



# COUNCIL DECISION REQUEST

SUBJECT: Water Treatment Plant Design

MEETING DATE: December 13, 2012

SUBMITTED BY: LaRon Garrett, Asst Town Manager

SUBMITTAL TO AGENDA  
APPROVED BY TOWN MANAGER

AMOUNT BUDGETED: \$4,250,000.00

EXPENDITURE REQUIRED: \$2,513,900.00

DKG

EXHIBITS (If Applicable, To Be Attached): Sunrise Engineering Statement of Qualifications, Proposed Contract

**POSSIBLE MOTION: I MOVE TO APPROVE THE CONTRACT WITH SUNRISE ENGINEERING FOR THE CC CRAGIN RESERVOIR WATER SUPPLY PROJECT WATER TREATMENT PLANT FINAL DESIGN AND POST-DESIGN SERVICES, TO AUTHORIZE THE TOWN MANAGER TO SIGN ALL DOCUMENTS NECESSARY, AND ALLOCATE ALL COSTS TO THE WATER ENTERPRISE FUND.**

**SUMMARY OF THE BASIS FOR POSSIBLE MOTION:**

On October 23, 2012, the Town of Payson advertised for Statement of Qualifications from engineering firms for the final design of the Town's future water treatment plant to be constructed on E. Huston Mesa near the Mesa del Caballo subdivision. On November 27, 2012, one response was received and the respondent has been determined to be qualified for the water treatment plant design. Funding for this effort is provided from a current loan from the Water Infrastructure Finance Authority of Arizona

The proposed contract for this project will include the final design of the water treatment plant, post-design services for the water treatment plant, and post design services for the penstock transporting water to the water treatment plant. The initial design phase for the treatment plant will be completed in approximately 18 months. The post-design services will be completed as the construction is done. The current schedule is to have the construction complete by the end of 2015. However, that schedule depends on receiving the necessary funding within the next 12-18 months. The budget will be adjusted at the beginning of each year depending on the proposed work for that year.

**PROS: Award of contract allows the Town to stay on time for construction and completion of the project in 2015. Achieves Town goal of continuing to develop the CC Cragin Project for future water supply.**

**CONS:** N/A

<b><u>FUNDING:</u></b>		3,090,914	2,513,900	577,014
Acct:662-5451-00-8600	Budget:\$4,250,000	Available:	Expense:	Remaining:
Acct:	Budget:	Available:	Expense:	Remaining:

FM: Sammy Q. Endow for Hope Crabb Date: 12-10-12

DEC 13 2012 I, 2

**C. C. CRAGIN DESIGN and POST-DESIGN SERVICES CONTRACT  
BETWEEN  
SUNRISE ENGINEERING, INC.  
AND THE TOWN OF PAYSON**

1. **Parties.** The parties to this Contract are Sunrise Engineering, Inc., a Utah Corporation authorized to do business within the State of Arizona, (“Consultant”), and the Town of Payson, an Arizona municipal corporation, (Town) (collectively, the “Parties”). The Town and the Consultant agree as follows:
  
2. **Scope of Services**
  - 2.1 In general, to provide design and post design services for the C. C. Cragin Water Treatment Plant and to provide post-design services for the C. C. Cragin Raw Water Penstock and Hydroelectric Facility. See Attached Exhibit ‘1’ for the detailed Scope of Services.
  
  - 2.2 Extra Services. Consultant shall provide extra services, not specifically called for in the Scope of Services, upon request or authorization of the Town at a fee to be determined at the time of the request. However, it is the intent that the Scope of Services, with modifications by the Consultant in the Special Provisions, if any, is complete and sufficient to accomplish the purposes of this Contract.
  
  - 2.4 Changes. If the Town has requested modifications or changes in the extent of the Project, the time of performance of the services of Consultant and the compensation shall be adjusted appropriately and shall be incorporated in written amendments to this Contract. Consultant shall perform no modification, changes or additional work, except as and until authorized in writing by the Town to do so.
  
  - 2.3 Supplementary Conditions. Supplementary Conditions, if any, are set forth in Attachment "B."
  
3. **Effective Date and Term.**
  - 3.1 This Contract shall be effect on the date of the last signature of the Parties and shall terminate on completion of the project.
  
  - 3.2 The design portion of this project shall be completed on or before June 30, 2014. The post-design services of this project shall be completed within 30 days of the completion of construction of the raw water penstock, hydroelectric facility, and water treatment plant.
  
  - 3.3 Delays Beyond the Control of the Consultant. Events beyond the control of the Consultant may occur which may delay the performance of the Scope of Services.

In the event of such delay, the Consultant shall notify the Town in writing of the delay and Town shall extend the time of performance appropriately.

#### 4. Professional Fees and Payment.

##### 4.1 Fees.

- 4.1.1 The fee for this contract shall be in three parts: 'Lump Sum', 'Time & Materials Not to Exceed a Maximum' cost (T&M-NTE) and 'Time & Materials'. The specific fee breakdown is shown on attached Exhibit 2 consisting of three pages.
- 4.1.2 The Town shall pay Consultant a fixed fee of Nine Hundred Twenty Thousand, Three Hundred Dollars and No/100 (\$920,300.00) for the services defined as 'Lump Sum' in Exhibits 1 and 2.
- 4.1.3 The Town shall pay Consultant an hourly rate according to Exhibit B of the Scope of Services up to a maximum of One Million, Five Hundred Ninety Three Thousand, Six Hundred Dollars and No/100 (\$1,593,600.00) for the services defined as 'T&M-NTE' in Exhibits 1 and 2.
- 4.1.4 The remainder of the items set forth in the Scope of Services shall be on a 'Time and Materials' hourly rate according to Exhibit B of the Scope of Services.

##### 4.2 Payment.

- 4.2.1 Consultant will submit to the Town monthly invoices based on a percentage of work completed along with all reimbursable expenses incurred. The Town will pay the invoice within thirty (30) days of receipt. If the Town fails to pay any invoice within thirty (30) days after receipt, the amount due shall include a charge at the rate of 1.50% per month. In addition, Consultant may suspend services until it has been paid in full all amounts due it for services and expenses. Consultant shall be entitled to actual costs for remobilizing on any work suspended for thirty (30) days or more on account of non-payment or a substantial portion of the fee within the time prescribed in this Contract.
- 4.2.2 Payment for the 'Lump Sum' items shall be invoiced based on a percent complete at the time of the billing for each item.
- 4.2.3 Payment for the 'Time & Materials Not to Exceed a Maximum' cost items shall be invoiced for the actual time and materials expended performing each of the identified items up to the identified maximum fee.

4.2.4 Payment for the 'Time & Materials' cost items shall be invoiced for the actual time and materials expended performing each of the identified items.

4.3 Reimbursables. Unless otherwise stated in the Scope of Services, charges for out-of-pocket expenses not directly furnished by Consultant will be paid by Town at a rate of 1.10 times the cost of such expenses. Costs of printing, binding, copying and deliveries of documents, inspection reports, field notes and record drawings are not reimbursable, unless stated otherwise in the Scope of Services.

5. **Insurance.** Consultant shall provide and maintain the minimum insurance coverage as follows:

5.1 Workers Compensation Insurance to cover obligations imposed by Federal and State Statutes having jurisdiction of its employees engaged in the performance of the Services, and Employer's Liability insurance with a minimum limit of ONE HUNDRED THOUSAND DOLLARS (\$100,000).

5.2 Comprehensive General Liability insurance with a minimum combined single limit of TWO MILLION DOLLARS (\$2,000,000) each occurrence. The policy shall include coverage for bodily injury liability, property damage liability, personal injury liability (including coverage for contractual and employee acts), and blanket contractual. The policy shall contain a severability of interests provision.

5.3 Comprehensive Automobile Liability insurance with a combined single limit for bodily injury and property damage of not less than FIVE HUNDRED THOUSAND DOLLARS (\$500,000) each occurrence with respect to Consultant's vehicles whether owned, hired, or non-owned, assigned to be used in the performance of the services.

5.4 Professional Liability insurance with a minimum limit of ONE MILLION DOLLARS (\$1,000,000.00) per claim.

5.5 The policies required by Sections 5.2, 5.3, and 5.4 shall be endorsed to include Town, its officers and employees as additional insureds, and shall stipulate that the insurance afforded for Town, its officers and employees shall be primary insurance and that any insurance carried by Town, its officers or employees shall be excess and not contributory insurance.

5.6 Consultant and its insurers providing the required coverages shall waive all rights of subrogation against Town and its officers, employees, and agents.

5.7 Prior to commencing Services, Consultant shall furnish Town with Certificates of Insurance as evidence that policies providing the required coverages, conditions, and limits are in full force and effect. Such certificates shall provide that not less

than thirty days advance notice of cancellation, termination, or alteration shall be sent directly to Town's representative as identified in Paragraph 15.2.

5.8 Town reserves the right to request and receive certified copies of any or all of the above insurance policies and/or endorsements.

6. **Indemnity.**

6.1 Consultant shall indemnify, hold harmless and defend the Town of Payson and its agents and employees from all suits and actions, including reasonable attorneys' fees and all costs of litigation and judgment of every name and description against the Town as a result of loss, damage, or injury to person or property by reason of any action or omission by Consultant, its agents, or employees on account of loss of or damage to any property and for injuries to or death of any person by reason of or arising out of any act or omission by Consultant, its employees and agents, or arising out of any defects in the methods, equipment or tools used, or in the manner of carrying on the Services itself, or arising out of workmen's compensation claims, unemployment compensation claims, or unemployment disability compensation claims of employees of Consultant or out of claims under similar such laws.

6.2 Consultant shall further indemnify, hold harmless, and defend the Town and all of its employees and agents from any and all suits and actions, including costs of investigation and apprehension of persons involved, attorney's fees and/or litigation expenses, which may be brought or made against or incurred by Town arising out of any dishonest act on the part of Consultant, its employees, agents, representatives, or subcontractors.

7. **Modification.** This Contract may only be amended or modified by a written instrument executed by the Town and the Consultant.

8. **Termination.** This Contract may be terminated by either Party upon thirty (30) days prior written notice. Upon termination, (a) the Town shall pay Consultant all monies owed under this Contract for all work performed up to the effective date of termination; and (b) all work performed by Consultant up to that time, including but not limited to field information, studies and rough or final drafts of working papers, shall be delivered to the Town.

9. **Taxes.** Consultant shall have exclusive liability for and shall pay all taxes and fees imposed in connection with any part of the Services. Consultant shall hold the Town harmless for these taxes and fees.

10. **Laws and Regulations.** Consultant and its employees shall comply with all applicable laws, ordinances, statutes, rules and regulations, of the United States, State of Arizona, and local governments, including but not limited to those relating to wages, hours, discrimination, and safety (including OSHA).

11. **Dispute Resolution.**

11.1 This Contract shall be governed and construed in accordance with the laws of the State of Arizona.

11.2 With the written consent of the Parties, any dispute, controversy, claim, or cause of action arising out of or related to this Contract may be settled by submission to binding arbitration in accordance with the rules of the American Arbitration Association and the Arizona Uniform Arbitration Act, A.R.S. § 12-1501, et seq. Judgment upon any award rendered by the arbitrator(s), if filed in Arizona Superior Court, shall be filed in the Superior Court of Gila County, Arizona.

11.3 The venue for any such dispute shall be Gila County, Arizona. Both Parties consent in advance to such venue and jurisdiction and waive any right to object that Gila County is an inconvenient or improper forum.

11.4 Neither Party shall be entitled to recover from the other party any of its attorneys' fees, costs, or expert witness fees incurred in any such dispute, controversy, claim, or cause of action. Each party shall bear its own attorneys' fees without contribution from the other party.

12. **Cancellation (A.R.S. §38-511).** This Contract is subject to the provisions of A.R.S. § 38-511 which provides for cancellation of contracts by the municipality for certain conflicts of interest.

13. **Town Business License.** The Consultant shall obtain a Town business license. If the Consultant is exempt from the Town's business licensing requirements, it shall still provide the Town with the items required under Section 110.03(C)-(D) of the Town Code.

14. **Authorized Presence Requirements/Government Procurement (A.R.S. §41-4401).**

14.1 Consultant and any Subconsultant employed by Consultant warrants their compliance with all Federal immigration laws and regulations that relate to their employees and Arizona Revised Statutes Section 23-214(A).

14.2 A breach of the warranty under Section 14.1 above shall be deemed a material breach of this Contract and shall be subject to penalties up to and including termination of the Contract.

14.3 The Town retains the legal right to inspect the papers of the Consultant or Subconsultant who works on this Contract to ensure that the Consultant or Subconsultant is complying with Section 14.1.

15. **Other Provisions.**

15.1 **Assignment.** Consultant shall not assign or subcontract the Contract or any part without the written consent of Town. The Town may withhold its consent for any or no reason. Any attempted assignment or subcontracting in violation of this Paragraph shall render this Contract void and of no effect.

15.2 **Notices.** All notices, filings, consents, approvals, and other communications under this Contract shall be made, delivered, or served, to:

Town:  
Town of Payson  
303 North Beeline Highway  
Payson, Arizona 85541  
Attention: Debra Galbraith

Consultant:  
Sunrise Engineering, Inc.  
2152 S. Vineyard, Ste. 123  
Mesa, Arizona 85210  
Attention: Gregory D. Potter

or to such other addresses as either Party may from time to time designate in writing and deliver in a like manner. Communication delivered by certified mail shall be deemed delivered forty-eight (48) hours following deposit in the U.S. mail, postage prepaid. Notices delivered personally shall be deemed delivered upon delivery.

15.3 **No Partnership.** Consultant is an independent contractor. This Contract shall not create any employment relationship, partnership, joint venture, or other arrangement between the Parties.

15.4 **No Third Party Beneficiaries.** No term or provision of this Contract is intended to be for the benefit of any person or entity not a party, and no other person or entity shall have any right or cause of action hereunder.

15.5 **Counterparts.** This Contract may be executed in counterparts.

15.6 **No Waiver.** No delay in exercising any right or remedy shall constitute a waiver thereof, and no waiver by the Town of a breach of any of the covenants of this Contract shall be construed as a waiver of any proceeding or succeeding breach of the same or any other covenant or condition of this Contract.

15.7 **Non-Appropriation/Non-Receipt.** The Town shall not have any liability for any future payments of money or expenditures, except for those amounts appropriated, authorized, and administratively allocated for this work. The Town shall not have any liability for payments for which it does not have sufficient revenues for such payments.

15.8 **Construction of Contract.** This Contract shall be construed and interpreted according to its plain meaning, and no presumption shall be deemed to apply in

favor of or against the party drafting this Contract. The parties acknowledge that each has had the opportunity to seek legal counsel in the entry of this Contract.

- 15.9 **Further Documentation.** Each Party agrees in good faith to execute such further documents as may be necessary to carry out the intent of this Contract.
- 15.10 **Time of Essence.** Time is of the essence in this Contract.
- 15.11 **Time Periods.** Except as expressly provided for herein, the time for performance of any obligation or taking any action under this Contract shall be deemed to expire at 5:00 p.m. (Payson time) on the last day of the applicable time period provided. If the time for the performance of any obligation expires on a Saturday, Sunday or legal holiday, the time for performance shall be extended to the next succeeding day which is not a Saturday, Sunday or legal holiday.
- 15.12 **Severability.** If any portion of this Contract is found to be invalid, such finding will not affect the validity of the remainder of this Contract.
- 15.13 **Authority.** The Parties represent that each is fully authorized to execute this Contract by the individual(s) executing below.
- 15.14 **Entire Contract.** This Contract contains the entire agreement between the Parties pertaining to the subject matter. All prior or contemporaneous oral or written agreements concerning the subject matter of this Contract shall have no effect.
- 15.15 **Publicity.** No information relative to the Project shall be released by the Consultant for publication, advertising, or any other purpose without the prior written consent of the Town.
- 15.16 **Ownership and Re-Use of Documents.** All documents prepared during the Scope of Services are the property of the Town, shall be provided to the Town upon request during the Contract, and without request at the conclusion of the Contract. Town will not reuse the documents for any other project without Consultant's written authorization. Pursuant to Arizona's Public Records Act, all documents may be subject to public disclosure.
- 15.17 **Scrutinized Business Operations.** Pursuant to A.R.S. §§35-391.06 and 35-393.06 the Parties hereby represent that they do not have, nor any of their subcontractors have, and during the term of this Contract will not have a scrutinized business operation in either Sudan or Iran.

WHEREFORE, the parties have caused this Contract to be executed by their duly authorized representatives.

**Sunrise Engineering, Inc.**

a Utah Corporation authorized to do business within the State of Arizona

By \_\_\_\_\_

\_\_\_\_\_ Dated

\_\_\_\_\_ Title

**TOWN OF PAYSON,**  
an Arizona municipal corporation

By \_\_\_\_\_

Debra Galbraith  
Town Manager

\_\_\_\_\_ Dated

ATTEST:

\_\_\_\_\_ Silvia Smith, Town Clerk

APPROVAL AS TO FORM

By \_\_\_\_\_

Timothy M. Wright, Town Attorney

\_\_\_\_\_ Dated

## EXHIBIT 1

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

### OVERALL PROJECT DESCRIPTION

The Town of Payson has secured a 3,000 ac-ft annual allocation of water from the C.C. Cragin Reservoir. The Town plans to divert its allocation of water from the existing Hydroelectric Power Plant, operated by the Salt River Project (SRP), on the downstream side of the power generation turbine. The water will be diverted into a new raw water pipeline (Phase I) and delivered to a new water treatment plant (Phase II). Once the water is treated to drinking water standards it will be delivered via a treated water pipeline (Phase III) into the Town's drinking water system. **The scope of work for this contract includes the Final Design for the Water Treatment Plant and Post Design Services for Raw Water Penstock, Water Treatment Plant and Hydroelectric Facility portions of the project.**

### WATER TREATMENT PLANT FINAL DESIGN:

The new water treatment plant design will be a membrane filtration system using Pall Water Processing equipment. The basis for the plant design will be based on the piloting conducted in 2011 and preliminary design report completed in April of 2012 by Sunrise Engineering. A site layout with major components of the proposed treatment plant is shown in Exhibit A. The scope of work has been divided into the following categories:

**PHASE 0001 – WATER TREATMENT PLANT FINAL CIVIL DESIGN:** The scope of work for this item includes the final civil engineering design, plans and specifications for the new water treatment plant facility. The final design will be prepared using the approved preliminary design prepared in the preliminary design report. The scope of work will include the following:

- Building Interior
- Interior Piping and Equipment
- Pall Equipment Submittals & Coordination
- Site Grading & Drainage
- Site Final Drainage Report
- Pre-Treatment (Feed Equipment, Mixer & Tank)
- Concrete Raw Water Feed Tank
- Site Piping
- Backwash Reuse (FEQ Tank & Clarifier)
- Sludge Handling (Pumps & Geotubes)
- Overflow Piping
- Sewer Lift Station & Force Main
- Steel Treated Water Storage Tank
- Post Treatment (GAC & Buffering)
- System Booster Pumps/Distribution Integration

**FEE FOR PHASE 0001: \$583,700**

**FEE TYPE: LUMP SUM**

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

**PHASE 0002 – WATER TREATMENT PLANT FINAL ARCHITECTURAL DESIGN:**

The scope of work for this item includes the final architectural design, plans and specifications for the new water treatment plant facility. The final design will be prepared using the approved preliminary design prepared in the preliminary design report. The scope of work will include the following:

- Building Exterior & Roofing
- Building Elevations
- Door, Window & Room Finish Schedules
- Interior Elevations
- Wall Sections
- Foundation Plan
- Foundation Details
- Roof Framing Plan
- Roof Framing Details
- Truss Sections
- Building Sections
- Structural Engineering

**FEE FOR PHASE 0002: \$38,500**

**FEE TYPE: LUMP SUM**

**PHASE 0003 – WATER TREATMENT PLANT FINAL ELECTRICAL DESIGN:**

The scope of work for this item includes the final electrical design, plans and specifications for the new water treatment plant facility. The final design will be prepared using the approved preliminary design prepared in the preliminary design report. The scope of work will include the following:

- Service design & coordination with APS
- Backup generator design & specifications
- WTP electric design, layout and calculations
  - One-line diagram
  - Panel Schedules
  - Lighting Plans
  - Power Distribution
  - Grounding Plan
- WTP HVAC
- Electrical P&ID's and control drawings
- Electrical specifications

**FEE FOR PHASE 0003: \$95,000**

**FEE TYPE: LUMP SUM**

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

**PHASE 0004 – WATER TREATMENT PLANT – MISCELLANEOUS SERVICES:** The scope of work for this item includes the miscellaneous services for the new water treatment plant facility. The final design will be prepared using the approved preliminary design prepared in the preliminary design report. The scope of work will include the following:

**Task 0004-001 – Project Scoping & Kickoff Meeting:** Meeting with the Town of Payson Staff and consultants to review/amend the design criteria for the water treatment plant and provide an opportunity for input into the control strategy for the overall Cragin project. The meeting goal will be to set the design criteria and control strategy for the project going forward.

**FEE FOR TASK 0004-001: \$15,000                      FEE TYPE: LUMP SUM**

**Task 0004-002 – Quality Assurance/Quality Control Review:** The scope of work for this item includes a quality control review of the design, plans and specifications prior to the project bidding phase. This QA/QC review will be conducted by the senior technical advisor(s) by discipline (i.e. hydro, water treatment) to the project.

**FEE FOR TASK 0004-002: \$14,200                      FEE TYPE: LUMP SUM**

**Task 0004-003 – Permit Applications & Processing:** The scope of work for this item includes completing the applications and submittal packages for the following permits related to the project. Application or submittal fees are not included in this scope of work.

- Tonto National Forest – Special Use Permit
- Gila County – Fire Protection & Houston Mesa Road
- Town of Payson – Building Permit
- ADEQ – Approval to Construct

**FEE FOR TASK 0004-003: \$29,300                      FEE TYPE: T&M NTE**

**Task 0004-004 - Water Treatment Plant Site Geotechnical Report:** The scope of work for this item includes a geotechnical report for the proposed water treatment plant site. This report will be used to determine foundation requirements of the tanks, water treatment plant building and hydroelectric facility.

**FEE FOR TASK 0004-004: \$19,300                      FEE TYPE: LUMP SUM**

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

**PHASE 0005 – WATER TREATMENT PLANT – TIME & MATERIAL SERVICES:** The scope of work for this item includes the miscellaneous services that are best suited for a time and material basis (with an initial budget) due to the unknown amount of work that may be required to accomplish these tasks for the new water treatment plant facility. The scope of work will include the following:

**Task 0005-001 – APS Power Service/Sales Agreements & Coordination:** This contract assumes that the telemetry and SCADA design for the project is being performed by a third party consultant for the Town of Payson. Any consulting services requested by the Town for telemetry and SCADA will be provided on a time and material basis in accordance with the rates and fees shown in Exhibit B.

**FEE FOR TASK 0005-001: T&M (if requested)      FEE TYPE: T&M**

**Task 0005-002 – Telemetry/SCADA Coordination:** This contract assumes that the telemetry and SCADA design for the project is being performed by a third party consultant for the Town of Payson. Any consulting services requested by the Town for telemetry and SCADA will be provided on a time and material basis in accordance with the rates and fees shown in Exhibit B.

**FEE FOR TASK 0005-002: T&M (if requested)      FEE TYPE: T&M**

**Task 0005-003 – Stakeholder Coordination & Public Meetings:** Work with the Town, utility companies, area landowners and agencies having jurisdiction (AHJ) and address stipulations, requirements and concerns that will impact the design, construction and operation of the C.C. Cragin Project. Agency and area stakeholders include:

- |                              |                    |
|------------------------------|--------------------|
| Town of Payson               | Local Communities: |
| Salt River Project           | -Mesa Del Caballo  |
| Gila County                  | -Wonder Valley     |
| Tonto National Forest        | -Beaver Valley     |
| Bureau of Reclamation        | -Whispering Pines  |
| U.S. Army Corps of Engineers | -Verde Glen        |
| Area Utility Companies       | -Rim Trail         |

Scope of work shall include stakeholder meetings when requested by the Town for the duration of the project. Stakeholder meeting will be used to provide project updates, receive comments from stakeholders and share information regarding the project. This scope also includes public meetings when requested by the Town to provide information and solicit input with local communities (i.e. road closures). Any consulting services for

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

Stakeholder Coordination and Public Meetings will be provided on a time and material basis in accordance with the rates and fees shown in Exhibits B.

**FEE FOR TASK 0005-003: T&M (if requested)      FEE TYPE: T&M**

**Task 0005-004 – Meetings & Project Management:** The scope of work included in this task is for the project meetings and management, which is as follows:

- Attend un-scheduled meetings, as requested by the Town.
- Prepare and maintain project schedule.
- Prepare written quarterly project progress update for the scope of work outlined within this contract when requested by the Town.
- Coordinate activities of the project team.

Any consulting services for additional meetings and project management will be provided on a time and material basis in accordance with the rates and fees shown in Exhibits B.

**FEE FOR TASK 0005-004: T&M (if requested)      FEE TYPE: T&M**

**Task 0005-005 – Additional Services:** This scope of work included in this contract has attempted to detail all of the necessary work items to accomplish this project. If unforeseen work items arise during the course of design, construction or start-up the Town can chose to add to that work item to the scope of this contract for Sunrise Engineering or our team to complete. Additional service tasks will be assigned by written work order approved by both the Town and Sunrise Engineering prior to commencing with the work. Any consulting services requested by the Town for additional services will be provided on a time and material basis in accordance with the rates and fees shown in Exhibit B.

**FEE FOR TASK 0005-005: T&M (if requested)      FEE TYPE: T&M**

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

**PHASE 0006 – WATER TREATMENT PLANT & HYDROELECTRIC GENERATOR**

**POST DESIGN SERVICES:** The scope of work for this item includes the post design services for the WTP and the hydroelectric generator. The scope of work will include the following:

**Task 0006-001 - Bidding Services:** Sunrise Engineering will perform bidding services for the water treatment plant and the hydroelectric generator portions of the project which include:

- Conduct Pre-bid conference
- Prepare bid addenda as necessary
- Bid opening attendance
- Prepare bid tabulation & recommend lowest responsible bidder to Town

**FEE FOR TASK 0006-001: \$24,900.00**

**FEE TYPE: T&M NTE**

**Task 0006-002 - Construction Administration:** Sunrise Engineering will perform construction administration services for the water treatment plant and the hydroelectric generator portions of the project which include:

- Pre-construction meeting attendance
- Review and approve/disapprove contractor submittals for the proposed equipment for adherence to the plans and specifications
- Respond, in writing to written contractor RFI's during the course of construction
- Process, review and recommend approval of contractor pay requests
- Process, review and recommend approval of change orders during the construction of the project.

**FEE FOR TASK 0006-002: \$233,300.00**

**FEE TYPE: T&M NTE**

**Task 0006-003 - Construction Observation:** Sunrise Engineering will provide construction observation and meetings with the client and contractor during the construction of the water treatment plant and the hydroelectric generator which includes:

- The construction for this portion of the project is anticipated to last 12 consecutive months. A budget for this scope has been established to include construction observation of the work for the duration of the construction.
- Observe and verify construction/installation substantial conformance with the site construction documents (plans and specifications).
- Provide written documentation of field observations to Town and Contractor, and verify correction of deficiencies as noted.
- Conduct weekly construction coordination meeting during the duration of construction.

**FEE FOR TASK 0006-003: \$350,300.00**

**FEE TYPE: T&M NTE**

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

**Task 0006-004 - Contract Record Drawings:** Sunrise Engineering will provide contract record drawings at the conclusion of the water treatment plant and the hydroelectric generator construction. Services will include:

- Show revisions/modifications occurring during the course of construction on the design/bid plans.
- Provide the Town with contract record drawing hard copies.

**FEE FOR TASK 0006-004: \$25,400.00                      FEE TYPE: LUMP SUM**

**Task 0006-005 – ADEQ Approval of Construction:** Sunrise Engineering will provide contract record drawings at the conclusion of the water treatment plant and the hydroelectric generator construction. Services will include:

- Show revisions/modifications occurring during the course of construction on the design/bid plans.
- Provide the Town with contract record drawing hard copies.

**FEE FOR TASK 0006-005: \$4,900.00                      FEE TYPE: LUMP SUM**

**Task 0006-006 – Plant Start-up Services:** Sunrise Engineering will provide plant and overall C.C. Cragin start-up services at the conclusion of the water treatment plant and the hydroelectric generator construction. Services will include:

- On-site attendance during start-up procedures.
- Reviewing C.C. Cragin system operation with Town staff.
- Troubleshooting start-up issues with contractors, Town consultants (i.e. SCADA), equipment suppliers and manufacturers.
- Preparing and monitoring the completion of punch lists for corrective work identified in the start-up of the system.

**FEE FOR TASK 0006-006: \$51,900.00                      FEE TYPE: T&M NTE**

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

**Task 0006-006 – C.C. Cragin System O&M Manual:** Sunrise Engineering will prepare an Operation and Maintenance Manual at the conclusion of the water treatment plant, hydroelectric generator and raw water penstock construction. Services will include:

- Provide a description of the facility by facility (tailrace, raw water penstock, hydroelectric generator and water treatment plant) operation of the C.C. Cragin System.
- Provide a “Panoview” of the water treatment plant and hydro facility to capture interior and exterior photos and equipment operation and maintenance manuals. This information will be combined into one Panoview asset management digital file.
- Provide a water operation plan and spreadsheets for coordination with SRP water deliveries from C.C. Cragin Reservoir.

**FEE FOR TASK 0006-007: \$98,200.00**

**FEE TYPE: T&M NTE**

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

**PHASE 0007 – RAW WATER PENSTOCK POST DESIGN SERVICES:** The scope of work for this item includes the post design services for the raw water penstock portion of the project. The scope of work will include the following:

**Task 0007-001 - Bidding Services:** Sunrise Engineering will perform bidding services for the tailrace connection portion of the project which include:

- Conduct Pre-bid conference
- Prepare bid addenda as necessary
- Bid opening attendance
- Prepare bid tabulation
- Recommendation of lowest responsible bidder to Town

**FEE FOR TASK 0007-001: \$27,800.00**

**FEE TYPE: T&M NTE**

**Task 0007-002 - Construction Administration:** Sunrise Engineering will perform construction administration services for the raw water penstock portion of the project which include:

- Pre-construction meeting attendance
- Review and approve/disapprove contractor submittals for the proposed equipment for adherence to the plans and specifications
- Respond, in writing to written contractor RFI's during the course of construction
- Process, review and recommend approval of contractor pay requests
- Process, review and recommend approval of change orders during the construction of the project.

**FEE FOR TASK 0007-002: \$283,200.00**

**FEE TYPE: T&M NTE**

	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

**Task 0007-003 - Construction Observation:** Sunrise Engineering will provide construction observation and meetings with the client and contractor during the construction of the tailrace connection which includes:

- The construction for this portion of the project is anticipated to last 18 consecutive months. A budget for this scope has been established to include construction observation of the work for the duration of the construction. The scope is based on the assumption of two (2) construction observers with construction crews for the duration of the project time.
- Observe and verify construction/installation substantial conformance with the site construction documents (plans and specifications).
- Provide written documentation of field observations to Town and Contractor, and verify correction of deficiencies as noted.
- Conduct weekly construction coordination meeting during the duration of construction.

**FEE FOR TASK 0007-003: \$592,900.00                      FEE TYPE: T&M NTE**

**Task 0007-004 - Contract Record Drawings:** Sunrise Engineering will provide contract record drawings at the conclusion of the raw water penstock construction. Services will include:

- Show revisions/modifications occurring during the course of construction on the design/bid plans.
- Provide the Town, USFS and Gila County with contract record drawing hard copies.

**FEE FOR TASK 0007-004: \$26,100.00                      FEE TYPE: T&M NTE**

**SCOPE OF WORK CONDITIONS & EXCLUSIONS**

- A. The scope of work for this contract is limited to the items listed above. If additional items are added to the contract, they will be performed in accordance with rates & fees shown in Exhibits B & C.
- B. Reproduction and mileage costs shall be billed as a reimbursable expense in addition to the contract cost in accordance with the rates and fees shown in Exhibits B.
- C. The fee schedule shown in Exhibit B can be revised to the current annual fee schedule on the anniversary of the contract execution for providing Time and Material services.



	Scope of Work	
	C.C. Cragin Reservoir Water Supply Project Water Treatment Plant Final Design & Post Design Services	

EXHIBIT B

## SUNRISE ENGINEERING, INC.

### Arizona Offices 2012 Fee Schedule

<u>CODE</u>	<u>CLASSIFICATION</u>	<u>RATE</u>	<u>CODE</u>	<u>CLASSIFICATION</u>	<u>RATE</u>
101	Engineer (E.I.T.) I	\$85 <i>per hour</i>	051	Administrative I	\$40 <i>per hour</i>
102	Engineer (E.I.T.) II	\$95	052	Administrative II	\$49
103	Engineer III	\$115	053	Administrative III	\$59
104	Engineer IV	\$135	921	Survey Tech I	\$42
105	Engineer V	\$155	922	Survey Tech II	\$45
110	Principal Engineer	\$175	930	Survey CAD Tech	\$80
711	Project Manager I	\$105	935	Survey Crew Chief	\$100
712	Project Manager II	\$145	940	Survey Manager	\$105
301	Engineering Tech I	\$69	945	Registered Surveyor	\$115
302	Engineering Tech II	\$79	950	Principal Surveyor	\$135
303	Engineering Tech III	\$95	MILE	Mileage	\$0.51 <i>per mile</i>
304	Engineering Tech IV	\$105			
401	CAD Technician I	\$59			
402	CAD Technician II	\$69			
403	CAD Technician III	\$75			
404	CAD Technician IV	\$79			

*Subconsultants and other direct expenses as incurred plus 10% handling fee*

EXHIBIT 2  
SHEET 1 OF 3

Town of Payson, AZ  
C.C. Cragin Reservoir Water Supply Project  
Water Treatment Plant Final Design

Phase	Task	Work Task Description	(\$)	*Fee Type
<b>0001</b>		<b>Water Treatment Plant Civil Engineering</b>		
	001	Building Interior Plans	\$38,600	Lump Sum
	002	Interior Piping and Equipment	\$83,200	Lump Sum
	003	Pall Equipment Submittals & Coordination	\$38,700	Lump Sum
	004	Site Grading & Drainage	\$17,800	Lump Sum
	005	Site Final Drainage Report	\$8,200	Lump Sum
	006	Pre-Treatment (Feed Equipment, Mixer & Tank)	\$38,400	Lump Sum
	007	Concrete Raw Water Feed Tank	\$42,300	Lump Sum
	008	Site Piping	\$42,600	Lump Sum
	009	Backwash Reuse (FEQ Tank & Clarifier)	\$72,600	Lump Sum
	010	Sludge Handling (Pumps & Geotubes)	\$41,400	Lump Sum
	011	Overflow Piping	\$19,500	Lump Sum
	012	Sewer Lift Station & Force Main	\$38,100	Lump Sum
	013	Steel Treated Water Storage Tank	\$9,100	Lump Sum
	014	Post Treatment (GAC & Buffering)	\$65,500	Lump Sum
	015	System Booster Pumps/Distribution Integration	\$27,700	Lump Sum
		<b>Subtotal</b>	<b>\$583,700</b>	
<b>0002</b>		<b>Water Treatment Plant Architectural</b>		
	001	Building Architectural, Structural & Foundation	\$38,500	Lump Sum
		<b>Subtotal</b>	<b>\$38,500</b>	
<b>0003</b>		<b>Water Treatment Plant Electrical</b>		
	001	Water Treatment Plant Electrical	\$95,000	Lump Sum
		<b>Subtotal</b>	<b>\$95,000</b>	
<b>0004</b>		<b>Water Treatment Plant Design - Miscellaneous Services</b>		
	001	Project Scoping & Kickoff Meeting	\$15,000	Lump Sum
	002	Quality Assurance/Quality Control Review	\$14,200	Lump Sum
	003	Permitting Applications & Processing		
		Tonto National Forest (Special Use Permit)	\$9,200	T&M NTE
		Gila County Permits (Fire & HMR)	\$3,700	T&M NTE
		Town of Payson Permits (Building)	\$2,500	T&M NTE
		ADEQ (Approval to Construct)	\$13,900	T&M NTE
	004	Geotechnical Site Investigation	\$19,300	Lump Sum
		<b>Subtotal</b>	<b>\$77,800</b>	
<b>0005</b>		<b>Water Treatment Plant T&amp;M Services</b>		
	001	APS Power Service/Sales Agreements & Coordination	T&M	T&M
	002	SCADA System Coordination	T&M	T&M
	003	Stakeholder Coordination & Public Meetings	T&M	T&M
	004	Meetings & Project Management	T&M	T&M
	005	Additional Services	T&M	T&M
		<b>WTP DESIGN GRAND TOTAL</b>	<b>\$795,000</b>	

\*Lump Sum = Fixed Fee; T&M = Time & Materials; NTE = Not to Exceed

\*\*T&M (Time and Materials) Not to Exceed is a budgeted amount that will not be exceeded without Client approval and does not guarantee the tasks will be completed within this amount.

EXHIBIT 2  
SHEET 2 OF 3

**Town of Payson, AZ**  
**C.C. Cragin Reservoir Water Supply Project**  
**Water Treatment Plant/Hydro Post Design Services**

Phase	Task	Work Task Description	(\$)	*Fee Type
0006		<b>Water Treatment/Hydro Post Design Services</b>		
	001	Bidding Services	\$24,900	T&M NTE
	002	Construction Administration	\$233,300	T&M NTE
	003	Construction Observation	\$350,300	T&M NTE
	004	Contract Record Drawings	\$25,400	Lump Sum
	005	ADEQ Approval of Construction	\$4,900	Lump Sum
	006	Plant Start-up Services	\$51,900	T&M NTE
	007	C.C. Cragin System O&M Manual	\$98,200	Lump Sum
		<b>Subtotal</b>	<b>\$788,900</b>	
		<b>TOTAL</b>	<b>\$788,900</b>	

\*Lump Sum = Fixed Fee; T&M = Time & Materials; NTE = Not to Exceed

\*\*T&M (Time and Materials) Not to Exceed is a budgeted amount that will not be exceeded without Client approval and does not guarantee the tasks will be completed within this amount.

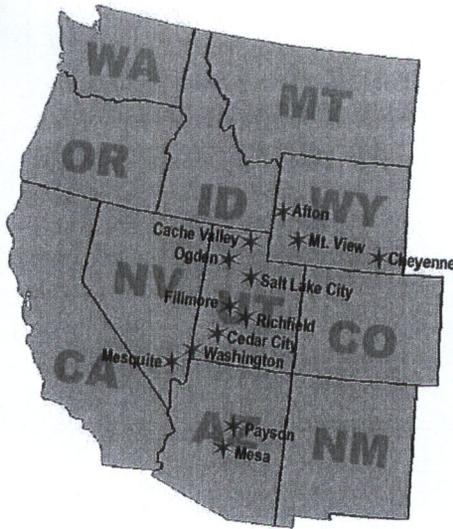
EXHIBIT 2  
SHEET 3 OF 3

**Town of Payson, AZ**  
**C.C. Cragin Reservoir Water Supply Project**  
**Raw Water Penstock Post Design Services**

Phase	Task	Work Task Description	(\$)	*Fee Type
0007		<b>Raw Water Penstock Post Design Services</b>		
	001	Bidding Services	\$27,800	T&M NTE
	002	Construction Administration	\$283,200	T&M NTE
	003	Construction Observation	\$592,900	T&M NTE
	004	Contract Record Drawings	\$26,100	Lump Sum
		<b>Subtotal</b>	<b>\$930,000</b>	
		<b>RAW WATER PENSTOCK POST DESIGN SERVICES GRAND TOTAL</b>	<b>\$930,000</b>	

\*Lump Sum = Fixed Fee; T&M = Time & Materials; NTE = Not to Exceed

\*\*T&M (Time and Materials) Not to Exceed is a budgeted amount that will not be exceeded without Client approval and does not guarantee the tasks will be completed within this amount.



**Payson Office**

414 S. Beeline Highway, Suite 1  
Payson, AZ 85541  
Tel: 928.474.4404

**Primary Point of Contact:**

Gregory Potter, P.E.  
gpotter@sunrise-eng.com

**Relevant Service Capabilities  
for C.C. Cragin Water  
Treatment Plant**

- Membrane Water Treatment
- Treatment Plant Building Design
- Chlorination Systems
- Clarifier Design
- Concrete Tank Design
- Electrical Design
- Site Piping
- Sludge Handling
- Lift Station Design
- Pre-Treatment Equipment
- Booster Pumps
- Backwash Waste Management
- SCADA Coordination
- Water Chemistry
- ADEQ Permitting & Approvals
- Steel Tank Design
- Hydroelectric Design
- Water System Modeling

**A. Firm Capabilities**

**FIRM DESCRIPTION**

For 32 years, Sunrise Engineering has been a recognized leader in water treatment plant design, surveying and consulting services. In response to your Request for Qualifications, Sunrise has assembled a well qualified team of design professionals to complete your project. Our team has all the necessary capabilities (civil engineering, surveying, geotechnical engineering, structural and architectural services) to successfully execute the C.C. Cragin Reservoir Water Supply Project - Water Treatment Plant Final Design project for the Town of Payson.

**Our Project Manager, Greg Potter, PE, will have a dedicated schedule to execute this project for the Town of Payson.** You know Greg and his project management and leadership skills well. He will lead the project team to success. In addition, we have confirmed that all members of the project team have the necessary time to dedicate to your project and are ready to proceed without delay.

**Our past experience includes working extensively with the Town of Payson implementing various portions of the C.C. Cragin Reservoir Water Supply Project, making us a trusted business partner.** In addition, our project experience includes **membrane filtration plants, sludge handling facilities**, hydroelectric facilities, piping systems, site design and concrete water storage tanks. We believe that this experience with you and the overall C.C. Cragin project - including your treatment plant - combined with our relevant experience, will provide the Town with the best project team to meet your project needs.

We know that this project is a top priority for the Town. You can trust us to dedicate the necessary staff and resources to your project from start to finish to meet this completion date. One key distinction of our team is that **we have teamed with Tetra Tech on this project to combine all of the consulting services that are already working on the various parts of the C.C. Cragin project into one team for the Water Treatment Plant portion of this project.**

**We believe that you are only as good as your last project.** In response to this belief, over the years we have developed a proven track record of quality projects that are delivered on-time and on budget. This is demonstrated by our history of repeat clients. We encourage the Town to call our references to validate our reputation. We are ready to apply our skills again for the Town of Payson.

In summary, we understand the Town of Payson, we understand the key issues of the project and have the necessary resources to make this a successful project. **You can depend on us** to fulfill your needs for the Water Treatment Plant Final Design Project.



### B. Past Project Experience

Sunrise Engineering has completed countless Water Resource projects throughout our 34 years of business. While this fact alone does not separate us from the crowd, our unique combination of project experience certainly does. Specifically, we have completed a number of Membrane Filtration Plants throughout the southwestern states - this experience is unique because this type of filtration is a newer technology that is not yet commonplace. We have also been involved in a high volume of Concrete Tank Design projects - a tank type not commonly utilized throughout Arizona. The following pages demonstrate our firm's most recent and relevant experience as it pertains to the Town's Water Treatment Plant Final Design.

#### *CC Cragin Raw Water Treatment Plant*

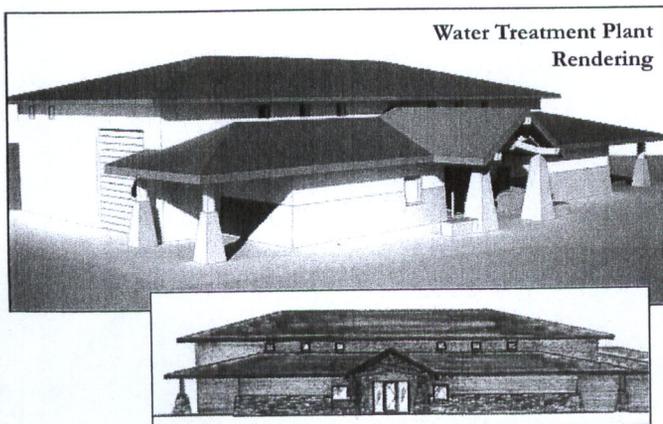
##### *Preliminary Design & Piloting*

**Location:** Payson, AZ

**Role of Firm:** Prime

**Owner:** Town of Payson

**Description:** Because C.C. Cragin Water is a surface water source, a WTP is required to treat the water to drinking water standards. The new 4.5MGD WTP includes water storage, pre-treatment, membrane filtration, GAC polishing, backwash handling facilities, sludge handling facilities and other facilities. Sunrise Engineering assisted the Town in the site selection, membrane equipment selection (Pall Water Processing), piloting of the equipment and preliminary design of the water treatment which included site planning, hydraulic profile, process diagrams, building floor plan and preliminary design report. One challenge to the project was the need to develop a way to mitigate the creation of disinfection-by-products (DBP's) within the treated water. Our team worked to include a pre-treatment regimen of adding PACl and post-treatment with granular activated carbon (GAC) within the treatment train on the pilot to effectively reduce the DBP formation to levels well below the maximum contaminate level.



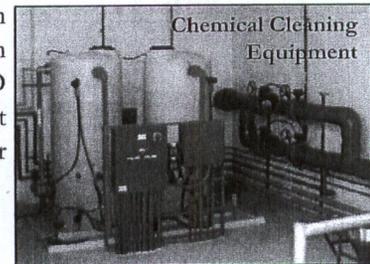
#### *Holliday Water Company Membrane Filtration Plant*

**Location:** Holladay, UT

**Role of Firm:** Prime

**Owner:** Holliday Water Company

**Description:** Sunrise was contracted to complete Holliday Water Company's water system master plan entirely within GIS - it included GPS mapping and inventory of all the valves and fire hydrants within the City, creating GIS based maps of the data collected and performing modeling of the system. The master plan also included recommending improvements cost estimates and a prioritization plan for the installation of the identified improvements along with a comprehensive treatment plant study for a new membrane filtration facility. The plan also included an analysis of the system's water user rates which proposed construction of a microfiltration facility for culinary water treatment. Sunrise provided engineering design, construction administration and construction inspection for this 2.5 MGD microfiltration treatment plant to treat the Water Company's spring water.



#### *Garden City*

##### *Membrane Filtration Plant*

**Location:** Garden City, UT

**Role of Firm:** Prime

**Owner:** Garden City

**Description:** Recently the Town of Garden City, UT had its drinking water source, Swan Spring, classified as being under the direct influence of surface water and issued a mandate to the Town of Garden City to do one of the following: abandon the spring, perform remediation to remove surface water influence, or install water treatment plant equipment. Sunrise Engineering was hired to perform a study analyzing the options and provide recommendations. After the analysis was complete, it was determined that the construction of a microfiltration plant was the best option. Sunrise proceeded with the design of the water treatment plant. The project consisted of a 2 MGD expandable to 4 MGD microfiltration plant, a .5 million gallon concrete storage tank, booster pump station, and transmission piping. The plant, booster pumps, and tank were all designed to be completely automated with a SCADA system. Sunrise assisted the Town in obtaining funding, and conducted the public hearings.

#### *Washington City Membrane Filtration Plant*

**Location:** Washington, UT

**Role of Firm:** Prime

**Owner:** Washington City

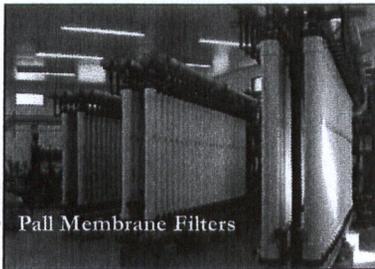
**Description:** Experiencing significant growth in the middle of a serious drought, Washington City was anticipating a critical

# STATEMENT OF QUALIFICATIONS

C.C. Cragin Reservoir Water Supply - Water Treatment Plant Final Design



shortage of culinary water supply. Sunrise provided a Culinary Water Master Plan outlining alternatives to improve source capacity - the City's selected alternative was a Microfiltration Treatment Plant. We assisted the City in applying for and receiving funding and solidifying the land for this project. Design included coordination with Washington County Water Conservancy District on the water being received from Quail Lake; evaluation of a pilot treatment process; selection of a membrane filter provider; and hydraulic, structural, and electrical design. Sunrise also provided construction engineering services from bidding to construction observation and administration to project closeout. The design met an extremely accelerated schedule to have treated water available to by summer of 2003.



has reached the end of its useful life and must be replaced. The City has contracted with Sunrise to replace the existing plant with a membrane filtration plant and determine whether pre-treatment will be necessary. The proposed membrane filtration plant will be constructed on the existing five acre treatment plant site and the existing filter plant will remain in service during the summer months to meet peak day demands. The project will also include increasing the chlorine contact time and fire flow storage for the canyon residents located just down-stream of the treatment plant and will propose constructing a storage reservoir on-site with the associated pumps and piping. Once the new membrane facility is operational in 2014, the existing filter building and sludge drying beds will be demolished and the site landscaped.

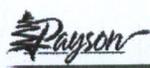
### Monroe City Membrane Filtration Plant

**Location:** Monroe, UT  
**Role of Firm:** Prime  
**Owner:** Monroe City  
**Description:** Sunrise was contracted to provide engineering design, construction administration, and construction inspection for a 0.5 MGD microfiltration treatment plant in Monroe City. Sunrise performed the design of electrical and HVAC systems incorporating all control units for the micro filtration equipment to communicate openly with all of the plant equipment. These included compressors for the back wash, the hypochlorite system, level controls for their storage tanks, and miscellaneous plant functions. A centralized control room was incorporated into the facility where the operator could monitor the plant in its entirety utilizing a computer and monitor that received input from the panels in the field. Sunrise worked with the City to administer the contract with Dale Cox Construction and ensure quality construction of the treatment plant.

### Ogden City Water Treatment Plant Reconstruction

**Location:** Ogden, UT  
**Role of Firm:** Prime  
**Owner:** Ogden City  
**Description:** Ogden City uses its existing conventional WTP to supplement its ground water supply and whole sale water during the summer peak demand months. However, the treatment plant only has the capacity to produce 13.5 MGD during the summer and is not operated during the winter because of the sludge handling system and system deliveries. The peak day demand is currently 35.8 MGD and the City is unable to meet it, even with the WTP. Additionally, the plant

Relevant Projects Matrix	Components						
	Membrane Filtration	Sludge Handling	Hydro-Electric	Lift Station	Electrical/SCADA	Booster Pumps	Concrete Tanks
C.C. Cragin Water Project	•	•	•	•	•	•	•
Holliday Water Company MFP	•				•	•	•
Garden City MFP	•				•	•	•
Washington City MFP	•				•	•	•
Monroe City MFP	•				•	•	•
Ogden City WTP Reconstruction	•	•			•	•	
Fredonia Water Treatment Plant		•			•	•	
North Ogden Storage Project					•	•	•
Ogden WTP Sodium Hypochlorite					•	•	
Fairview WWTP		•		•	•		
Perry/Willard WWTP		•		•	•		
Bullhead WWTP		•		•	•		
Payson UT Storage Tanks					•	•	•
Big Park WWTP Expansion		•		•	•		
Swift Creek WY Upper Hydro			•		•		
Swift Creek WY Lower Hydro			•		•		
Chester Dam ID Hydro			•		•		
Lewiston CA Hydro			•		•		





*"Sunrise is a valuable partner for CC Cragin Surface Water Supply project. Their engineering talent on this complex project has been vital to its success to date."*

~ **Buzz Walker**  
Assistant Public Works Director  
Town of Payson, AZ

*"During the course of each project, the Town made many changes and Sunrise dealt with them very well...overall, I would rate their performance as exceptional."*

~ **Tom Narva**  
Sr. Project Manager, CIP  
Town of Queen Creek, AZ

*"We are thrilled to death with Sunrise's performance...so far they have exceeded every expectation, especially with our customer service."*

~ **Bill Fay, P.E., Esq.**  
City of Chandler, AZ

### REFERENCE INFORMATION

Sunrise Engineering regularly establishes partnership relationships with our clients in order to develop solutions that work best within the client's constraints. Our goal is to achieve an optimal balance between cost and operational performance. We recognize that there are multiple solutions to every problem, and that there are both economic and operational trade-offs with local practices and preferences that must be weighed when choosing feasible alternatives. Sunrise's longevity within the engineering industry is largely attributed to the success of this partnership approach and the enthusiasm of our repeat clients in referring our services.

In recognition of Sunrise's commitment to producing quality work and lasting relationships, we were recently awarded the **PSMJ Premier Client Satisfaction Award for the third year in a row (2010 through 2012)** for services provided in 2009, 2010 and 2011. This International Award is based solely upon anonymous Client Feedback and honors only those A/E/C firms who provide their clients with top quality communications, impressive performance and cost effective solutions. Winners are selected based on both the quality of feedback received and the quantity of respondents. **The average evaluation of Sunrise Engineering centered in the range of "Exceeded Expectations"** and Sunrise Engineering even **received additional recognition for scoring top in the category of Budget Management.**

Our client's confidence in our engineers and their capabilities has lead to multiple long-term relationships and alliances as well as years of successful projects. We welcome you to contact the references provided herein as testament to the service we have and will continue to provide for the Town of Payson.

### Project References

**LaRon Garrett, P.E.**  
Public Works Director  
Town of Payson, AZ  
928.474.5242 (Office)  
Re: C.C. Cragin WTP  
Preliminary Design & Piloting

**Marlin Sundberg**  
Water Company Manager  
Holliday Water Company  
801.277.2893 (Office)  
Re: Holliday Water Company  
Membrane Filtration Plant

**Justin Anderson**  
City Engineer  
Ogden City, UT  
801.629.8982 (Office)  
Re: Ogden City WTP Reconstruction

**Buzz Walker**  
Asst. Public Works Director  
Town of Payson, AZ  
928.474.5242 (Office)  
Re: C.C. Cragin WTP  
Preliminary Design & Piloting

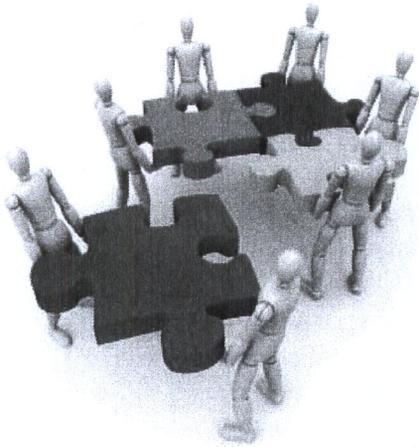
**Mike Shaw**  
Public Works Director  
Washington City Public Works  
435.656.6319 (Office)  
Re: Washington City  
Membrane Filtration Plant

**Kirt Nilsson**  
Mayor  
Monroe City, UT  
435.527.4621 (Office)  
Re: Monroe City  
Membrane Filtration Plant

### C. Key Personnel & Sub-Consultants

#### ORGANIZATION CHART

The following is an overview of how our proposed team is assembled and how they will interact with the current C.C. Cragin Team. Sub-consultant overviews and an informational matrix follows that identifies key team member's overall experience and qualifications as it pertains to their role within the team. Mr. Gregory Potter will serve as your main point of contact and will enroll the efforts of various team members as necessary.



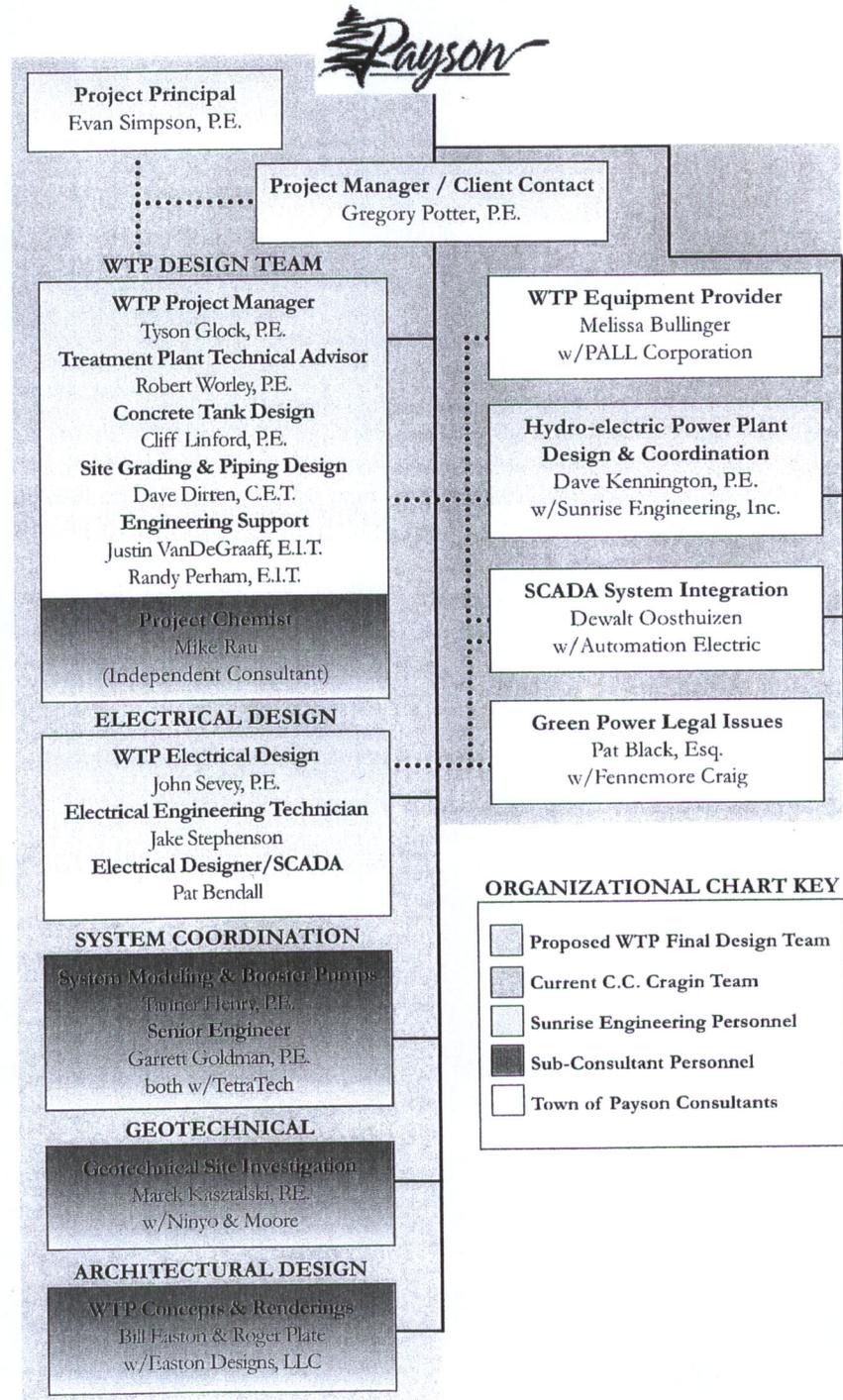
#### Effective Teams:

Much like a puzzle, when team members work together, they are stronger as a whole than they are individually.

At Sunrise Engineering we understand that when you select an engineering team, you are ultimately selecting people - people that you will be working with side by side for years to come. And effective teams do not happen by accident. It can take years of collaborative efforts between the people involved to identify and harness the unique talents of each team member in order to improve upon and strengthen the team - and ultimately a Client's project.

When selecting Sunrise Engineering as your engineering partner, the Town of Payson is choosing a team whose members have all collaborated on a variety of project types and teams for many years, each year building on the last to fine-tune their leadership skills, communication styles, and established team roles.

By selecting Sunrise Engineering, the Town of Payson also gains confidence that the C.C. Cragin Water Treatment Plant Design will be handled by a trusted business partner - a partner who has been with you every step of the way on this project's design and whose team members you already know and trust.



### SUB-CONSULTANT FIRM OVERVIEWS

#### **Mike Rau**

##### ***Project Chemist Consultant***

Mr. Rau has his B.S. in Physiology and Developmental Biology and has served as a Water Quality Scientist with the Central Utah Water Conservancy District in Orem Utah since April of 2009. During that time he has provided scientific/lab support for several drinking water treatment plants including the Utah Valley WTP (80 MGD), the Duchesne Valley WTP (8 MGD) and the Ashley Valley WTP (16 MGD). More recently, he has also participated as a consultant to Sunrise Engineering on Payson's CC Cragin Water Treatment Plant Project.



#### **TETRA TECH**

##### ***Town System Coordination Consultant***

Established in 1966, Tetra Tech has grown into a nationally recognized provider of specialized management consulting and technical services, encompassing research and development, applied science, engineering and architectural design, construction management, and operations and maintenance consulting. Tetra Tech consistently ranks among the top engineering firms annually according to Engineering News Record (ENR), a highly respected engineering industry news magazine. In 2012, ENR listed Tetra Tech as No. 1 in Water and Environmental Management categories and No. 8 nationwide among the Top 500 Design Firms. The below graphic highlights some of Tetra Tech's other 2012 rankings.

Tetra Tech has extensive experience designing treatment plants utilizing a variety of treatment processes. Their experience with the planning and design of membrane technologies for advanced water treatment includes micro and ultrafiltration systems such as nanofiltration and reverse osmosis. Their expertise involves pilot testing programs, evaluation studies, preliminary design, final design, permitting, system integration, and start-up activities. They have also developed close working relationships with numerous manufacturers and specialists familiar with the rapidly changing state-of-the-art water treatment technologies. Thus, they offer highly skilled engineers and technical specialists with extensive knowledge in the design of diverse treatment systems and components that will ensure a water quality that meets or exceeds state and federal standards.

#### **Ninyo & Moore**

##### ***Geotechnical Site Investigation Consultant***

Ninyo & Moore was established in 1986 to provide high-quality consulting services in geotechnical engineering, construction inspection and testing, engineering geology, hydrogeology, hazardous waste remediation and environmental assessment. They are committed to being responsive, thorough, technically sound, and active in the business community. The quality of Ninyo & Moore's company-wide personnel base of over 400 employees is widely recognized. Ninyo & Moore serves its clients through its offices in Phoenix, Tucson, Prescott Valley, Denver, El Paso, Houston, San Diego, Irvine, Los Angeles, San Francisco, Rancho Cucamonga, Sacramento, Oakland, San Jose, and Las Vegas.

Their Arizona operations currently has more than 70 professional, technical, and administrative personnel including geotechnical and geological engineers, engineering and environmental geologists, environmental scientists, and field and laboratory technicians. Their full-service laboratories are accredited by ADOT and AASHTO (AMRL, CCRL) and their technicians are certified by ATTI, ACI and ICC. Ninyo & Moore has provided their services to private corporations, public agencies, and professional consultants on more than 4,500 projects since their first Arizona office opened in Phoenix in August 1998.

##### ***Easton Designs, LLC***

##### ***WTP Concepts & Renderings Architectural Consultant***

Mr. Easton started Easton Designs, LLC in the Town of Payson back in 1992 following a lengthy history of experience with various civil engineering firms like Burgess & Niple and Dashney & Associates. and has more than 39 years of construction and design experience. Founded within the heart of Arizona's Rim Country, Easton Designs has amassed a wealth of knowledge regarding the desired aesthetic of their surrounding community. They have also gained notable project experience for the Town of Payson including both their Town Hall Facility and the Water Department's two-story Office Building.

# STATEMENT OF QUALIFICATIONS

C.C. Cragin Reservoir Water Supply - Water Treatment Plant Final Design



## INFORMATIONAL MATRIX: TEAM QUALIFICATIONS

TEAM MEMBER	YRS EXP	EDUCATION	REGISTRATIONS	ROLE DESCRIBED
<b>Sunrise Engineering, Inc. - Prime Firm</b>				
<b>Greg Potter, P.E.</b> PM/Client Contact	19.5 Yrs w/Sunrise 20 Years Total	B.S. Civil Engineering, AZ State University	Registered P.E. AZ# 35581, Since 10/17/2000	Overall C.C. Cragin Project Manager - Client Contact
<b>Evan Simpson, P.E.</b> Project Principal	28.5 Yrs w/Sunrise 30 Years Total	B.S. Civil Engineering, University of Wyoming	Registered P.E. AZ# 19719, Since 08/01/1986	Project Principal and Client Sponsor
<b>Tyson Glock, P.E.</b> WTP Project Manager	1.5 Yrs w/Sunrise 5 Years Total	M.Eng Chemical Eng, B.S. Env. Eng., Oregon State University	Registered P.E. AZ# 52543, Since 06/28/2011	Water Treatment Plant Engineer & Team Leader
<b>Robert Worley, P.E.</b> WTP Technical Advisor	12.5 Yrs w/Sunrise 13 Years Total	B.S. Civil Engineering, Utah State University	Registered P.E. UT# 375477- 2202, Since 05/02/2003	Water Treatment Plant Senior Technical Advisor
<b>Cliff Linford, P.E.</b> Concrete Tank Design	9 Yrs w/Sunrise 11 Years Total	B.S. Civil Engineering, University of Wyoming	Registered P.E. UT# 6311187- 2202, Since 09/12/2006	Concrete Storage Tank Lead Design Engineer
<b>Dave Dirren, C.E.T.</b> Site Grading/Piping Design	9 Yrs w/Sunrise 32 Years Total	Architectural Certification PHX Institute of Tech.	NICET Level II Underground Utilities	Grading, Site Piping Design and Local Client Contact
<b>Justin VanDeGraaff, E.I.T.,</b> Engineering Support	1.5 Yrs w/Sunrise 4 Years Total	B.S. Civil Engineering, AZ State University	Registered E.I.T. AZ# 11065, Since 2010	Project Engineering Support Staff
<b>Randy Perham, E.I.T.</b> Engineering Support	3.5 Yrs w/Sunrise 5 Years Total	B.S. Civil Engineering, Northern AZ University	Registered E.I.T. AZ# 10861, Since 10/07/2009	Project Engineering Support Staff
<b>John Sevey, P.E.</b> WTP Electrical Design	2 Yrs w/Sunrise 35 Years Total	B.S. Electrical Eng. Brigham Young	Registered P.E. UT# 150755- 2202, Since 02/25/1983	Water Treatment Plant & Hydro Electrical Engineer
<b>Jake Stephenson</b> Electrical Eng. Tech.	4 Yrs w/Sunrise 8 Years Total	Sr. Engineering Student, Southern Utah University	Not Applicable	Water Treatment Plant & Hydro Electrical Design
<b>Pat Bendall</b> Electrical Designer/SCADA	4 Yrs w/Sunrise 20 Years Total	I.B.E.W. Local Union 354	Not Applicable	Water Treatment Plant & Hydro Electrical Design
<b>Mike Rau - Project Chemist Consultant</b>				
<b>Mike Rau</b> Project Chemist	Information Not Available	B.S. Physiology and Developmental Biology	Not Applicable	Water Quality & Saturation Index Project Lead
<b>Tetra Tech - Town System Coordination Consultant</b>				
<b>Tanner Henry, P.E.</b> System Modeling & Booster Pumps	12 Yrs w/TetraTech 12 Years Total	B.S. Civil Engineering, Northern AZ University	Registered P.E. AZ# 45630, Since 12/20/2006	C.C. Cragin System/Town Water System Interface
<b>Garrett Goldman, P.E.</b> Senior Engineer	10 Yrs w/TetraTech 17 Years Total	B.S. Mechanical Eng., AZ State University	Registered P.E. AZ# 33423, Since 01/28/1999	Local Senior Technical Advisor
<b>Ninyo &amp; Moore - Geotechnical Site Investigations Consultant</b>				
<b>Marek Kasztalski, P.E.</b> Geotech Site Investigation	5 Yrs w/N&M 35 Years Total	M.S. Civil Engineering, Warsaw Tech University	Registered P.E. AZ# 44704, Since 06/22/2006	Geotechnical Site Investigation Engineer
<b>Easton Designs, LLC - WTP Concepts &amp; Renderings Architectural Consultant</b>				
<b>Bill Easton</b> WTP Concepts/Renderings	20 Yrs w/Easton 39 Years Total	Accounting Courses, Colorado State University	Not Applicable	WTP Building Architectural Design & Plans
<b>Roger Plate</b> WTP Concepts/Renderings	11 Yrs w/Easton 46 Years Total	B.S. Architecture, AZ State University	Registered AIA, AZ# 08286, Since 10/10/1972	WTP Building Architectural Design & Plans



### D. Project Understanding & Approach

#### OVERALL PROJECT BACKGROUND

The Town of Payson has secured a 3,000 ac-ft annual allocation of water from the C.C. Cragin Reservoir. The Town plans to divert its allocation of water from the existing hydroelectric power plant, operated by the Salt River Project (SRP), on the downstream side of the power generation turbine. The overall project includes diverting the water into a new raw water pipeline and delivering it to a new hydroelectric facility and water treatment plant. Once the water is treated to drinking water standards it will be delivered via a treated water pipeline into the Town's drinking water system.

#### PROJECT UNDERSTANDING

The scope of work for the project included in this Request for Qualifications (RFQ) is the final design of the Town's new Water Treatment Plant (WTP). The main purpose of this scope of work is to take the preliminary design determined during the piloting phase of the project to a full scale treatment plant capable of treating the Town's water right and the necessary infrastructure to deliver this treated water to the in-town portion of the C.C. Cragin project while coordinating with the Town, all the various team members and the approval agencies.

#### PROJECT APPROACH

As you already know Sunrise Engineering and our team members have been working with you on ALL aspects of the C.C. Cragin project. Specifically, we have worked with you during the piloting and preliminary design of your new water treatment plant and we are under contract to perform the 100% design for the new hydroelectric facility located on the water treatment plant site. In all the years leading up to this Phase of the project we have made a concerted effort to learn about the issues and your concerns regarding this project.

Most of the firms that attended the pre-submittal for this portion of the project are qualified to perform the services outline in the RFQ. We believe our project team is the most qualified because of the **YEARS of experience** we already have **with your project**. In order to demonstrate this background knowledge we have developed a list of **Key Issues** that we believe; based on our previous interactions with the Town, piloting/design experience with C.C Cragin water and past coordination with other

project team members and approval agencies, that are important to the Town and the successful completion of this project. Our project approach will demonstrate how we intend to address and/or solve these issues.

The following is a summary of those **Key Issues** that our team has identified for this project, with our proposed **actions and/or solutions**.

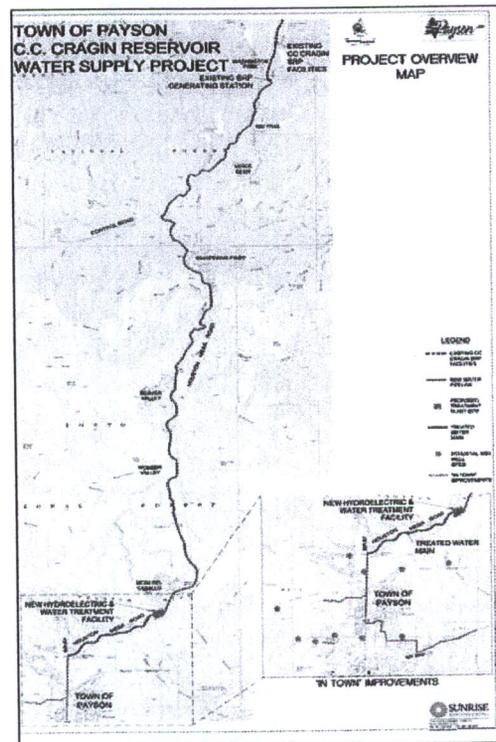
#### Key Issue 1 – Team Continuity:

The C.C. Cragin project has two main consultants (Sunrise and Tetra Tech) and many subconsultants that have been performing the design and preparing plans for the project. Keeping a cohesive team is critical to the project success.

**Action:** Sunrise Engineering has teamed with Tetra Tech on this project in order to ensure that the Town maintains all of the team members and consultants currently working on the C.C. Cragin project. This will benefit the Town because there will be no need to expend the time and effort required to bring a new team member(s) up to speed with the project.

#### Key Issue 2 – Overall Operation of Cragin System:

The overall C.C. Cragin project is fairly complex with many moving pieces (Tailrace Connection, Raw Water Penstock, Hydro Generator, WTP, Town System, etc.) that are linked together.



C.C. Cragin Overall Project Map

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C.C. Cragin Reservoir Water Supply - Water Treatment Plant Final Design



**Action:** Our team assisted the Town in developing and is familiar with the “Control Logic” for how all the major components will communicate and hydraulically interact with each other to deliver water to and from the new WTP. This “Control Logic” for these major project components has been years in the development and design in cooperation with the Town and SRP. Our teams understanding of **ALL of the major component parts and how they work together** will provide the Town with a **single point of coordination**; which will make the process easier in both the design and start-up phases.

### Key Issue 3 – Forest Service Coordination & Property Purchase:

The Town's has obtained a “Special Use Permit” (SUP) issued by the Tonto Nation Forest for the project.

**Action:** Our proposed project team is the same team that assisted the Town in obtaining the SUP. Due to this fact we are already familiar with all of the environmental conditions and requirements (such as building treatments and colors) included in the SUP and have actually authored the “Forest Service Special Provisions” specifications that will be used on all parts of the project within the Tonto National Forest. In addition, we will build on our **existing trusted relationships with Angela Elam, Joel Mona** and other FS staff in our coordination with the Forest Service during this project. For these reasons the Town can rest assured that coordination and approvals with the FS on the WTP will be as successful as the other portions of the project (tailrace connection, raw water penstock, etc.) that our team is involved with.

### Key Issue 4 – SCADA Coordination:

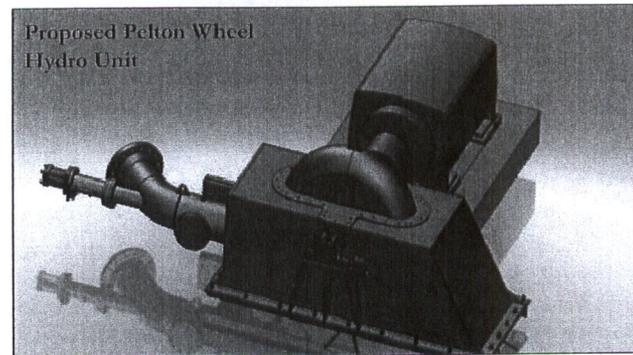
The addition of the C.C. Cragin project to the Town's water supply will require significant integration into the Town's existing SCADA system.

**Action:** Our project team has been **working with the Town's SCADA designer (Dewalt Oosthuizen – Automation Electric)** for years on what type of PLC's, PAC's and communication that will be required to connect the Tailrace Connection, new Hydroelectric Generator and Water Treatment Plant together with the Town's existing system. This benefits the Town because we are already familiar with the control logic (see Key Issue #2) and will be able to convey this information easily to Wally for incorporation into the Town's overall SCADA plan and assist him in locating necessary communication towers on the proposed WTP site.

### Key Issue 5 – Hydroelectric Generator

#### Design Coordination:

The site plan for the new WTP also includes a new hydroelectric generating station.



**Action:** The Town has *already contracted with Sunrise Engineering for the final design and construction documents for the new hydro generator.* This hydro generator is between the raw water penstock and the proposed water treatment plant. According to the “control logic” developed during the preliminary design, the hydro generator actually is the component that sets the flow rate for the tailrace connection and therefore also the flow rate of the WTP. **Dave Kennington (SEI), our hydro unit design team leader** will work together with Tyson Glock and Robert Worley, the design team of the WTP, to ensure that the hydraulics, electrical, communication and control logic upstream of the WTP are coordinated. Having Sunrise Engineering on both the hydro generator and the WTP **provides the Town with a single point of responsibility and the confidence that all of the critical infrastructure that feeds the WTP will be coordinated.**

### Key Issue 6 – Gila County Sanitary District:

The new WTP will require the discharge of two waste streams (EFM & CIP) and sanitary sewer into an existing 8-inch GCSD gravity sewer line located approximate 500-feet southwest of the WTP site.

**Action:** Our project team has **already met with Joel Goode** and his staff regarding this connection. A significant amount of coordination has already occurred during the preliminary design of the WTP due to the limited amount of capacity available in this sewer line and the significant impact fees that are required based on flow amount. In addition, our team member (**Tetra Tech**) is the engineer for the sewer district who has already prepared a computer simulation of the capacity



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C.C. Cragin Reservoir Water Supply - Water Treatment Plant Final Design



available in this existing line. Our knowledge, past experience and with this issue will benefit the Town in coordination with the District and a **design discharge from the WTP that will not exceed the capacity of the downstream sanitary sewer infrastructure.**

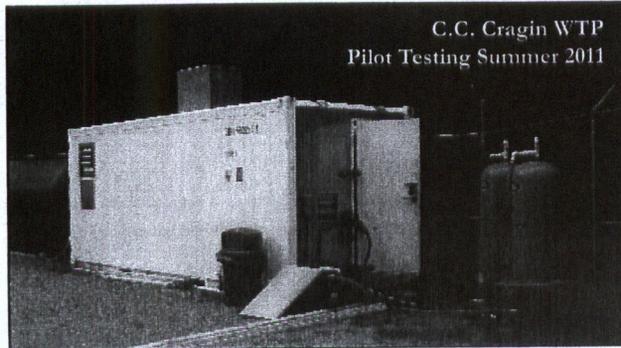
### Key Issue 7 – APS Power/Green Energy:

The Town has two (2) power delivery options for the new WTP plant.

**Action:** In the **first option** the Town can choose to simply buy power from APS for the WTP and sell power from the new hydro facility as a **“Qualifying Facility”** to APS. This option is the simplest from a design and operation standpoint because the power is a constant source from APS and is not dependent on the hydro generator to power the plant. The **second option**, called **“Net Metering”** includes powering the WTP from the power generated from the new hydro unit, selling excess power back to APS and switching directly to APS power if necessary. This is likely more complex from a design and operation standpoint, but would offset the power purchase directly from APS when the generator is running. We understand that the *Town is working with Pat Black from Fennemore Craig in exploring these options.* Our electrical design team will partner with the Town and Fennemore Craig to determine the best option to choose from a design, operation, cost and revenue standpoint. By having the same electrical design team partnered with you for this phase of the project you are assured of a less complex and more coordinated design experience for the WTP project.

### Key Issue 8 – Membrane Filtration Experience:

The proposed treatment plant is “membrane micro-filtration”.



**Action:** Sunrise Engineering is one of the leaders in the western states for membrane filtration. We have **many successful projects with similar design parameters**

that the Town has actually toured and talked to the operators. You can have confidence that our past success, which you have witnessed for yourself, will be applied on your project. In addition, **Sunrise Engineering has been your consultant during the entire piloting and preliminary design phase of the C.C. Cragin WTP from the beginning.** We understand the pre-treatment (addition of PACl) and post treatment (GAC) design for both constituent removal and the reduction of Disinfection By-Products (DBP's). This **experience is invaluable and cannot be duplicated by any other team** as the project moves forward into final design and construction documents. The Town will benefit from this because you will be building on the significant foundation already established for your project with the same team.

### Key Issue 9 – Treatment Equipment:

The Town has already purchased the main membrane treatment equipment from Pall Water Processing.

**Action:** Sunrise Engineering has already been working with Pall (Vinny Calabrese – Sales Engineer) during the piloting and selection of the membrane treatment equipment. In fact, we are in contact with them on a regular basis and know that they are ready start the design and submittal process for their equipment. **Our design team will work with Melissa Bullinger, the Pall Design Project Manager,** to ensure that the design is coordinated and implemented in accordance with the results of the pilot study.

### Key Issue 10 – Site Hydraulics:

There are several hydraulic coordination issues that exist on the site between multiple components of the WTP.

**Action:** Our team has a complete understanding of the **interdependent hydraulic elevations** which is critical to the operation of the WTP. On the influent side of the WTP the discharge of the hydro generator is at atmosphere (no pressure) sets the elevation of the half buried raw water storage tank which in turn sets the elevation of the pre-treatment tank, which ultimately sets the finished floor of the WTP building. One other important aspect to note is that the raw water storage tank will be used as a “buffer” for potentially varied flows from the hydro/penstock/tailrace connection with a design point of being half-full. On the discharge side of the WTP the filtrate water, which is under pressure, must have enough head to feed through the proposed GAC filters and fill the new treated water storage tank. **Our project**



# STATEMENT OF QUALIFICATIONS

C.C. Cragin Reservoir Water Supply - Water Treatment Plant Final Design



*team developed the preliminary hydraulic profile for the site; therefore, we have this complete understanding of the interdependent hydraulic issues with the site.* Our experience will allow the Town to have the confidence that we understand the design of the site hydraulic issues and can easily incorporate them into the final design.

### **Key Issue 11 – Backwash Recovery:**

Microfiltration equipment “backwashes” on a regular basis to clean the filter media.

**Action:** If the backwash is settled through a clarifier the efficiency of the WTP increases. The water from the clarifier will be fed back to the head of the WTP for treatment. The design of the clarifier retention time is based on the speed at which the solids in the backwash “settle” out. During the pilot testing **Sunrise gathered a sample of the backwash waste stream and currently have it in our office.** No other consulting firm has a sample of actual backwash water from a Pall Membrane filter that has treated C.C. Cragin water. The Town benefits because the sample can be used to simulate the design for the required retention time so the sizing of the clarifier is based on an actual backwash sample.

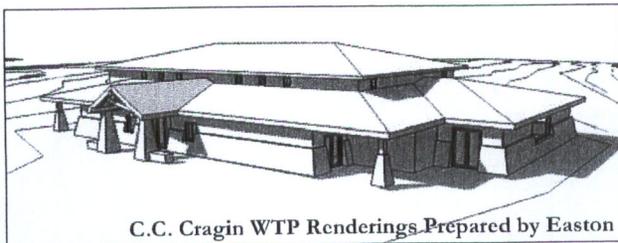
### **Key Issue 12 – Sludge Handling:**

The result of the backwash recovery process (Item 11) is that sludge will be produced that will require processing and disposal.

**Action:** Sunrise developed an innovative, simple and cost effective solution to the sludge disposal issue which would include injecting the sludge from the clarifier with a polymer and using “Geotubes” to dispose of the sludge. Water will be decanted from the sludge removal process and used for irrigation of the site and potential water features.

### **Key Issue 13 – Payson Architecture:**

The Town of Payson has a unique architectural style for your existing buildings that ties into the setting and environmental conditions in the Town.

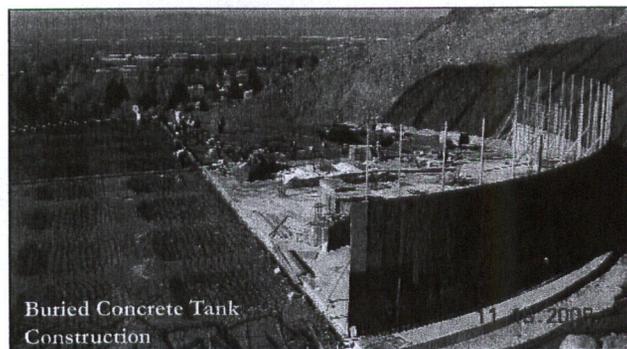


C.C. Cragin WTP Renderings Prepared by Easton

**Action:** Our project team includes **Roger Plate and Bill Easton.** These two are *very familiar with the design elements and standards of both Town facilities and the community in general.* Both Roger and Bill have designed numerous buildings for the Town (Water Department Building, Payson Airport & Green Valley Park) and other entities (GCSD Administration Building). *During the preliminary design phase of the WTP the Town contracted Roger and Bill to prepare concepts and renderings for the new WTP building.* **Our project team will work with the Town follow these through to completion.** The Town will benefit because the new WTP building will be designed by experienced personnel that know how to achieve the look and feel of the community’s architecture.

### **Key Issue 14 – Concrete Tank Design:**

The proposed “feed” tank for the project is currently envisioned as a concrete tank due to site topography and hydraulic conditions. Concrete tanks are not as common in Arizona as in other parts of the country.



Buried Concrete Tank Construction

**Action:** Our project team includes staff with significant experience in the design of concrete water storage tanks. *Sunrise Engineering has completed hundreds of concrete tank designs over our history.* **Cliff Linford, who has performed many of these designs, will lead our design team for the concrete tank portion of the project.**

### **Key Issue 15 – In-Town System Coordination:**

The Water Treatment Plant Outlet Booster Station must interact with the Treated Water Line and Existing Town of Payson Water Distribution System.

**Action:** Our project team includes **Tanner Henry from Tetra Tech** who has been the engineer for both the treated waterline of the C.C. Cragin project as well as the person responsible for the Town’s water system model. Tanner has already modeled the flow and head requirements for booster pump(s) located at the outlet of



the proposed treatment plant to maintain a minimum pressure of 20 psi at the apex of Houston Mesa Road lying south of the Mesa Del Caballo subdivision; which, equates to a hydraulic grade line of 5300 feet which is approximately 15 feet above the top of the highest storage tank within the Town of Payson, known as the Hillcrest Tank. Once the hydraulic grade line of 5300 feet is achieved, all of the downstream pressure zones within the Town of Payson can be supplied and controlled by downstream pressure management valves, or in the case of excess flow, discharge into a tributary of American Gulch.

### Key Issue 16 – Water Buffering:

The water from the C.C. Cragin Reservoir has a different “Langelier Saturation Index” (SI) than water from the existing wells in Town. *We know this is a big issue of concern for the Town.*



C.C. Cragin Raw Water  
Sample from Tailrace

**Action:** The SI of the water is a measure of the stability (or corrosiveness) with respect to calcium carbonate ( $\text{CaCO}_3$ ). If the value is positive the water is supersaturated which can lead to scaling, and if the SI value is negative the water is under saturated which can lead to the removal of existing scaling. SI values for the groundwater in Payson range

between 0.97 and -0.81, but overall are **positive**. **C.C. Cragin water** has a SI value between -1.7 and -3.3 and a treated value between -1.6 and -2.1, based on the pilot results, so overall **negative**. Since there is a difference of SI values between the current and future water source, issues could arise with the existing scaling dissolving. Our team has recommended NaOH as an after treatment control to **change the SI of Cragin water to “neutral” so that it neither deposits or dissolves calcium carbonate.** Not only is NaOH already being used in the CIP process, it is commonly used to raise pH (SI) in the water treatment industry with great success. NaOH would

first need to be tested with raw Cragin water to determine effectiveness and dosing requirements. NaOH dosing requirements could be determined by adding different concentrations of NaOH and determining temp, pH, total dissolved solids, alkalinity, and calcium hardness of the resulting solutions. This information would then be used to calculate the corresponding SI. *Due to our advanced knowledge of this issue our team has already collected samples of untreated C.C. Cragin water from the SRP tailrace before the water was shut down on Nov 1st.* **These samples will be used by Mike Rau (our team’s water chemist) to perform the testing** outlined above and determine the correct dosing of NaOH and feed equipment required to **create a “neutral” condition for the water from the WTP before** it enters the Town’s water system.

### Key Issue 17 – Permitting:

The WTP project will require permitting and approvals from ADEQ, USFS and Gila County.

**Action:** Our team has already been working with these permitting agencies and is familiar with the procedures and personnel which will make the overall approval process easier.

### Key Issue 18 – Project Schedule:

The WTP project is a key component to the overall C.C. Cragin project and is a critical part of the overall schedule.

**Action:** Sunrise Engineering has been **maintaining the “overall” C.C. Cragin project schedule for several years.** We understand that the **design and approval process for the WTP needs to be completed by the middle of 2014** so that it dovetails into the construction of the hydro facility, raw water penstock and treated waterline. *One of the longest lead items will be the review and approval times for ADEQ which are estimated to be up to 6 months based on our recent conversations with them.* Based on what we already know about the overall project and our experience with the preliminary design of the WTP we will be able to meet the submittal dates required for the start of construction. In addition, if Sunrise Engineering is chosen for the WTP design we will combine our work on the hydro facility into the overall WTP site to improve efficiency of the project