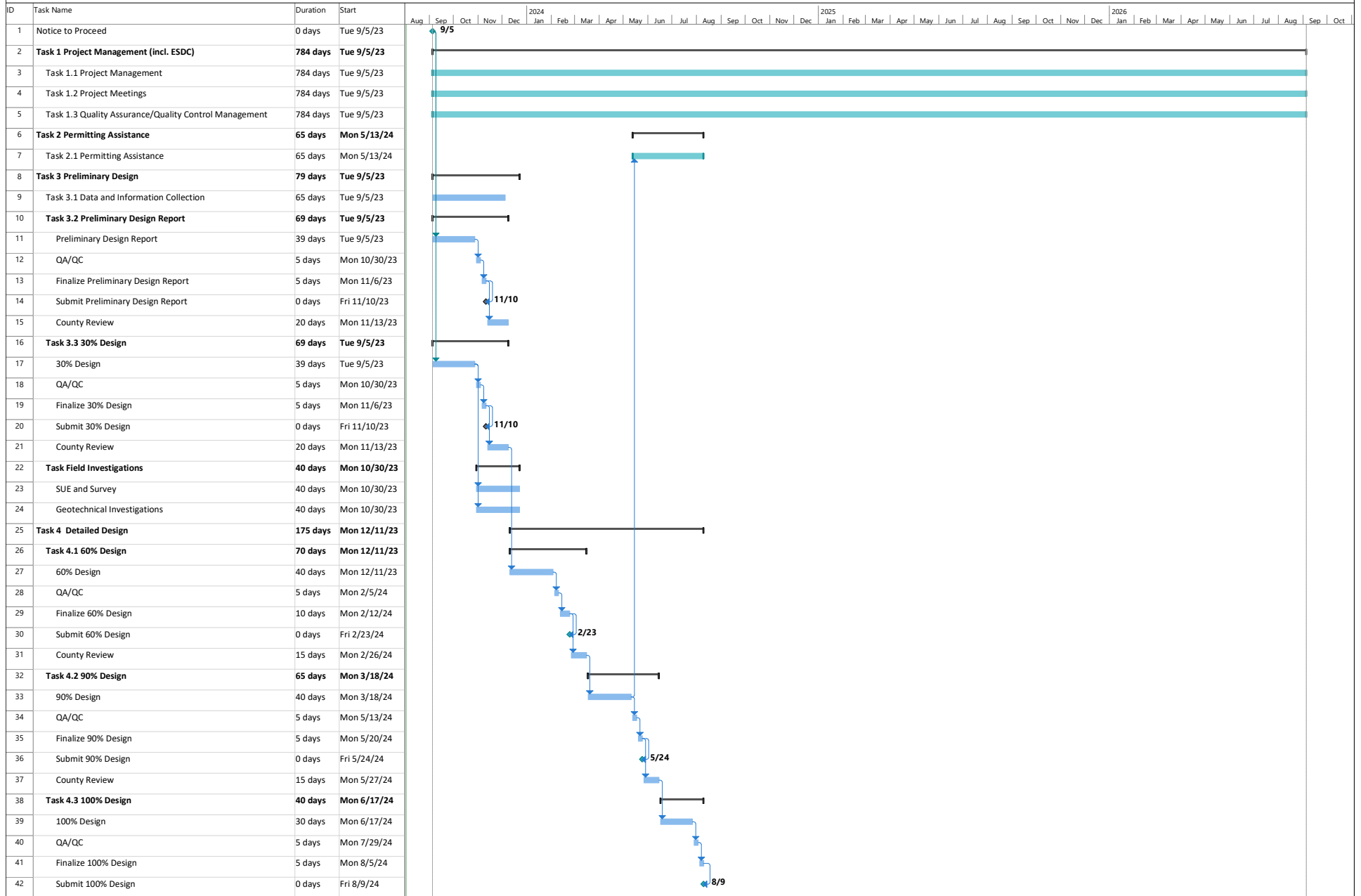
Mileage from 1400 E. Southern Avenue, Tempe, AZ is 98 miles

Air Travel estimated at \$600 R/T, will be billed at cost

Lodging is estimated \$145 (Nov-Mar) and \$104 (Apr-Oct); max per diem is \$54/day and \$40.50 on travel days per AZDOA

Car rental estimated @ \$75/Day, unlimited mileage, fill gas

Task	Plane Trips (RT)	Car Trips (1-Way)	Total Miles	Total Hotel Nights	Max Hotel Rate	Max Per Diem Rate	Mileage	Air Travel	Lodging	Per Diem	Car Rental	Total	Notes
Project Kick-Off and Site Visit (est. September '23)	1	2	196	1	\$ 104.00	\$ 54.00	\$ 122.50	\$ 600.00	\$ 104.00	\$ 243.00	\$ 75.00	\$ 1,144.50	1 person, 1 night lodging in Tucson area
30% Workshop (est. November '23)	1	2	196	1	\$ 145.00	\$ 54.00	\$ 122.50	\$ 600.00	\$ 145.00	\$ 243.00	\$ 75.00	\$ 1,185.50	1 person, 1 night lodging in Tucson area
60% Workshop (est. March '24)	1	2	196	1	\$ 145.00	\$ 54.00	\$ 122.50	\$ 600.00	\$ 145.00	\$ 243.00	\$ 75.00	\$ 1,185.50	1 person, 1 night lodging in Tucson area
90% Workshop (est. June '24)	1	2	196	1	\$ 104.00	\$ 54.00	\$ 122.50	\$ 600.00	\$ 104.00	\$ 243.00	\$ 75.00	\$ 1,144.50	1 person, 1 night lodging in Tucson area
Add'l Coordination Workshop	1	2	196	1	\$ 145.00	\$ 54.00	\$ 122.50	\$ 600.00	\$ 145.00	\$ 243.00	\$ 75.00	\$ 1,185.50	1 person, 1 night lodging in Tucson area
Add'l Coordination Workshop	1	2	196	1	\$ 145.00	\$ 54.00	\$ 122.50	\$ 600.00	\$ 145.00	\$ 243.00	\$ 75.00	\$ 1,185.50	1 person, 1 night lodging in Tucson area
Total							\$ 735.00	\$ 3,600.00	\$ 788.00	\$ 1,458.00	\$ 450.00	\$ 7,031.00	





CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

8/7/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION** IS **WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Midwest Agencies, Inc. 1550 Mike Fahey Street Omaha, NE 68102	CONTACT NAME: Traci Sutton PHONE (A/C, No, Ext): 402-271-2956 E-MAIL ADDRESS: Traci.Sutton@Midwestagenciesinc.com FAX (A/C, No): 402-271-2830
INSURED Kiewit Infrastructure West Co. 3888 E. Broadway Rd. Phoenix AZ 85040-2924	INSURER(S) AFFORDING COVERAGE INSURER A: Old Republic Insurance Company INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:
	NAIC # 24147

COVERAGES

CERTIFICATE NUMBER: 75655101

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Contractual Liability <input checked="" type="checkbox"/> XCU Included GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MWZY 312911	3/1/2023	3/1/2024	EACH OCCURRENCE \$5,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$5,000,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$5,000,000 GENERAL AGGREGATE \$10,000,000 PRODUCTS - COMP/OP AGG \$10,000,000 \$
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input checked="" type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MWTB 312910	3/1/2023	3/1/2024	COMBINED SINGLE LIMIT (Ea accident) \$5,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input type="checkbox"/> RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input checked="" type="checkbox"/> N	N/A	MWC 312908 MWXS 312909 MWFEX 312928-FL MWXS 316021-CA USL&H & Jones Act StopGap	3/1/2023 3/1/2023 3/1/2023 3/1/2023	3/1/2024 3/1/2024 3/1/2024 3/1/2024	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$5,000,000 E.L. DISEASE - EA EMPLOYEE \$5,000,000 E.L. DISEASE - POLICY LIMIT \$5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Contract No. CT-WW-23-455, Design-Build Services: Sidestream Anitamox Process (3ANOMX). Pima County, its departments, districts, boards, commissions, officers, officials, agents, and employees are named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Design-Builder with respect to general liability and auto liability as required by written contract. Coverage is primary and non-contributory. A waiver of subrogation included.

CERTIFICATE HOLDER

CANCELLATION

Pima County
Procurement Department
Design and Construction Division
150 W. Congress, 5th floor
Tucson AZ 85701-1207

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Philip G. Dehn

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ACORD 25 (2016/03)

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SCHEDULE OF OTHER POLICIES

DATE ISSUED

8/7/2023

NAMED INSURED:

Kiewit Infrastructure West Co.
3888 E. Broadway Rd.
Phoenix AZ 85040-2924

CERTIFICATE HOLDER:

Pima County
Procurement Department
Design and Construction Division
150 W. Congress, 5th floor
Tucson AZ 85701-1207

Type of Insurance	Insurer - NAIC No.	AI	SW	Policy Number	Eff / Exp	Limits
Contractor's Professional Liability	Old Republic Insurance Co. - 24147			MWZZ 312912	3/01/2023 3/01/2024	\$5,000,000 per claim / \$5,000,000 aggregate

IL 10 (12/06) OLD REPUBLIC INSURANCE COMPANY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**NOTICE OF CANCELLATION, NONRENEWAL OR MATERIAL CHANGE IN COVERAGE
TO SCHEDULED PERSON(S) OR ORGANIZATION(S)**

SCHEDULE

Person(s) or Organization(s): All Certificate Holders where Notice of Cancellation is required by written contract with the Named Insured

Address:

Reasons:

Number of Days Notice

Nonpayment Of Premium:

10 Days

Cancellation For Any Other Reason:

90 Days

Nonrenewal (When We Do Not Renew):

90 Days

Material Change In Coverage:

90 Days

For any reasons described in the above Schedule for which the Number of Days Notice is completed, we agree to mail advance written notice of not less than the Number of Days shown in the above Schedule to the Person(s) or Organization(s) at the Address shown in the above Schedule.

IL 10 (12/06) OLD REPUBLIC INSURANCE COMPANY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

OTHER INSURANCE AMENDMENT

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

SECTION IV – BUSINESS AUTO CONDITIONS, B. General Conditions, 5. Other Insurance is deleted and replaced by the following:

5. Other Insurance

- a. For any covered "auto" you own, this Coverage Form provides primary insurance. For any covered "auto" you don't own, the insurance provided by this Coverage Form is excess over any other collectible insurance. To the extent, the protection provided by this coverage may be broader or less restrictive than the protection provided to you under other policies, such protection as provide by this coverage will respond to any accidents not covered by other insurance policies. With respect to accidents, which are covered by other insurance policies, such protection as is provided by this coverage will be excess of the insurance provided by other insurance policies. The excess insurance will be limited to the difference between the limits of liability provided by this coverage and the limits of liability provided by the other insurance policy. However, while a covered "auto" which is a "trailer" is connected to another vehicle, the liability coverage this Coverage Form provides for the "trailer" is:
 - (1) Excess while it is connected to a motor vehicle you do not own; or
 - (2) Primary while it is connected to a covered "auto" you own.
- b. For Hired Auto Physical Damage Coverage, any covered "auto" you lease, hire, rent or borrow is deemed to be a covered "auto" you own. However, any "auto" that is leased, hired, rented or borrowed with a driver is not a covered "auto".
- c. Regardless of the provisions of paragraph a. above, this Coverage Form's liability coverage is primary for any liability assumed under an "insured contract".
- d. When this Coverage Form and any other Coverage Form or policy covers on the same basis, either excess or primary, we will pay only our share. Our share is the proportion that the limit of insurance of our Coverage Form bears to the total of the limits of all the Coverage Forms and policies covering on the same basis

All other terms and conditions of this policy remain unchanged.

IL 10 (12/06) OLD REPUBLIC INSURANCE COMPANY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

AUTO DEALERS COVERAGE FORM
BUSINESS AUTO COVERAGE FORM
MOTOR CARRIER COVERAGE FORM

SCHEDULE

Name of Person or Organization:

All Persons and/or Organizations that require a written contract or agreement with the insured, executed prior to the accident or loss, that waiver of subrogation be provided under this policy for work performed by you for that Person and/or Organization.

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

The **Transfer Of Rights Of Recovery Against Others To Us** Condition is changed by adding the following:

We waive any right of recovery we may have against the person(s) or organization(s) shown in the Schedule because of payments we make for injury or damage. This waiver applies only to the person or organization shown in the Schedule.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED – OWNERS, LESSEES OR
CONTRACTORS – SCHEDULED PERSON OR
ORGANIZATION**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

Any person or organization whom you are required in a written contract or written agreement to add as an additional insured on this policy and for whom no other endorsement on this policy provides additional insured status.

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

A. Section II – Who Is An Insured is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

B. With respect to the insurance afforded to these additional insureds, the following exclusion is added:

2. Exclusions

This insurance does not apply to "bodily injury" or "property damage" occurring after:

- (1) All work, including materials, parts or equipment furnished in connection with

such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the site of the covered operations has been completed; or

- (2) That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

Any person or organization whom you are required in a written contract or written agreement to add as an additional insured on this policy and for whom no other endorsement on this policy provides additional insured status.

Location And Description of Completed Operations:**Additional Premium:**

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

Section II – Who Is An Insured is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" at the location designated and described in the schedule of this endorsement performed for that insured and included in the "products-completed operations hazard".

IL 10 (12/06) OLD REPUBLIC INSURANCE COMPANY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

NOTICE OF CANCELLATION, NONRENEWAL OR MATERIAL CHANGE IN COVERAGE TO SCHEDULED PERSON(S) OR ORGANIZATION(S)

SCHEDULE

Person(s) or Organization(s): All Certificate Holders where Notice of Cancellation is required by written contract with the Named Insured

Address:

Reasons:	Number of Days Notice
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Nonpayment Of Premium:	<u>10</u> Days
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Cancellation For Any Other Reason:	<u>90</u> Days
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Nonrenewal (When We Do Not Renew):	<u>90</u> Days
------------------------------------	----------------

Material Change In Coverage:	<u>90</u> Days
------------------------------	----------------

For any reasons described in the above Schedule for which the Number of Days Notice is completed, we agree to mail advance written notice of not less than the Number of Days shown in the above Schedule to the Person(s) or Organization(s) at the Address shown in the above Schedule.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

PRIMARY AND NONCONTRIBUTORY – OTHER INSURANCE CONDITION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
LIQUOR LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The following is added to the **Other Insurance** Condition and supersedes any provision to the contrary:

Primary And Noncontributory Insurance

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured under your policy provided that:

- (1) The additional insured is a Named Insured under such other insurance; and

- (2) You have agreed in writing in a contract or agreement that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US (WAIVER OF SUBROGATION)

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
ELECTRONIC DATA LIABILITY COVERAGE PART
LIQUOR LIABILITY COVERAGE PART
POLLUTION LIABILITY COVERAGE PART DESIGNATED SITES
POLLUTION LIABILITY LIMITED COVERAGE PART DESIGNATED SITES
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART
RAILROAD PROTECTIVE LIABILITY COVERAGE PART
UNDERGROUND STORAGE TANK POLICY DESIGNATED TANKS

SCHEDULE

Name Of Person(s) Or Organization(s):

Any person or organization that requires you to waive your rights of recovery, in a written contract or agreement with the Named Insured that is executed prior to the accident or loss.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The following is added to Paragraph **8. Transfer Of Rights Of Recovery Against Others To Us** of **Section IV – Conditions**:

We waive any right of recovery against the person(s) or organization(s) shown in the Schedule above because of payments we make under this Coverage Part. Such waiver by us applies only to the extent that the insured has waived its right of recovery against such person(s) or organization(s) prior to loss. This endorsement applies only to the person(s) or organization(s) shown in the Schedule above.

OLD REPUBLIC INSURANCE COMPANY

WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY POLICY

DESIGNATED ENTITY - NOTICE OF CANCELATION PROVIDED BY US ENDORSEMENT

SCHEDULE

Number of Days Notice of Cancellation: 90

Person or Organization:

ALL CERTIFICATE HOLDERS WHERE NOTICE OF CANCELLATION IS
REQUIRED BY WRITTEN CONTRACT WITH THE NAMED INSURED

Address:

If we cancel this policy for any statutorily permitted reason other than nonpayment of premium, and a number of days is shown for cancellation in the schedule above, we will mail notice of cancellation to the person or organization shown in the schedule above. We will mail such notice to the address shown in the schedule above at least the number of days shown for cancellation in the schedule above before the effective date of cancellation.

POLICY NUMBER: MWC 312908 23

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

WHERE REQUIRED BY WRITTEN CONTRACT

DATE OF ISSUE:

WC 00 03 13

(Ed. 4-84)

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PROCUREMENT DEPARTMENT

DESIGN & CONSTRUCTION DIVISION • 150 W. CONGRESS STREET, 5th FLOOR • TUCSON, ARIZONA 85701-1317
TELEPHONE (520) 724-8161 • FAX (520) 724-3646

INSURANCE CARRIER VERIFIES PIMA COUNTY IS NAMED AS ADDITIONAL INSURED TO THE COMPREHENSIVE COMMERCIAL GENERAL LIABILITY POLICY AND THE COMPREHENSIVE AUTOMOBILE LIABILITY POLICY REFERENCED BELOW, THE COUNTY BEING ADDED BY ENDORSEMENT TO THE POLICIES.

Kiewit Infrastructure West Co.

Insured Firm

CGL: MWZY312911

AL: MWTB312910

Policy Number

Old Republic Insurance Company

Insurance Carrier

Authorized Carrier Signature

Philip G. Dehn

Printed Name

8/7/2023

Date of Signature

NOTE: This document must be included with Insurance Certificates at time of signing contract or renewing contract.