BOARD OF SUPERVISORS AGENDA ITEM REPORT
CONTRACTS / AWARDS / GRANTS

○ Award ◉ Contract ○ Grant

Requested Board Meeting Date: 05/01/18

** = Mandatory, information must be provided*

or Procurement Director Award ☐

***Contractor/Vendor Name/Grantor (DBA):**
HDR Constructors, Inc. (Headquarters: Omaha, NE)

***Project Title/Description:**
Design-Build Services For Tres Rios Nutrient Recovery Project (3BBUMP)

***Purpose:**
Award: Contract No. CT-WW-18-326. This award of contract is recommended to the highest qualified Design-Build team in the amount of $666,707.00 for a contract term of 05/01/18 to 12/31/2020 for Phase I design and pre-construction services for the Tres Rios Nutrient Recovery Project. 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. 262765 was conducted in accordance with A.R.S. § 34-603 and Pima County Board of Supervisors Policy D 29.1. Five (5) responsive statements of qualifications were received and evaluated by a seven (7) member committee using qualifications and experience-based selection criteria. Based upon the evaluation of the respondents' written representations of their qualifications and necessary due diligence, a short list of three (3) respondents were invited to interviews. As a result of the combined scoring of the written statements of qualifications and interviews, the highest qualified Design-Build team is recommended for award.

Attachments: Notice of Recommendation for Award and Contract.

***Program Goals/Predicted Outcomes:**
Struvite formation negatively impacts equipment and treatment processes. This program will allow for better processing and treatment of biosolids by sequestering phosphorus, resulting in the elimination of Struvite formation.

***Public Benefit:**
This program will eliminate the use of Ferric Chloride currently used to prevent Struvite formation and will also reduce the amount of Polymer required for processing biosolids. This will result in lower Operation & Maintenance (O & M) costs and will extend equipment life.

***Metrics Available to Measure Performance:**
The success of this project will be measured by the final impact on the O & M Budget for processing biosolids.

***Retroactive:**
No

To: COB- 4/18/18
Ver. - 1
Pgs. 231

Contract / Award Information

Document Type: CT Department Code: WW Contract Number (i.e.,15-123): 18-326

Effective Date: 05/01/18 Termination Date: 12/31/2020 Prior Contract Number (Synergen/CMS): _____

☒ **Expense Amount: $*** 666,707.00 ☐ Revenue Amount: $ _____

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

Funding from General Fund? ○ Yes ◉ No If Yes $ _____ % _____

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

***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 22-73.

Amendment / Revised Award Information

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

Amendment No.: _____ AMS Version No.: _____

Effective Date: _____ New Termination Date: _____

Prior Contract No. (Synergen/CMS): _____

○ Expense or ○ 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): _____

Effective 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: Keith E. Rogers Keith E. Rogers 4-11-18

Department: Procurement 4/13/18 Telephone: 724-3542

Department Director Signature/Date: 4/16/18

Deputy County Administrator Signature/Date: 4/18/18

County Administrator Signature/Date: 4/18/18

(Required for Board Agenda/Addendum Items)

PIMA COUNTY

APRIL 11, 2018

NOTICE OF RECOMMENDATION FOR AWARD

The Pima County Procurement Department - Design & Construction Division hereby issues formal notice to respondents to **Solicitation No. 262765 – Design Build Services For Tres Rios Nutrient Recovery Project (3BBUMP);** that the following listed respondent will be recommended for award as indicated below. The award action is scheduled to be performed by the Pima County Board of Supervisors on or after the regularly scheduled meeting **May 1, 2018**.

RECOMMENDED:

HDR Constructors, Inc.

OTHER FINAL-LISTED TEAMS:

The Ashton Company, Inc / Hazen & Sawyer, P.C.

PCL Construction, Inc. / Carollo Engineers, Inc.

NOTE: Information regarding this solicitation will be disclosed in accordance with A.R.S. § 34-603(H).

/s/ <Keith E. Rogers Date: April 11, 2018

Keith E. Rogers, CPPB
Procurement Officer

This notice is in compliance with Pima County Procurement Code.

Pima County Regional Wastewater Reclamation Department	
Project: **Design-Build Services For: Tres Rios WRF Nutrient Recovery Project (3BBUMP)**	CONTRACT NO. CT. WW-18-326 AMENDMENT NO. _____ This number must appear on all invoices, correspondence and documents pertaining to this contract.
Contractor: **HDR Constructors, Inc. 8404 Indian Hills Drive Omaha, NE 68114**	
Amount: **$666,707.00**	
Funding: **Regional Wastewater Reclamation Department Obligations**	(STAMP HERE)

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 HDR Constructors, Inc. ("Design-Builder"). County and Design-Builder may also be referred to individually as a "Party" or collectively as the "Parties."

   1.2. History. County previously issued Solicitation for Qualifications (SFQ) No. 262765 (hereinafter referred to as the "Solicitation") seeking a Design-Build services provider, the documents, addenda, requirements and specifications of which are all incorporated into this Contract by reference.

   1.3. Design-Builder Selection. Design-Builder was selected by the County through the evaluation process described in the Solicitation.

   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. Effective Date. The Effective Date of this Contract is the date last signed below.

   2.2. Term. Unless otherwise terminated or extended, in writing, pursuant to other provisions of this Contract, the Term of this Contract extends to one calendar year after the final acceptance date or, until 12/31/2020, whichever date is later.

   2.3. Scheduled Major Milestones. Design-Builder provided County with a Preliminary Schedule covering the planning, design, and construction of the Project which schedule is attached hereto as Exhibit A. That schedule contemplates Phase 1 completion within 135 Days of the Phase 1 Notice to Proceed; and Phase 2 completion within TBD Days of the Phase 2 Notice to Proceed, with Substantial Completion within TBD Days and Final Acceptance within TBD Days respectively of the Phase 2 Notice to Proceed.

3. **Scope of Services.**

   3.1. This Contract is a Design-Build Contract for architectural, engineering, and construction services (collectively, the "Work") for the Project, as more fully set forth in the following documents which are attached hereto and which are integral part of this Contract: Exhibit A – Preliminary Schedule; Exhibit B – Phase I Scope of Services and Fee Schedule; Appendix "A" – Project Scope of Work; Appendix "B" Design-Builder General Scope of Work; Appendix "C" – Technical Specifications; Appendix "D" – Design – Builder Special Conditions; Appendix "E" – Design-Builder General Conditions; Appendix "G" – Glossary or Terms and Conditions. Also incorporated into this Contract by reference are the Pima Association of Governments Standard Specifications for Public Improvements.

55

3.2. Work under this Contract will proceed in two phases: Phase 1 - Design and Pre-Construction Services; and Phase 2 – Construction Services. The initial Contract covers only the Phase 1 portion of the Work as that is defined in the Scope. Prior to any Design-Builder work on Phase 2, Design-Builder will deliver to County a proposed GMP, or multiple GMPs, if construction is divided into multiple phases.

3.3. With respect to the Phase 2 – Construction GMP, Design-Builder acknowledges that the Construction Documents may be incomplete at the time the Design-Builder delivers the GMP proposal, and that the Construction Documents may not be completed until after commencement of the construction phase of the Work. Nevertheless, the GMP proposal shall include all costs for the Work required by the completed Construction Documents, and if the GMP proposal is accepted by the County, the Design-Builder shall be entitled to no increase in the GMP if the Work required by the completed Construction Documents: (i) is required by the Contract for Design-Build Construction; (ii) is reasonably inferable from the incomplete documents; (iii) is consistent with the County's programmatic goals and objectives; (iv) is consistent with the 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 documents.

3.4. If a GMP proposal is unacceptable to the County, the County will promptly notify the Design-Builder in writing. Within fourteen (14) calendar days of such notification, the 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. The County may, at its sole discretion and based upon its sole judgment: (i) indicate its acceptance of a GMP proposal; (ii) reject a GMP proposal; (iii) terminate the Project; or (iv) proceed to construct the Project using a party or parties other than the Design-Builder.

3.6. If the County rejects a GMP proposal, neither party shall have any further obligation pursuant to this Contract.

3.7. If the County accepts a GMP proposal, the parties will complete and execute an amendment to this Contract, and the County will issue a written Notice to Proceed to the Design-Builder establishing the date the next phase is to commence (the "Phase Commencement Date"). The Design-Builder shall not expend any monies for the new phase prior to receipt of such 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. Rates. County will pay Design-Builder at the rates set forth in Exhibit B during the Term of the Contract.

5.2. Maximum Payment Amount. County's total payments to Design-Builder for Phase 1 Work, including sales taxes (if applicable), in the not to exceed amount of $666,707.00.

5.3. Sales Taxes. The payment amounts or rates in Exhibit C do not include sales taxes. Design-Builder may invoice County for sales taxes that Design-Builder is required to pay on goods supplied to the County under this Contract. Design-Builder will show sales taxes as a separate line item on invoices.

5.4. Timing of Invoices. Design-Builder will invoice County on a monthly basis unless a different billing period is set forth in Appendix B, Design-Builder General Scope of Work. County must receive invoices no more than 30 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 the County and, pursuant to A.R.S. § 11-622(C), will not pay for any product or service invoiced more than 6-months late.

5.5. Design-Builder will cite the Contract number on all invoices. The pre-printed terms and conditions on the 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.

5.6. 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 to County any overpayment that County cannot recover by set-off.

5.7. 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.

5.8. Price Guarantees.

5.8.1. Upon acceptance by County of a GMP pursuant to Section 3.8 of this Contract, the 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) General Conditions Cost; and (v) Design-Builder's Overhead and Profit, will not exceed the amount set forth in the agreed upon GMP. All costs or expenses that would cause this sum to exceed the GMP will be borne by the Design-Builder unless adjusted by a County approved Change Order.

5.8.2. Upon acceptance by County of a GMP pursuant to Section 3.8 of this Contract, the Design-Builder guarantees that the actual Cost of the Work, Design-Builder's Staffing Costs, General Conditions Cost, and Design-Builder's Overhead and Profit will not exceed the guaranteed maximum for each such category and that all costs or expenses that would cause any of these individual categories to exceed the guaranteed maximum for each such category in the agreed upon GMP will be borne by the Design-Builder unless adjusted by a County approved change order.

5.8.3. Upon acceptance by County of a GMP pursuant to Section 3.8 of this Contract, the Design-Builder certifies that: all factual unit costs supporting the GMP proposal are accurate, complete, and current at the time of negotiations; and that any other factual unit costs that may be furnished to the County in the future to support any additional amounts that may be authorized will also be accurate and complete. Payments to the Design-Builder will be reduced if the County determines such amounts were included due to materially inaccurate, incomplete, or non-current factual unit costs.

5.8.4. Upon acceptance by County of a GMP pursuant to Section 3.8 of this Contract the Design-Builder guarantees that, to the extent the accepted GMP includes contingency, Design-Builder will not use that contingency unless use has been specifically approved by County by Change Order prior to expenditure by the Design-Builder.

6. Insurance. The Insurance Requirements contained in Article 6, Paragraphs 6.02 through 6.07, of Appendix E - EJCDC Design-Builder General Conditions are superseded by this Section 6, Insurance.

The Insurance Requirements including coverage scope and limits are considered by Pima County to be minimum requirements. Design-Builder's insurance shall be placed with companies authorized in the State of Arizona and the insureds shall have an "A.M. Best" rating of not less than A- VII. Pima County in no way warrants that the minimum insurer rating is sufficient to protect the Design-Builder from potential insurer insolvency.

6.1 Minimum Scope and Limits of Insurance
Design-Builder shall procure and maintain, until all contractual obligations have been discharged, the insurance coverage with limits of liability not less than stated below.

6.1.1 Commercial General Liability (CGL): Occurrence Form

6.1.1.1 Design-Builder shall maintain CGL and, if necessary, commercial umbrella insurance with a total limit of $2,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to this project described in the scope of work for this contract

6.1.1.2 CGL insurance shall be written on ISO occurrence form CG 00 01 04 13 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal and advertising injury, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract).

6.1.1.3 Design-Builder's CGL policy shall not be restricted in scope by the attachment of endorsements such as the subcontractor exception.

6.1.1.4 Pima County shall be included as an insured under the CGL, using ISO additional insured endorsements CG 20 10 and CG 20 37 or their equivalent, including coverage for Pima County with respect to liability arising out of the completed operations of Design-Builder.

6.1.2 Business Automobile Liability: Coverage to include Bodily Injury and Property Damage (Form CA 00 01) 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 each accident.

6.1.3 Workers' Compensation (WC) and Employers' Liability: Statutory requirements and benefits for Workers' Compensation. 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.

6.1.4 Professional Liability (Errors and Omissions) Insurance: This insurance is required when the Design-Builder's CGL insurance excludes coverage of the Design-Builder's professional error and omission exposures. The policy limits shall be $2,000,000 Each Claim and $2,000,000 Annual Aggregate. The insurance policy shall cover negligent acts of anyone performing any professional services under this contract and can be provided by Design-Builder's lead designer.

6.1.5 Claim-Made Insurance Coverage: If any part of the Required Insurance is written on a claims-made basis, any policy retroactive date must precede the effective date of this Contract, and Design-Builder must maintain such coverage for a period of not less than three (3) years following Contract expiration, termination or cancellation.

6.2 **Additional Insurance Requirements**

The policies shall include, or be endorsed to include, as required by this written agreement, the following provisions:

6.2.1 Additional Insured: The General Liability and Business Automobile Liability Policies shall each be endorsed to include Pima 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 the Design-Builder.

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

6.2.3 Primary Insurance: The Design-Builder's policies, except Professional Liability, shall stipulate that the insurance afforded the Design-Builder shall be primary and that any insurance carried by Pima County, its agents, officials, or employees shall be excess and not contributory insurance.

6.2.4 **Subcontractors' Insurance.** Design-Builder shall cause each subcontractor employed by Design-Builder to purchase and maintain insurance of the type specified above. When requested by Pima County, Design-Builder shall furnish copies of certificates of insurance evidencing coverage for each subcontractor. Professional Liability insurance is not required for subcontractors who do not provide professional services.

6.3 Coverage Verification Requirements

6.3.1 Evidence of Insurance: All certificates and endorsements, as required by this written agreement, are to be received and approved by the appropriate County Department before work commences and thereafter upon renewal or replacement of each certified coverage. Design-Builder shall furnish Pima County with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth above.

6.3.2 Certificate of Insurance: All certificates shall include the Pima County project or contract number and project description on the certificate. All certificates shall provide for 30 days written notice to Pima County prior to the cancellation of any insurance referred to therein, except 10-days prior notice is sufficient when the cancellation is for non-payment of a premium.

6.3.3 Maintaining Insurance: Failure to maintain the required insurance may result in termination of this contract at Pima County's option. If Design-Builder fails to maintain the insurance as set forth herein, Pima County shall have the right, but not the obligation, to purchase said insurance at Design-Builder's expense.

6.3.4 No Representation of Coverage Adequacy: By requiring insurance herein, Pima County does not represent that coverage and limits will necessarily be adequate to protect Design-Builder, and such coverage and limits shall not be deemed as a limitation on Design-Builder's liability under the indemnities granted to Pima County in this contract

6.4 Approval and Modifications

The Pima County Risk Manager may approve a modification of the Insurance Requirements without the necessity of a formal Contract amendment, but the approval must be in writing. 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, or the County's receipt of any other information from the Design-Builder, its insurance broker(s) and/or insurer(s), constitutes a waiver of any of the Insurance Requirements or the Design-Builder's obligation to maintain such insurance.

6.4.1 Reserved

6.4.1.1 Reserved

6.4.2 Design-Builders Pollution Liability

6.4.2.1 Design-Builder shall maintain in force for the full period of this contract insurance covering losses caused by pollution incidents that arise from the operations of the Design-Builder described under the scope of services of this contract.

6.4.2.2 Cover shall apply to bodily injury; property damage, including loss of use of damaged property or of property that has not been physically injured; cleanup costs; and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims. The policy of insurance affording these required coverages shall be written in an amount of at least $1,000,000 per claim, with an annual aggregate of at least $2,000,000.

6.4.2.3 Certificate of Insurance shall identify if policy is written on an occurrence or claims-made basis.

6.4.2.4 The policy of insurance as required in this section shall include as an insured the Owner, officers, and employees.

6.4.2.5 If the scope of services as defined in this contract includes the disposal of any hazardous or nonhazardous materials from the job site, the Design-Builder must furnish to the Owner evidence of pollution liability insurance maintained by the disposal site operator for losses arising from the insured facility accepting waste under this contract. Coverage certified to the Owner under this Section for the

disposal facility insurance must be maintained in minimum amounts of $1,000,000 per loss, with an annual aggregate of at least $5,000,000.

6.4.3 Builder's Risk - Installation Floater

6.4.3.1 Amount equal to the Contract Completed Value $_____

6.4.3.2 Pima County, Design-Builder, subcontractor and any others with an insurable interest in the work **shall be Insureds** on the policy.

6.4.3.3 The Installation Floater must provide coverage from the time the equipment/material becomes the responsibility of the Design-Builder and shall continue without interruption during the installation, including any time during which the equipment/material is being transported to the installation site, or awaiting installation, whether on or off site.

6.4.3.4 Coverage shall be written on an "all risks" coverage on a "replacement cost basis" as well as coverage for losses that may occur during equipment testing.

6.4.3.5 Design-Builder shall be responsible for repairing damage to the work and other property not insured if the damage is caused "in whole or in part" by the Design-Builder or any subcontractors.

6.4.3.6 Policy shall be endorsed such that the insurance shall not be canceled or lapse because of any partial use by the County.

6.4.3.7 Policy shall be maintained until whichever of the following shall first occur: (1) the work is put to its intended use; or, (2) until no person or entity, other than the County, has an insurable interest in the property required to be covered.

6.4.3.8 Policy shall contain a waiver of subrogation endorsement in favor of Pima County, and its departments, districts, boards, commissions, officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Design-Builder.

6.4.3.9 Design-Builder is responsible for the payment of all deductibles under the Installation Floater policy.

7 **Payment and Performance Bonds. The Payment and Performance Bonds Requirements contained in Article 6, Paragraph 6.01 of Appendix E - EJCDC Design-Builder General Conditions are superseded by this Section 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 7 hereto and must be issued by a surety company: (1) verified by the 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 the Company. In no event shall the Performance Bond or the Payment Bond serve as a limitation on the liability of the 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 **Indemnification. The Indemnification Requirements contained in Article 7, Paragraph 7.19 of Appendix E - EJCDC Design-Builder General Conditions are superseded by this Section 8, Indemnification.**

To the fullest extent permitted by law, Design-Builder will defend, indemnify, and hold harmless Pima County and any related taxing district, and the officials and employees of each of them (collectively, "County Indemnitees") from and against any and all claims, actions, liabilities, and Losses and Expenses (including reasonable attorney fees) (collectively, "Claims") arising out of actual or alleged injury of any person (including death) or loss or damage to tangible or intangible property caused, or alleged to be caused, in whole or in part, by any act or omission of Design-Builder or any of Design-Builder's directors, officers, agents, employees, volunteers, or subcontractors. This indemnity includes any claim or amount arising or recovered under the Workers' Compensation Law or arising out of the failure of Design-Builder to conform to any federal, state, or local law, statute, ordinance, rule, regulation, or court decree. The County Indemnitees will, in all instances, except for Claims arising solely from the acts or omissions of the County Indemnitees, be indemnified by Design-Builder from and against any and all Claims. Design-Builder is responsible for primary loss investigation, defense, and judgment costs for any Claim to which this indemnity provision applies. This duty to indemnify will survive the expiration or termination of this Contract.

9 **Design-Builder's Performance.** Design-Builder is responsible for the professional quality, technical accuracy, timely completion, and the coordination of all its efforts and other services furnished by Design-Builder under this Contract. Without additional compensation, 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 products or the services. Any such resolution of deficiencies shall be at no cost to County.

10 **Excusable Delays**

10.1 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.

10.2 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.

10.3 Excusable Delays shall not include late performance by a subcontractor unless the delay arises out of an Uncontrollable Circumstance. The time of completion shall be extended, by a Change Order, for a period of time equal to the time the cause prevented the delayed Party from performing in accordance with this Contract.

11 **Liquidated Damages**. Design-Builder agrees to achieve Substantial Completion within the number of Days specified in Section 2.2, above (the "Time"). Design-Builder's failure to reach Substantial Completion within the Time will substantially harm the County. Because damages resulting from such a failure cannot be calculated with any degree of certainty, the Parties agree that if the Work is not Substantially Complete within the Time (as may be amended through written Change Orders), Design-Builder will pay to County as Liquidated Damages, and not a penalty, $400.00 for each calendar day elapsing between the Agreed Date for Substantial Completion and the date Substantial Completion is actually achieved. The Parties further agree that the daily Liquidated Damages amount is fair, reasonable, and not subject to later challenge. The Parties hereby agree that Design-Builder's aggregate liability for Liquidated Damages shall not exceed 10% of the total contract value during the Term under this Contract.

12 **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 the County in writing of the Design-Builder's agreement (or disagreement) with any price, performance, or schedule relief, if any, as may be proposed by the County in the Unilateral Change Directive. No Unilateral Change Directive will be binding on either Party unless it has been approved by the County Board of Supervisors or, if authorized, the Procurement Director. A Unilateral Change Directive that is signed by Design-Builder and approved by the 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.

13 **Suspension/Termination for Convenience**

13.1 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 the County may determine necessary whenever such suspension or interruption would be in the best interest of the 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:

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

13.1.2 an equitable adjustment is made or denied by County.

13.2 Termination by County for Convenience.

13.2.1 The performance of the Work under this Contract may be terminated by County, in whole or in part, in accordance with this clause whenever the County reasonably determines that such termination is in the best interest of County. Any such termination will be effected 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.

13.2.2 If the Contract is terminated by the 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.

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

14 **Termination for Cause.** This Contract may be terminated for cause upon the occurrence of one or more Events of Default:

14.1 Events of Default

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

14.1.2 If Design-Builder materially breaches this Contract and fails, after ten (10) days written notice from the County, to correct such breach and thereafter diligently pursue the Project to completion; or take reasonable action to correct or cure such failure or neglect.

14.1.3 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 sixty (60) Days of its institution. If County materially breaches this contract and fails, after twenty (20) days written notice from the Design-Builder to correct such breach, then Design-Builder may terminate this Contract and shall be paid for all services performed up to the date of termination plus all reasonable termination costs incurred due to such termination.

14.2 Remedies of County Upon an Event of Default.

14.2.1 Upon an Event of Default, County has the right to terminate this Contract upon an additional seven (7) Days' written notice to Design-Builder provided Design-Builder has not commenced a cure within such seven (7) Day period.

14.2.2 Without prejudice to any other rights or remedies of County, County may:

14.2.2.1 Take possession of all data, reports, and work in progress in possession of Design-Builder or to which Design-Builder otherwise has right;

14.2.2.2 Accept assignment of Subcontracts; and

14.2.2.3 Finish the Work by whatever reasonable method County may deem expedient.

14.2.3 When the County terminates the Contract as aforesaid, Design-Builder will not be 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.

15 Dispute Resolution.

15.1 In the event of any dispute arising 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 the dispute resolution procedures set forth herein. The Parties shall continue performance of their respective obligations hereunder notwithstanding the existence of a dispute.

15.1.1 The Parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as 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 so as 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.

15.1.2 Informal Dispute Resolution, 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. Such meeting shall be held at County's offices within three (3) working Days of written request therefor, which request shall specify in reasonable detail the nature of the dispute. The County's Project Manager and Design-Builder's Project Manager will attend the meeting. Such 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.

15.1.3 Mediation. If the Parties are unable to resolve the dispute through the special meeting and/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 the Site and any relevant documents. The mediator will call a meeting of the Parties within ten (10) working days after his/her appointment, which meeting will be attended by the County's Project Manager and Design-Builder's Project Manager. Such Authorized Representatives shall attempt in good faith to

resolve the dispute. During such ten (10) Day period, the mediator may meet with the Parties separately.

15.1.4 Mediation Minutes. 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, will be non-binding, confidential, and without prejudice to the rights and remedies of any Party. The entire mediation process shall be completed within twenty (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,

15.1.5 Litigation. Nothing in this Section will operate to limit, interfere with, or delay 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 litigation.

16 **No Consequential or Punitive Damages**. In no event will either Party hereto 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 the County and the Design-Builder. Nothing in this Section shall limit the obligation of the Design-Builder to indemnify, defend and hold harmless the County Indemnitees for any special, incidental, consequential, punitive, or similar damages payable to third parties resulting from any act or circumstance for which the Design-Builder is obligated to indemnify the 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.

17 **Laws and Regulations**.

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

17.2 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.

17.3 Choice of Law; Venue. The laws and regulations of the State of Arizona govern the rights and obligations of the parties under this Contract. Any action relating to this Contract must be filed and maintained in the appropriate court of the State of Arizona in Pima County.

18 **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, defend, and hold County harmless from any and all liability that County may incur because of Design-Builder's failure to pay such taxes.

19 **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 the 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.

20 **Assignment.** Design-Builder may not assign its rights or obligations under this Contract, in whole or in part, without the County's prior written approval. County may withhold approval at its sole discretion.

21 **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.

22 **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.

23 **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.

24 **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.

25 **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.

26 **Notice**. Any notice required or permitted to be given under this Contract must be in writing and be served by personal delivery 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) 724-6500
Fax: (520) 724-9635

Design-Builder:

Anthony Snead, Vice President
HDR Constructors, Inc.
3200 E Camelback Road, Suite 350
Phoenix, AZ 85003
Tel: (602) 522-7700
Fax: (602) 522-7707

27 **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.

28 **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.

29 **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. The 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.

30 **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.

31 **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.

32 Public Records.

32.1 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.

32.2 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 Con 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.

33 Legal Arizona Workers Act Compliance.

33.1 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.

33.2 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.

33.3 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.

33.4 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 insure 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."

34 Grant Compliance. Not Applicable.

35 Israel Boycott Certification. Design-Builder hereby certifies that it is not currently engaged in, and will not for the duration of this Contract engage in, a boycott of Israel as defined by A.R.S. § 35-393.01. Violation of this certification by Design-Builder may result in action by the County up to and including termination of this Contract.

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.

REMAINDER OF PAGE LEFT BLANK

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.

PIMA COUNTY

_____
Chairman, Board of Supervisors

ATTEST

_____
Clerk of the Board

_____
Date

APPROVED AS TO FORM

_____
Deputy County Attorney

CHARLES WESSELHOFT
Print DCA Name

APR 13 2018
Date

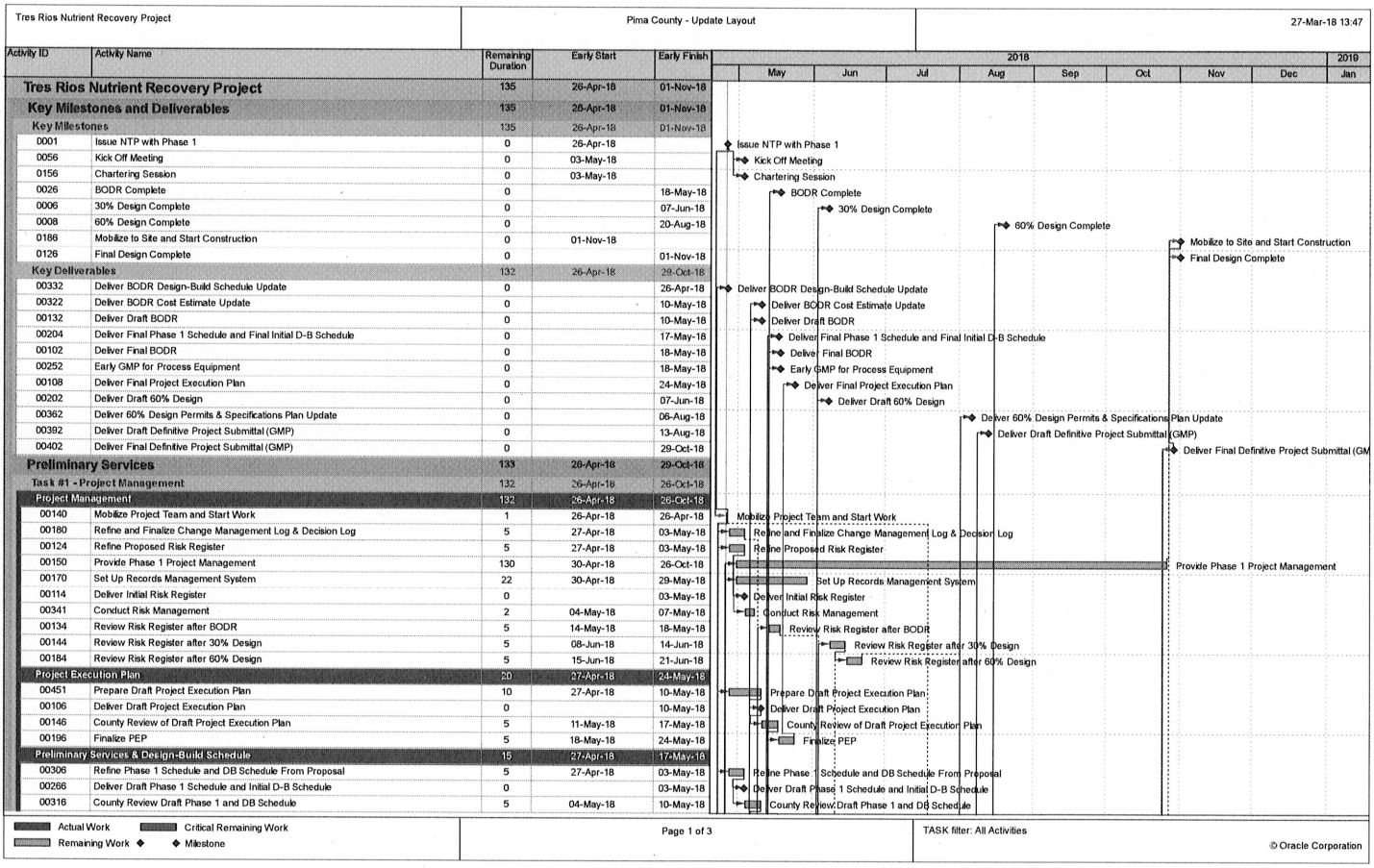
DESIGN-BUILDER

Tony Snead
Authorized Officer Signature

Tony Snead Vice President
Printed Name and Title

4/12/2018
Date

EXHIBIT A - PRELIMINARY SCHEDULE (3 pages)



Tres Rios Nutrient Recovery Project | Pima County - Update Layout | 27-Mar-18 13:47

Activity ID	Activity Name	Remaining Duration	Early Start	Early Finish
Tres Rios Nutrient Recovery Project		135	26-Apr-18	01-Nov-18
Key Milestones and Deliverables		135	26-Apr-18	01-Nov-18
Key Milestones		135	26-Apr-18	01-Nov-18
0001	Issue NTP with Phase 1	0	26-Apr-18	
0056	Kick Off Meeting	0	03-May-18	
0156	Chartering Session	0	03-May-18	
0026	BODR Complete	0		18-May-18
0006	30% Design Complete	0		07-Jun-18
0008	60% Design Complete	0		20-Aug-18
0186	Mobilize to Site and Start Construction	0	01-Nov-18	
0126	Final Design Complete	0		01-Nov-18
Key Deliverables		132	26-Apr-18	29-Oct-18
00332	Deliver BODR Design-Build Schedule Update	0		26-Apr-18
00322	Deliver BODR Cost Estimate Update	0		10-May-18
00132	Deliver Draft BODR	0		10-May-18
00204	Deliver Final Phase 1 Schedule and Final Initial D-B Schedule	0		17-May-18
00102	Deliver Final BODR	0		18-May-18
00252	Early GMP for Process Equipment	0		18-May-18
00108	Deliver Final Project Execution Plan	0		24-May-18
00202	Deliver Draft 60% Design	0		07-Jun-18
00362	Deliver 60% Design Permits & Specifications Plan Update	0		06-Aug-18
00392	Deliver Draft Definitive Project Submittal (GMP)	0		13-Aug-18
00402	Deliver Final Definitive Project Submittal (GMP)	0		29-Oct-18
Preliminary Services		133	26-Apr-18	29-Oct-18
Task #1 - Project Management		132	26-Apr-18	26-Oct-18
Project Management		132	26-Apr-18	26-Oct-18
00140	Mobilize Project Team and Start Work	1	26-Apr-18	26-Apr-18
00180	Refine and Finalize Change Management Log & Decision Log	5	27-Apr-18	03-May-18
00124	Refine Proposed Risk Register	5	27-Apr-18	03-May-18
00150	Provide Phase 1 Project Management	130	30-Apr-18	26-Oct-18
00170	Set Up Records Management System	22	30-Apr-18	29-May-18
00114	Deliver Initial Risk Register	0		03-May-18
00341	Conduct Risk Management	2	04-May-18	07-May-18
00134	Review Risk Register after BODR	5	14-May-18	18-May-18
00144	Review Risk Register after 30% Design	5	08-Jun-18	14-Jun-18
00184	Review Risk Register after 60% Design	5	15-Jun-18	21-Jun-18
Project Execution Plan		20	27-Apr-18	24-May-18
00451	Prepare Draft Project Execution Plan	10	27-Apr-18	10-May-18
00106	Deliver Draft Project Execution Plan	0		10-May-18
00146	County Review of Draft Project Execution Plan	5	11-May-18	17-May-18
00196	Finalize PEP	5	18-May-18	24-May-18
Preliminary Services & Design-Build Schedule		15	27-Apr-18	17-May-18
00306	Refine Phase 1 Schedule and DB Schedule From Proposal	5	27-Apr-18	03-May-18
00266	Deliver Draft Phase 1 Schedule and Initial D-B Schedule	0		03-May-18
00316	County Review Draft Phase 1 and DB Schedule	5	04-May-18	10-May-18

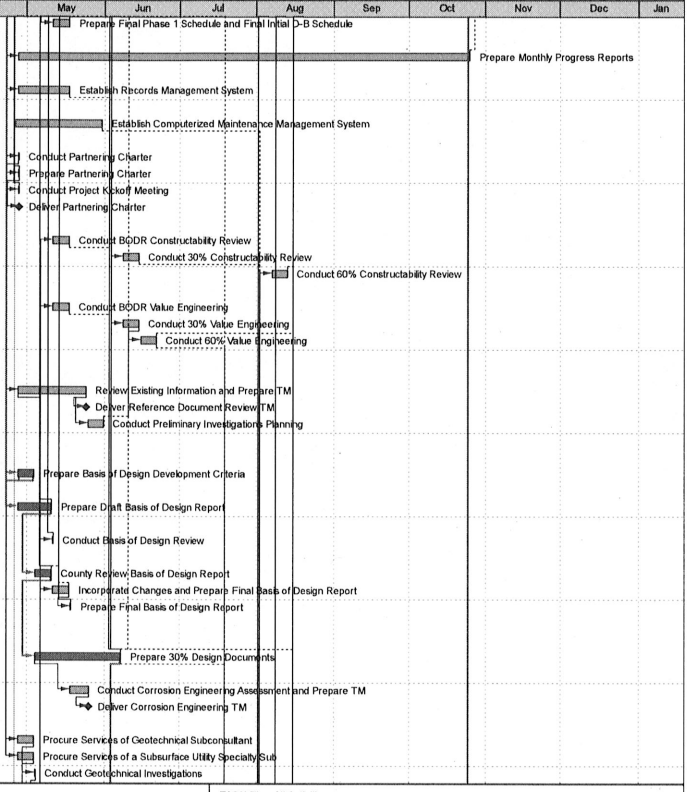
Actual Work | Critical Remaining Work | Remaining Work | Milestone

Page 1 of 3

TASK filter: All Activities

Tres Rios Nutrient Recovery Project | Pima County - Update Layout | 27-Mar-18 13:47

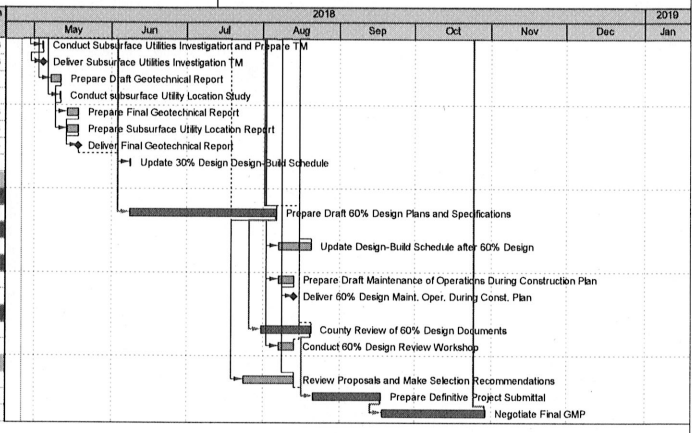
Activity ID	Activity Name	Remaining Duration	Early Start	Early Finish
00326	Prepare Final Phase 1 Schedule and Final Initial D-B Schedule	5	11-May-18	17-May-18
Monthly Project Report Requirements		130	27-Apr-18	25-Oct-18
0076	Prepare Monthly Progress Reports	130	27-Apr-18	25-Oct-18
Records Management System		15	27-Apr-18	17-May-18
0086	Establish Records Management System	15	27-Apr-18	17-May-18
Computerized Maintenance Management System		25	26-Apr-18	30-May-18
0096	Establish Computerized Maintenance Management System	25	26-Apr-18	30-May-18
Kickoff Meeting and Partnering		1	27-Apr-18	27-Apr-18
00160	Conduct Partnering Charter	1	27-Apr-18	27-Apr-18
00261	Prepare Partnering Charter	1	27-Apr-18	27-Apr-18
00142	Conduct Project Kickoff Meeting	1	27-Apr-18	27-Apr-18
00172	Deliver Partnering Charter	0		27-Apr-18
Constructability Reviews		67	11-May-18	13-Aug-18
00212	Conduct BODR Constructability Review	5	11-May-18	17-May-18
00432	Conduct 30% Constructability Review	5	08-Jun-18	14-Jun-18
00462	Conduct 60% Constructability Review	5	07-Aug-18	13-Aug-18
Value Engineering		30	11-May-18	21-Jun-18
00222	Conduct BODR Value Engineering	5	11-May-18	17-May-18
00442	Conduct 30% Value Engineering	5	08-Jun-18	14-Jun-18
00452	Conduct 60% Value Engineering	5	15-Jun-18	21-Jun-18
Task #2 - Permitting Assistance		25	27-Apr-18	31-May-18
Permitting Work Plan		25	27-Apr-18	31-May-18
00141	Review Existing Information and Prepare TM	20	27-Apr-18	24-May-18
00242	Deliver Reference Document Review TM	0		24-May-18
00562	Conduct Preliminary Investigations Planning	5	25-May-18	31-May-18
Task #3 - Preliminary Design		16	27-Apr-18	18-May-18
Basis of Design Development		5	27-Apr-18	03-May-18
00311	Prepare Basis of Design Development Criteria	5	27-Apr-18	03-May-18
Draft Basis of Design Report (BDR)		10	27-Apr-18	10-May-18
00321	Prepare Draft Basis of Design Report	10	27-Apr-18	10-May-18
Basis of Design Review Workshop		1	11-May-18	11-May-18
00331	Conduct Basis of Design Review	1	11-May-18	11-May-18
Final Basis of Design Report		11	04-May-18	18-May-18
00157	County Review Basis of Design Report	5	04-May-18	10-May-18
00167	Incorporate Changes and Prepare Final Basis of Design Report	5	11-May-18	17-May-18
00710	Prepare Final Basis of Design Report	1	18-May-18	18-May-18
Task #4 - Field Investigations		31	27-Apr-18	08-Jun-18
Review Reference Documents		25	04-May-18	07-Jun-18
00164	Prepare 30% Design Documents	25	04-May-18	07-Jun-18
Site Analysis		6	18-May-18	25-May-18
00244	Conduct Corrosion Engineering Assessment and Prepare TM	6	18-May-18	25-May-18
00312	Deliver Corrosion Engineering TM	0		25-May-18
Subsurface Investigations		31	27-Apr-18	08-Jun-18
00512	Procure Services of Geotechnical Subconsultant	5	27-Apr-18	03-May-18
00610	Procure Services of a Subsurface Utility Specialty Sub	5	27-Apr-18	03-May-18
00590	Conduct Geotechnical Investigations	1	04-May-18	04-May-18



Actual Work | Critical Remaining Work | Remaining Work | Milestone

TASK filter: All Activities

Activity ID	Activity Name	Remaining Duration	Early Start	Early Finish
00580	Conduct Subsurface Utilities Investigation and Prepare TM	1	04-May-18	04-May-18
00272	Deliver Subsurface Utilities Investigation TM	0		04-May-18
00620	Prepare Draft Geotechnical Report	5	07-May-18	11-May-18
00151	Conduct subsurface Utility Location Study	1	11-May-18	11-May-18
00532	Prepare Final Geotechnical Report	5	14-May-18	18-May-18
00301	Prepare Subsurface Utility Location Report	5	14-May-18	18-May-18
00542	Deliver Final Geotechnical Report	0		18-May-18
00760	Update 30% Design Design-Build Schedule	1	08-Jun-18	08-Jun-18
Task #6 - Design Development (60%)		52	08-Jun-18	20-Aug-18
60% Plans and Specifications		42	08-Jun-18	06-Aug-18
990	Prepare Draft 60% Design Plans and Specifications	42	08-Jun-18	06-Aug-18
Updated Design-Build Schedule		10	07-Aug-18	20-Aug-18
1020	Update Design-Build Schedule after 60% Design	10	07-Aug-18	20-Aug-18
Draft Maintenance of Operations During Construction Plan		5	07-Aug-18	13-Aug-18
1070	Prepare Draft Maintenance of Operations During Construction Plan	5	07-Aug-18	13-Aug-18
1080	Deliver 60% Design Maint. Oper. During Const. Plan	0		13-Aug-18
60% Design Workshop and County Review		15	31-Jul-18	20-Aug-18
1100	County Review of 60% Design Documents	15	31-Jul-18	20-Aug-18
1090	Conduct 60% Design Review Workshop	5	07-Aug-18	13-Aug-18
Task #8 - Construction GMP		70	24-Jul-18	29-Oct-18
00950	Review Proposals and Make Selection Recommendations	15	24-Jul-18	13-Aug-18
00860	Prepare Definitive Project Submittal	20	21-Aug-18	17-Sep-18
00960	Negotiate Final GMP	30	18-Sep-18	29-Oct-18



Actual Work | Critical Remaining Work | Remaining Work | Milestone

TASK filter: All Activities

Design Build Services

Scope of Work – Phases 1

Tres Rios WRF Nutrient Recovery Project (3BBUMP)

Pima County, Arizona
(Solicitation No. 262765)

Scope of Work

1.0 Project Management

1.1 PROJECT EXECUTION PLAN

HDR will prepare a Project Execution Plan (PXP) that will be submitted within 60 days of Notice to Proceed (NTP). The PXP will include a Quality Management Plan (QMP) and a Health and Safety Plan (HSP).

1.2 PROJECT KICK-OFF AND CHARTERING MEETINGS

The kick-off meeting and chartering meetings will be held on the same day and will be organized and conducted by HDR.

1.3 CONTRACT ADMINISTRATION

HDR will perform internal project administration throughout the Task Order to include team coordination, management, subcontracts, monthly reporting, and invoicing. HDR will include a Monthly Progress Report with the monthly project invoice.

1.4 PROJECT SCHEDULE AND CONTROLS

HDR will prepare a detailed baseline schedule using Primavera P6 that will be submitted within 60 days of Notice to Proceed. This schedule will not be cost loaded.

1.5 PROJECT COORDINATION AND PROGRESS MEETINGS

HDR will conduct bi-weekly meetings over an eight (8) month period for a total of 16 meetings. Meeting agendas will be prepared and distributed 2 days prior to the meeting and meeting minutes will be prepared and distributed within 3 days following the meeting.

1.6 – NOT APPLICABLE

1.7 QUALITY ASSURANCE/QUALITY CONTROL MANAGEMENT

See Task 1.1 – Project Execution Plan.

1.8 PUBLIC INFORMATION ASSISTANCE

Public Information Assistance is assumed to not be required as part of this project.

1.9 CONSTRUCTION COST ESTIMATING/GUARANTEED MAXIMUM PRICE REVIEWS

HDR will prepared three estimates, Preliminary Design Report (30% design), Guaranteed Maximum Price (GMP) for early procurement and construction GMP.

1.10 PROJECT CLOSEOUT

HDR will provide closeout services for engineering related activities. Electronic copies of design deliverables and CAD will be provided to PCRWRD.

Task 1.0 Deliverables

All Task 1.0 deliverables are assumed to be prepared and submitted by HDR.

- Project Execution Plan
- Project Kickoff/Chartering Meeting
- Invoices
- Draft Project Baseline Schedule
- Monthly Progress Report
- Bi-weekly Progress Meeting
- Three Cost Estimates

2.0 Permitting Assistance

2.1 PERMITTING WORKPLAN

HDR will prepare a permitting work plan that will outline the schedule and requirements for the project engineering-related permits. HDR will participate in a permitting workshop with PCRWRD.

It is anticipated that the Tres Rios APP and AZPDES permits will require minor amendments to be submitted by PCRWRD to ADEQ with supporting documentation provided by HDR. HDR will be responsible for obtaining building permits, and HDR will provide the necessary documentation to support the applications, i.e. plans, specifications, geotechnical reports, and structural calculations. It is assumed that PCRWRD will pay the permit fees. HDR will prepare draft and final permit applications for the following:

- Construction Permits
    - Storm water Construction Permit and SWPPP
    - Grading and excavation
    - Air permit
- Building permits (control building, stairs, etc.)
- Paving permits

Task 2.0 Deliverables

- Permitting Work plan
- Construction permit applications
- Building permit applications
- Grading permit applications

3.0 Preliminary Design

3.1 DATA AND INFORMATION COLLECTION

HDR engineers will visit the proposed facility location and meet with PCRWRD plant staff to collect information for the Tres Rios WRF. Information will include as-built drawings for existing facilities, operating data, engineering and geotechnical reports.

3.2 SURVEY AND MAPPING

HDR shall conduct a horizontal and vertical control survey based on PCRWRD specifications contained within Appendix B of the Request for Proposals. The site is considered too small to support an aerial survey. A static GPS survey will be conducted to ensure accuracy and the set bench marks/site control points and Pima County control points will be tied into the control network. A detailed topographic survey shall be conducted on the Nutrient Recovery System site, and between the digesters and solids handling facility, locating visible surface features including valves, meters and covers and other visible signs of utilities. HDR shall create full documentation including coordinate listings, field notes, GPS static reports and survey drawings in a sealed report.

3.3 AS-BUILT VALIDATION/DEVELOPMENT

HDR engineers will visit the proposed facility location to compare collected as-built information and field survey information to validate the locations of existing facilities.

3.4 VISUAL INSPECTION AND PHOTOGRAPHY

The site visit will include photographing existing facilities, but will not include laser or 3D scanning of existing facilities. Task 3.4 will be performed concurrently with Task 3.3.

3.5 – NOT APPLICABLE

3.6 DESIGN CRITERIA DEVELOPMENT/CONFIRMATION

3.6.1 LEED Strategies

LEED Strategies are assumed to not be required as part of this project.

3.6.2 Project Design Standards

HDR will prepare design documents based on meeting PCRWRD standards and Pima County Development Services building permit requirements, augmented by HDR design standards as necessary.

3.6.3 Design Submittals

Design submittals will conform to the requirements outlined in Appendix B of the SFQ, to include the following considerations:

- Submittal requirements
- Consistency with Technical Specifications
- Identification of deviations
- Verification of submittals
- County review
- Responses to county review
- No time extensions

3.6.4 Design Memoranda

HDR will prepare a series of Design Memoranda as outlined in Appendix B of the SFQ:

- Site layout: Based on survey and as-built information.
- Site utility requirements: Based on as-built information.
- Power and electrical systems: Based on as-built information.
- Instrumentation and Controls System (SCADA): HDR will meet with PCRWRD I&C staff to discuss SCADA integration and controls.
- Construction packaging, sequencing and duration: to be prepared and submitted by HDR.
- Maintenance of existing operations (MOPOs) during construction; to be prepared and submitted by HDR.
- Security: HDR will meet with the PCRWRD security administrator, and will incorporate safety standards into the design. HDR will not develop security standards for this facility.
- Design Criteria: Each design memorandum will summarize the guiding design criteria for each engineering discipline.
- Pre-purchased equipment and materials: HDR will prepare technical specification for the Nutrient Recovery Facility equipment and other long lead items. The technical specifications will be based on 30% design documents and review of Tres Rios WRF operations and performance data.

3.7 PRELIMINARY DESIGN REPORT

The Design Memoranda prepared as part of Task 3.6 will be combined into a single preliminary design report.

Task 3.0 Deliverables

- Sealed survey report.
- Draft and Final Preliminary Design Reports.

4.0 Field Investigations

4.1 GEOTECHNICAL

HDR will perform 2-3 borings and associated lab testing of soil samples, including one for the tank, and 1-2 for the control building an equipment pads. HDR will coordinate all field work and laboratory services. Based on field results and a review of existing geotechnical reports for the Tres Rios WRF site, HDR will prepare a geotechnical recommendations report for the Nutrient Recovery Facility.

4.2 CORROSION

HDR will conduct Wenner 4-pin soil resistivity measurements at the site, and will review existing cathodic protection systems as indicated in facility as-builts. Based on the results of this analysis, HDR will prepare a brief corrosion mitigation recommendations technical memorandum (TM) that will include painting, coating, lining, and cathodic protection recommendations for mechanical equipment.

4.3 SUBSURFACE UTILITY ENGINEERING (SUE)

HDR will pothole key tie-in locations for the Nutrient Recovery Facility. Based on a preliminary review of existing facilities and as-built drawings, HDR has estimated that only one day of SUE support and approximately six (6) potholes will be required at the site. All potholes will be conducted outside of paved areas and will not disturb plant operations.

4.4 LEGAL SURVEY

The proposed Nutrient Recovery Facility footprint is wholly contained within the existing Tres Rios WRF site. A legal survey is assumed to not be required as part of this project.

4.5 ENDANGERED SPECIES SURVEY

The proposed Nutrient Recovery Facility has been previously cleared and graded. An endangered species survey is assumed to not be required as part of this project.

4.6 NATIVE PLANT MITIGATION PLAN

The proposed Nutrient Recovery Facility has been previously cleared and graded. A native plant mitigation plan is assumed to not be required as part of this project.

Task 4.0 Deliverables

- Draft and Final Geotechnical Report.
- Draft and Final Corrosion TM.

5.0 Schematic Design (30%)

Based on HDR's understanding of this project and our prior design experience on similar projects, our proposed sheet list is as follows:

Group	Sheet #	Title/Description
GENERAL	1	Cover Sheet
	2	Sheet Index, General Notes, Symbols
	3	Abbreviations
	4	Existing Site Plan and Project Area - Overall Key Plan
	5	Process Flow Diagram (PFD) - Overall
	6	Phosphorus Precipitation (PP) PFD & Mass Balance
CIVIL	7	Site Plan and General Civil Notes
	8	Yard Piping Plan, Sections and Details
	9	Paving and Grading Plan
	10	Paving and Grading Sections and Details
P&ID	11	Solids Process and PP P&ID, Symbols and Abbreviations
STRUCTURAL	12	General Structural Notes
	13	Statement of Special Inspections
	14	Standard Details I
	15	Standard Details II
	16	PP Building Foundation Plan
	17	PP Building Sections
	18	PP Building Roof Plan

Group	Sheet #	Title/Description
ARCHITECTURAL	19	General Architectural Notes
	20	Standard Details I
	21	Standard Details II
	22	Building Roof and Floor Plan
	23	Building Elevations
	24	Building Sections
FIRE PROTECTION	25	Building Fire Protection, Standard Details and Notes
PROCESS / MECHANICAL	26	General Mechanical/Plumbing/HVAC Notes
	27	Standard Details
	28	Process – Overall Plan
	29	Process – Sections and Details
	30	HVAC – Plan and Section Plumbing – Plan and Riser Diagram
ELECTRICAL	31	General Electrical Notes
	32	Site Electrical Plan
	33	MCC One Line Diagram
	34	Building Electrical Plan
	35	Lighting Plan, Fixture Schedule and Details
	36	Panel board Schedule
	37	Instrumentation One Line Diagram
	38	Electrical Details
INSTRUMENTATION	39	General I&C Notes
	40	Control and Logic Diagrams
	41	Control Schematics
	42	Network Architecture
	43	Ethernet Network Diagram
	44	PP Network Diagram
	45	Cabinet Elevations

HDR will update the Design Memoranda and Preliminary Design Report developed as part of Tasks 3.6.4 and 3.6.5 to include updates and revisions incorporated during the Schematic Design phase. Additionally, HDRE will provide engineering quantities to HDRC to assist in the preparation of a 30% construction cost estimate.

HDR will participate in a schematic design model workshop with PCRWRD. The workshop will include 3D renderings of facilities, including those received from the selected equipment vendor. HDR will prepare 10 hard copies of half-sized (11x17) drawings and specifications and a PDF version of the same drawings and specifications for PCRWRD review.

6.0 Design Development (60%)

HDR will update the Design Memoranda and Preliminary Design Report to include updates and revisions incorporated during the Design Development phase.

HDR will participate in a 3D model workshop with PCRWRD. The workshop will include 3D renderings of facilities, including those received from the selected equipment vendor. HDR will

prepare 10 hard copies of half-sized (11x17) drawings and specifications and a PDF version of the same drawings and specifications for PCRWRD review.

7.0 Construction Documents (95%)

HDR will prepare 10 hard copies of half-sized (11x17) drawings and specifications and a PDF version of the same drawings and specifications for PCRWRD review.

HDR will finalize the MOPOs developed as part of Task 3.6.4. The MOPO design memoranda will be prepared and submitted by HDR.

8.0 Construction GMP

HDR will prepare and submit two GMP's. One for the procurement of early equipment purchases and the second for the construction GMP.

9.0 100% Construction Document Completion

HDR will finalized the Design Memoranda and Preliminary Design Report to include updates and revisions incorporated the reviews by PCRWRD and regulatory agencies. HDR will prepare one 22-inch x 34-inch mylars, signed and sealed, and 10 hard copies of full-sized drawings and specifications for PCRWRD. HDR will also deliver all CAD, reports, and specifications in electronic format.

This scope replaces the Phase 1 and Phase 2 scope of work in Appendix "B" – DESIGN-BUILDER GENERAL SCOPE OF WORK from the SFQ in its entirety.

EXHIBIT B - PHASE I SCOPE OF SERVICES AND FEE SCHEDULE: FEE SCHEDULE (2 pages)

Tres Rios Nutrient Recoveryt System Phase 1 Fee

Task No.	Task Description	DB PM	PIC	Sr Tech Advisor	Design Manager	Process Engr	Civil Engr	Struct Engr	Mech Engr	Elect Engr	I&C Engr	Corr. Engr	Ops Engr	Arch	Geotech	Enviro Permit	CADD Tech	Admin/ Clerical	Project Eng	Quality Manager	Safety Manager	Cost Estimator	SCADA Prog.	Purch.	Proj. Cntrl.	ProCon Mgr.	Sched	Total Labor Hours	Total Labor ($)	Total Expenses ($)	Subs ($)	Total Cost ($)
	Phase 1 Rates	$ 147.50	$ 271.31	$ 248.34	$ 186.61	$ 195.18	$134.95	$137.33	$157.10	$186.23	$151.82	$134.31	$178.31	$161.38	$ 201.33	$ 116.38	$ 91.14	$100.18	$134.58	$ 114.70	$ 128.52	$133.78	$117.62	$ 89.83	$ 81.05	$107.06	$ 78.93					
Task 1 - Project Management																																
1.0	Project Management	92	2		40													16										150	$ 23,689	$ 941		$ 24,611
1.1	Project Execution Plan	24																		16	16							56	$ 7,402	$ 372		$ 7,804
1.2.1	Project Kick Off Meeting	8	4		4	16		8		16	4			4		4			4							4		76	$ 13,026	$ 377		$ 13,406
1.2.2	Chartering Meeting	8																								4		12	$ 1,909	$ 80		$ 1,989
1.3	Contract Administration	48			16													72							192			328	$ 20,291	$ 1,215		$ 20,506
1.4	Project Schedule and Controls	64			-																						126	190	$ 18,427	$ 921		$ 19,348
1.5	Project Coordination and Progress Meetings	64			32	16					16								16									144	$ 23,597	$ 838		$ 24,345
1.6	N/A																											-	$ -	$ -		$ -
1.7	Quality Assurance/Quality Control Management	40		80																32	32							184	$ 33,394	$ 1,196		$ 34,590
1.8	Public Information Assistance	36																										36	$ 3,540	$ 177		$ 3,717
1.9	Construction Cost Estimating/ Guaranteed Maximum Price Reviews	40																				360	64	160		48		672	$ 66,658	$ 3,333		$ 69,991
1.10	Project Closeout	40			8													40		8								56	$ 10,416	$ 496		$ 12,912
	Subtotal Task 1	443	6	80	156	32	-	8	-	16	20	-	-	4	-	4	-	128	20	56	48	360	64	160	192	56	126	1,792	$ 233,953	$ 9,027	$ -	$ 242,980
Task 2 - Permitting Assistance																																
2.1	Permitting Workshop	4			4											8										8		24	$ 3,172	$ 117		$ 3,289
2.2	Deliverables - Permitting Workplan, Stormwater Construction Permit Application, Draft & Final Stormwater MSGP Application, AZPDES SWPPP Draft & Final, Draft & Final Regulatory Applicability Analysis TM, Draft & Final Air Permit Application				8											40	8									8		56	$ 9,975	$ 181		$ 7,157
	Subtotal Task 2	4	-	-	12	-	-	-	-	-	-	-	-	-	-	48	8	-	-	-	-	-	-	-	-	8	-	80	$ 13,148	$ 299	$ -	$ 10,447
Task 3 - Preliminary Design																																
3.1	Data and Information Collection				4	8													8							8		28	$ 4,290	$ 132		$ 4,422
3.2	Survey and Mapping				1														4							16		21	$ 2,455	$ 105	$ 10,000	$ 12,555
3.3	As-Built Verification/Development				2														16									18	$ 2,561	$ 56		$ 2,617
3.4	Visual Inspection and Photography				1														8							8		17	$ 2,133	$ 76		$ 2,209
3.5	N/A																											-	$ -	$ -		$ -
3.6	Design Criteria Development/Confirmation																											-	$ -	$ -		$ -
3.6.1	LEED Strategies (if Applicable)																											-	$ -	$ -		$ -
3.6.2	Project Design Standards				2	4	4	4		4	4			4			8											34	$ 5,034	$ 131		$ 5,165
3.6.3.1	Design Submittal																											-	$ -	$ -		$ -
3.6.3.2	Submittal requirements																											-	$ -	$ -		$ -
3.6.3.3	Consistency with technical Specifications																											-	$ -	$ -		$ -
3.6.3.4	Identification of Deviations																											-	$ -	$ -		$ -
3.6.3.5	Verification of Submittal																											-	$ -	$ -		$ -
3.6.3.6	County Review																											-	$ -	$ -		$ -
3.6.3.7	Response to County Review																											-	$ -	$ -		$ -
3.6.3.8	No Tres Extension																											-	$ -	$ -		$ -
3.6.4	Design Memoranda																											-	$ -	$ -		$ -
3.6.4.1	Site Layout				4		16																			8		28	$ 3,661	$ 115		$ 3,788
3.6.4.2	Site Utility Requirements				4	4													8									16	$ 2,663	$ 69		$ 2,732
3.6.4.3	Power/Electrical System				4					8																5		17	$ 2,820	$ 86		$ 2,907
3.6.4.4	Instrumentation and Controls System (SCADA)				4						16												6					26	$ 4,164	$ 131		$ 4,295
3.6.4.5	Construction Packaging, Sequencing and Duration																									32		32	$ 3,429	$ 171		$ 3,597
3.6.4.6	Maintenance of Existing Operations During Construction	8			2	8																				16		34	$ 3,872	$ 137		$ 3,909
3.6.4.7	Security				4						12			4												4		24	$ 3,771	$ 108		$ 3,879
3.6.4.8	N/A																											-	$ -	$ -		$ -
3.6.4.9	Discipline Engineering Design Criteria																											-	$ -	$ -		$ -
3.6.4.10	Pre-Purchased Equipment and Materials	24		2	4	16																		60		24		130	$ 12,319	$ 519		$ 12,870
3.7	Preliminary Design Report	16	-		4	24	8	8	-	8	8			8									24			24		132	$ 17,122	$ 579		$ 17,697
	Subtotal Task 3	48	-	2	48	64	28	12	-	28	48	-	-	16	-	-	8	-	64	-	-	-	32	60	-	145	-	4,383	$ 78,843	$ 2,412	$ 10,000	$ 92,457
Task 4 - Field Investigations																																
4.1	Geotechnical																											-	$ -	$ -		$ -
4.1.1	Site Reconnaissance and Field Exploration				2										8				4									14	$ 2,547	$ 66		$ 2,613
4.1.2	Laboratory Testing														12													12	$ 2,416	$ 63	$ 6,000	$ 8,479
4.1.3	Engineering Analysis and Geotechnical Report Preparation				2										28													30	$ 4,035	$ 157		$ 5,192
4.2	Corrosion				2							16																18	$ 2,547	$ 66		$ 2,613
4.3	Subsurface Utility Engineering				2													4	12									18	$ 2,413	$ 63	$ 4,000	$ 6,476
4.4	Legal Survey																											-	$ -	$ -		$ -
4.5	Endangered Species Survey																											-	$ -	$ -		$ -
4.6.1	Prepare Native Plant Mitigation Plan																											-	$ -	$ -		$ -
	Subtotal Task 4	-	-	-	8	-	-	-	-	-	-	16	-	-	48	-	-	4	16	-	-	-	-	-	-	-	-	92	$ 13,957	$ 413	$ 10,000	$ 24,373
Task 5 - Design 30% thru 100% Design																																
5.1	Civil & Site Development				16	16	110				8						178		48									365	$ 42,488	$ 1,105		$ 43,593
5.2	Landscape Architecture																											-	$ -	$ -		$ -
5.3	Architecture				5									132			132		6									275	$ 36,546	$ 1,003		$ 38,549
5.4	Structural				13			158									140		7									318	$ 37,989	$ 967		$ 38,956
5.5	Foundation/Excavation				2										8													10	$ 2,008	$ 52		$ 2,060
5.6	Process/Hydraulics				1						16						16		1									36	$ 4,524	$ 118		$ 4,642
5.7	Process Mechanical				8	22			84								100		4									218	$ 38,733	$ 747		$ 39,480
5.8	Building HVAC/Plumbing				3	4			52								52		2									113	$ 14,555	$ 378		$ 14,933
5.9	Electrical				16					180							212		8									415	$ 59,803	$ 1,479		$ 58,282
5.10	Instrumentation and Control				12						192						120		6				32					362	$ 47,038	$ 1,313		$ 48,353
5.11	Ancillary Systems																											-	$ -	$ -		$ -
5.12	Updated MOPO Design Memoranda	8			2	8							24															42	$ 6,190	$ 161		$ 6,351
5.13	Schematic Design Report	8			2	8	4	4		4	4	4		4					8									46	$ 6,699	$ 174		$ 6,873

Tres Rios Nutrient Recoveryt System Phase 1 Fee

Task No.	Task Description	DB PM	PIC	Sr Tech Advisor	Design Manager	Process Engr	Civil Engr	Struct Engr	Mech Engr	Elect Engr	I&C Engr	Corr. Engr	Ops Engr	Arch	Geotech	Enviro Permit	CADD Tech	Admin/ Clerical	Project Eng	Quality Manager	Safety Manager	Cost Estimator	SCADA Prog.	Purch.	Proj. Cntrl.	ProCon Mgr.	Sched	Total Labor Hours	Total Labor ($)	Total Expenses ($)	Subs ($)	Total Cost ($)
5.14	Schematic Design Construction Cost Estimate	16																	4									16	$ -	$ -		$ -
5.15	Schematic Design Model and workshop	6			4	16		6		16	4			4			16		4									78	$ 11,051	$ 287		$ 11,338
6.12	Updated MDPD Design Memoranda	4			1	4							16						2													
6.13	Updated Design Report and Drawings	4			1	2	2	2		2	2	2		2			8		4				16									
6.14	Design Development Model and workshop	8			4						4						8		4													
7.1	95% Construction Documents	16			1												8		4				8									
8.1, 9.2	100% Design Report and Drawings	16			1	1	1	1		1	1	1		1			8		4				8									
	Subtotal Task 1	88	-	-	64	81	117	171	136	203	233	7	48	143	8	-	888	-	184	-	-	-	64	-	-	-	-	2,388	268,725	7,065	-	394,531
Totals		888	8	82	264	177	143	181	136	239	293	23	48	163	16	32	1,812	132	184	56	48	248	168	248	192	208	136	6,567	423,839	29,888	29,888	684,767

HDR Billing Rate Schedule - Calendar Year 2018 - 2019

	Personnel Hourly Billing Rates	
Personnel Classification	**2018**	**2019**
CONSTRUCTION STAFF		
Sr. Design Build Project Manager	$ 147.50	$ 151.93
Sr. Pre-Construction Manager	$ 107.06	$ 110.27
Sr. Construction Manager	$ 107.06	$ 110.27
Estimator	$ 133.78	$ 137.80
Procurement / Buyer	$ 88.83	$ 91.50
Sr. Field Superintendent	$ 113.81	$ 117.23
Sr. Integrator / SCADA	$ 117.52	$ 121.05
Project Controls Specialist	$ 61.55	$ 63.39
Quality Control Officer	$ 114.75	$ 118.19
Safety Officer	$ 128.52	$ 132.38
Scheduler	$ 76.93	$ 79.24
ENGINEERING STAFF		
Principal In Charge	$ 271.91	$ 280.07
Design Manager	$ 198.81	$ 204.77
Sr. Technical Advisor	$ 246.24	$ 253.63
Process Engineer	$ 195.18	$ 201.04
Civil Engineer	$ 124.95	$ 128.70
Structural Engineer	$ 137.23	$ 141.35
Mechanical Engineer	$ 157.10	$ 161.81
Electrical Engineer	$ 186.23	$ 191.82
I&C Engineer	$ 151.82	$ 156.37
Corrosion Engineer	$ 134.31	$ 138.34
Architect	$ 181.36	$ 186.80
Clerical / Administrative	$ 100.18	$ 103.19
Geotechnical Engineer	$ 201.33	$ 207.37
Environmental Engineer	$ 116.39	$ 119.88
CAD Technician	$ 91.14	$ 93.87
Operations Engineer	$ 176.31	$ 181.60
Project Engineer	$ 134.58	$ 138.61

Rates Based on the following:

Construction Staff Average Hourly Raw Labor Rate + Overhead - 70% + Profit - 8%

Engineering Staff Average Hourly Raw Labor Rate + Overhead - 185% + Profit - 8%

Escalation 3.0%

APPENDIX "A"

PROJECT SCOPE OF WORK

SCOPE OF SERVICES FOR TRES RIOS NUTRIENT RECOVERY FACILITY

Background

Pima County has two wastewater treatment plants with five-stage Bardenpho or Biological Nutrient Removal (BNR) processes. These plants are the Tres Rios Wastewater Reclamation Facility (WRF), formerly called Ina Road WRF, and the Agua Nueva WRF. BNR processes remove significant amounts of phosphorus and nutrient nitrogen from the effluent discharge with the removed phosphorus bound in the sludge. Pima County has decided to shift from nutrient removal to nutrient recovery based on the technology assessment and life cycle economic results included in the "Ina Road WRF Side Stream Treatment Feasibility Assessment" Report of June 2013, and based on the Bench Top laboratory test results included in the "Nutrient Recovery Project" Report of April 2015.

System Description and Components

Nutrient recovery on this project considers the provision of an induced struvite precipitation reaction and recovery system to form struvite within a controlled reactor, and return the resulting struvite crystals to the digester stream for further thickening and disposal through beneficial application to local farmlands.

The nutrient recovery system is envisioned to receive the digester flow which will be treated to precipitate phosphorus in the form of struvite before returning the struvite to the digester stream prior to further treatment by plant centrifuges.

Main components of the nutrient recovery process system foreseen for this scope of services are described with more detail below.

Reactor and Internal Recycle

The Design-Builder shall verify that under the year 2016 loading conditions the number of reactors for nutrient recovery that are required in the Nutrient Recovery Facility, and allowance for one additional reactor to accommodate future plant loadings.

Chemical Addition (Magnesium Chloride and Sodium Hydroxide Tanks)

Magnesium addition to the feed stream may be required to exceed the stoichiometric phosphate content in the reactor feed stream for complete struvite formation. Ammonia levels are expected to be sufficient for the reaction; however, magnesium chloride (32% MgCl solution) may be needed to provide the appropriate quantity of magnesium. The addition of magnesium chloride tends to depress pH. Sodium hydroxide (50% NaOH solution) may be introduced to the reactor feed to create an alkaline environment with a pH value sufficient to provide optimal chemical reaction (pH greater than 7.6).

Elutriation

Once the product is formed in the reactor, it can be recycled into the digester stream to be disposed of either in thickened sludge or cake form and applied to local farmlands.

Other

To prevent struvite precipitation in the pumps and lines of the nutrient recovery reactors, an easily reversible nutrient control method is necessary.

For the nutrient recovery system and piping, an acid cleaning system is required periodically to remove struvite buildup and scale. A permanent storage tank, pump and piping system is required to clean the systems.

Yard Piping and Valves

The system yard piping includes a sludge feed line from the Digesters to the Nutrient Recovery Facility and one effluent pipeline from Nutrient Recovery Facility to the Centrifuge Facility.

System Design Requirements

The nutrient recovery system 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 Nutrient Recovery Facility after construction. Design submittals will be made to Regional

Wastewater Reclamation Department (RWRD) 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 technical requirements.

The design-build team will have monthly meetings with RWRD. The Contractor will be responsible for the project schedule and monthly updates along with construction cost estimates from project initiation through construction completion.

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 nutrient recovery system will be designed to reliably recover the optimum quantities of struvite from the solids processing system at the Tres Rios WRF on a 24-hour, 365-day per year basis. The effluent from the nutrient recovery system shall not have an ortho-phosphate concentration more than 40mg/L.

Construction Requirements

A General Contractor, appropriately licensed by the State of Arizona will perform all the work necessary to provide a complete and operational nutrient recovery facility. 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 prepare a project schedule from project initiation through construction completion. The first schedule will be submitted at the first monthly meeting. The schedule will updated at least monthly throughout the project. Construction cost estimates will be prepared and included 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.

A draft Operations and Maintenance (O&M) Manual will be submitted to RWRD for comment 60 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 prior to startup and training of the nutrient recovery facility.

Project Schedule Requirements

The Design-Builder shall submit a proposed project schedule to the County within 60 days after the contract date for review and comment by the County. 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.

The schedule 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
- Sitework
- Temporary relocations
- Excavation
- Shutdowns and tie-ins
- Concrete placement (pour and cure time)
- Backfill and compacting
- Raceway and ductbank 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

For 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 days after the County's receipt of the Design-Builder's proposed 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.

System Performance Testing

After substantial completion of construction, the Design-Builder in coordination with the selected nutrient removal technology provider 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 under the guidance of the Nutrient Removal Technology provider 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.

End of Appendix "A" – Project Scope of Work

APPENDIX "B"

DESIGN-BUILDER GENERAL SCOPE OF WORK

Contents

PROJECT DESCRIPTION

This scope of work describes the general services to be provided by the Design-Builder for the design and construction of the Tres Rios Nutrient Removal Facility Project. A separate document, entitled "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 (95%)
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 verses 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 – Nutrient Recovery Facility
2. Final Preliminary Design Report – Nutrient Recovery Facility
3. Workshop Summary
4. Draft preparation of required permits and accompanying documentation
5. Not Applicable
6. Not Applicable
7. Not Applicable
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

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

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 with the County to develop the proposed plant list and landscaping approach.
- Prepare up to three (3) conceptual designs. One concept will be selected and incorporated into the construction documents.
- Develop planting plans indicating the location of plant materials. The plans will: list plants by botanical name and common name with sub-species as required; include the total number of each variety; and include any special plant considerations with technical specifications and details.
- Coordinate irrigation system requirements with site civil for reclaimed water distribution irrigation supply.
- Provide low voltage lighting fixture locations and recommended manufacturers. Identify special lens or bulb patterns and recommended transformer locations.
- 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 tine 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

- Develop construction details for planting and irrigation.
- Develop technical specifications for landscape architectural elements and construction.
- Develop details, as necessary, for interpretive signage.
- Provide schedule of plant materials. Schedules will include plant type, plant botanical name, size, quantity, and any special planting considerations.
- Provide schedules of irrigation components. Schedules will include information on the type of piping, controller, backflow preventers, heads, quick couplers, sleeves, gate valves, v-strainers, and enclosures.
- Provide plans of landscape lighting layouts and equipment specification.
- 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.