

COUNCIL DECISION REQUEST

SUBJECT: Final Engineering for the C. C. Cragin Raw Water Pipeline

MEETING DATE: 05-05-11

PAYSON GOAL: NEW: EXISTING: X

ITEM NO.:

TENTATIVE SCHEDULE:

SUBMITTED BY: LaRon G. Garrett, Pub. Wks. Dir. AMOUNT BUDGETED: \$8,785,000

SUBMITTAL TO AGENDA

EXPENDITURE REQUIRED: \$2,580,699

APPROVED BY TOWN MANAGER

CONT. FUNDING REQUIRED: \$0

_____ 

EXHIBITS (If Applicable, To Be Attached): Copy of Amendment No. 2

POSSIBLE MOTION

I move to ratify the approval of Contract Amendment No. 2 with Sunrise Engineering, Inc. for the Final Engineering Design of the C. C. Cragin Raw Water Pipeline, including the ductile iron pipe purchase, with the Town Manager signing the necessary documents.

SUMMARY OF THE BASIS FOR POSSIBLE MOTION:

Town of Payson personnel have been working on bringing water from Blue Ridge Reservoir (Now called C. C Cragin Reservoir) to Payson for over 30 years. We are beginning to see the realization of this project. In December, 2009 the Town entered into a contract with Sunrise Engineering, Inc. to prepare the Preliminary Raw Water Pipeline Plans. The original contract is structured to allow amendments as the scope expands to the final product. Those preliminary plans are now complete and we are ready to move forward with the final design. Due to the ARRA funding involved in this project, the purchase of the pipe that has been previously approved by the Town Council is also included in this Amendment No. 2 with Sunrise Engineering, Inc.. They will purchase the pipe on the Town's behalf.

Following is a summary of the cost for this Amendment No. 2:

Raw Water Line Final Design	\$424,600
Water Treatment Site Preliminary Design	\$142,625
Hydro-Electric Generation Plant Design	\$198,725
Ductile Iron Pipe Purchase	<u>\$1,814,749</u>
Total Amendment No. 2	\$2,580,699

A portion of the above fees will be charged on a Time and Materials Basis and the Town will only be charged for the actual costs, up to the maximum amount specified in the Amendment.

PROS: Approval will allow the Town to continue working towards making C. C. Cragin water a reality.

CONS: None

PUBLIC INPUT (if any): N/A

BOARD/COMMITTEE/COMMISSION ACTIONS/RECOMMENDATIONS (if any) (give dates and attach minutes): N/A

MAY 05 2011 *Z.2*

COUNCIL DECISION REQUEST

FUNDING:

Acct: 662-5-5451-00-8600 Budget: \$8,785,000 Available

Expense:

Remaining:

3A: _____ Date: _____

	Contract Amendment #2	
	C.C. Cragin Reservoir Raw Water System Final Design	

**AMENDMENT TO AGREEMENT FOR
PROFESSIONAL SERVICES
CC CRAGIN RAW WATERLINE**

Project No.: 03547

Amendment #2 dated April 13, 2011 is subject to the terms and conditions of the original agreement dated December 21st 2009, between the Town of Payson (Client) and Sunrise Engineering, Inc. (Engineer), and adds the following services:

Additional Scope of Work to be provided:

Final design of the raw water pipeline, ductile iron pipe purchase, hydroelectric generator final design and water treatment plant pilot testing and preliminary design services more fully described on the attached Scope of Services.

Compensation for these added services, Sunrise Engineering, Inc., shall be in accordance with the fees and compensation types shown in the attached Scope of Services.

This Agreement shall be governed by the laws of the state where the services are provided.

TOWN OF PAYSON
303 N. Beeline Highway
Payson, AZ 85541

SUNRISE ENGINEERING, INC.
414 S. Beeline Highway, Suite 1
Payson, AZ 85541

By: Debra Galbraith
Title: Town Manager
Date: 4/15/11

By: 
Title: Principal/Vice President
Date: 4-13-11

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SCOPE OF SERVICES

Contract Amendment #2 describes the scope of work and associated fees for the design completion of the Raw Water System for the CC Cragin Project. Based upon our scoping meeting with the Town, SEI has prepared a summary of the changes and additional scope of work requested. SEI agrees, upon receipt of your acceptance to this agreement, to amend the existing contract dated December 21st, 2009 by performing the following identified services in accordance with the terms and conditions contained therein.

TIME FRAME FOR THIS CONTRACT:

This amendment extends the existing agreement dated December 21st, 2009 for a period of two years from the date of signature and extendable upon the acceptance of both parties.

SCOPE OF WORK FOR THIS CONTRACT:

Raw Water System Final Design: This scope of work for this contract will include the design completion for the Raw Water System (Tailrace connection, raw water pipeline, hydroelectric facility and raw water storage tank). In addition, this contract amendment includes support services for the proposed water treatment plant and post design services for the tailrace connection. The scope of work has been divided into the following Tasks (numbering continued from original contract):

TASK 16 - SRP TAILRACE CONNECTION DESIGN & POST DESIGN SERVICES

16.1 FINAL DESIGN SERVICES: The scope of work for this item includes the final design and plans for the connection to the existing SRP generating station tailrace. The final design will be prepared using the SRP approved preliminary design prepared in Task 4 of the original contract. Design will be in conformance with the water rights transfer agreement between SRP and the Town of Payson. The scope of work will include the following:

- Perform final design calculations and equipment selection.
- Perform structural design, calculations & prepare structural details.
- Prepare final construction documents for tailrace connection, piping and meter vault.
- Prepare specifications and contract documents.
- Submit plans to SRP, Forest Service and BoR for review and comment. Incorporate comments into final design/plans.
- Work with the Town/SRP to provide information for the permitting of construction within the tailrace site.

FEE FOR TASK 16.1: \$36,600.00

FEE TYPE: LUMP SUM

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16.2 POST DESIGN SERVICES: The scope of work for this item includes the post design services for the connection to the existing SRP generating station tailrace. The scope of work will include the following:

16.2.1 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

16.2.2 Construction Administration: Sunrise Engineering will perform construction administration services for the tailrace connection 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.

16.2.3 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 6 consecutive weeks. 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.

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16.2.4 Contract Record Drawings: Sunrise Engineering will provide contract record drawings at the conclusion of the tailrace connection construction. Services will include:

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

FEE FOR TASK 16.2: \$39,100.00

FEE TYPE: T&M NTE

TASK 17 – RAW WATER FINAL DESIGN PLANS: Prepare final design, plans, specifications and contract documents for the proposed raw water pipeline from the C.C. Cragin (SRP) Power Plant tailrace connection to the proposed hydroelectric facility. The final design will be prepared using the approved preliminary design prepared in Task 9 of the original contract. The scope of work anticipated for this portion of the project is as follows:

17.1 Supplemental Field Survey & Base Mapping: This portion of the scope will provide the necessary survey, base mapping, for three newly paved parking areas along the proposed alignment. A brief description of the scope of work is as follows:

- Establish horizontal and vertical control at the three new parking areas at Water Wheel, 2nd Crossing and Third Crossing.
- Field survey crews will collect "ground-shots", edges of pavement and substantial visible improvements in the improved areas.
- Update existing "base-map" produced for the preliminary design (Task 2) based on the field data collect by survey crews.

FEE FOR TASK 17.1: \$5,200.00

FEE TYPE: LUMP SUM

17.2 Final Plans, Specifications and Contract Documents: The scope of work for this item includes the final design and plans for the raw water pipeline. The final design will be prepared using the approved preliminary design prepared in Task 9 of the original contract. The scope of work will include the following:

- Final steel pipe design
- Location and call-outs for bends and fittings
- Surface restoration call-outs and details
- Design criteria sheet
- Plan & profile sheets (40 Scale)
- Pipeline details (valves, drains, air/vac valves, trench details)
- Stream and major culvert crossing details
- Erosion and sediment control sheets

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- Geotechnical testing and boring information sheets
- Prepare project specifications and bid documents
- Prepare contract documents
- Participate in design review meetings (BoR, Forest Service, Utilities, Gila Co.)
- Incorporate design review changes into final plans
- Submit permit applications and plans to Gila County and ADEQ for review and approval
- Prepare final Engineer's Opinion of Probable Cost

FEE FOR TASK 17.2: \$260,100.00 FEE TYPE: LUMP SUM

17.3 Raw Waterline Final Design Report: The purpose of this report is to document the final design and analysis for the raw water pipeline that will be incorporated into the final plans for the project. The final design report will be an update to the Preliminary Design Report prepared in Task 3 of the original contract. The scope of work for this report is as follows:

- Hydraulic Analysis: Update the hydraulic analysis of the proposed raw water pipeline to determine line size and hydraulic characteristics to convey the water right (3500-acft) owned by the Town.
- Transient Surge Pressure Analysis: Update the transient analysis to determine appropriate protections for high up-surge and low down-surge pressures for the alignment based on a 3,500 ac-ft/yr (9 months) flow rate and one turbine location. Update the transient analysis model to analyze one (1) flow rate for the final pipeline alignment and turbine location for the following four (4) scenarios (4 model runs):
 - Scenario #1 – Normal Pelton turbine valve opening w/ bypass line closure
 - Scenario #2 – Pelton Turbine valve closure w/ bypass line failing to open
 - Scenario #3 – Rapid flow control valve closure at existing generating station
 - Scenario #4 – Instantaneous line break
- Prepare Final Report: Prepare a final design report showing the flow calculations, modeling results and equipment selections for the raw waterline project. This report will be submitted to ADEQ for approval.

FEE FOR TASK 17.3: \$35,000.00 FEE TYPE: LUMP SUM

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17.4 Cathodic Protection System: The purpose of this task is to prepare a design for the cathodic protection system for the steel and ductile iron pipe on the raw water pipeline. The scope of work for this report is as follows:

- Determination/design of deep well anode bed
- Soil resistivity testing
- System design (impressed current or galvanic couple)
- Cathodic protection layout
- Prepare cathodic protection drawings
- Prepare cathodic protection details
- Prepare cathodic protection system specifications

FEE FOR TASK 17.3: \$18,900.00 FEE TYPE: LUMP SUM

TASK 18 HYDRO PLANT & RAW WATER TANK FINAL DESIGN: Prepare final design, plans, specifications and contract documents for the proposed hydroelectric facility at the end of the raw water pipeline. The final design will be prepared using the approved preliminary design prepared in Task 7 of the original contract. The scope of work anticipated for this portion of the project is as follows:

18.1 Preliminary Design & Control Strategy: The purpose of this task is to prepare a preliminary design and control strategy for the new hydroelectric facility. This task will use the information prepared in Task 7 of the original contract as a basis for the preliminary design. This information will be used in the FERC licensing for the project and Task 18.2

FEE FOR TASK 18.1: \$14,300 FEE TYPE: LUMP SUM

18.2 Turbine Bidding and Selection: The purpose of this task is soliciting bids for the new turbine for the proposed hydroelectric facility. Sunrise will prepare bid documents and solicit manufacturers for the new turbine. The final design for the plant will be based on the selected manufacturer.

FEE FOR TASK 18.2: \$7,000 FEE TYPE: LUMP SUM

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18.3 Hydro Plant Final Civil Design: The scope of work for this item includes the final civil design and plans for the new hydroelectric facility. The final design will be prepared using the approved preliminary design prepared in Task 9 of the original contract. The scope of work will include the following:

- Final building and piping design
- Structural design and details
- Design criteria sheet
- Final construction documents
- Prepare project specifications and bid documents
- Prepare contract documents
- Participate in design review meetings (BoR, Forest Service, APS, Gila Co.)
- Incorporate design review changes into final plans
- Submit permit applications and plans to Gila County and FERC for review and approval
- Prepare final Engineer's Opinion of Probable Cost

FEE FOR TASK 18.3: \$73,300

FEE TYPE: LUMP SUM

18.4 Hydro Plant Final Electrical Design: The scope of work for this item includes the final electrical design and plans for the new hydroelectric facility. The final design will be prepared using the approved preliminary design prepared in Task 9 of the original contract. The scope of work will include the following:

- Coordination with APS
- SES ground modeling
- Substation layout and design
- Equipment design and procurement
- Powerhouse electric layout and calculations
- Powerhouse HVAC
- Oneline and threeline diagrams
- Control logic diagrams
- HPU Unit Layout, design and specifications
- P&ID's and control drawings
- Electrical specifications for low and medium voltage
- Interconnect and Arc Flash study

FEE FOR TASK 18.4: \$59,500

FEE TYPE: LUMP SUM

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18.5 Raw Water Tank Final Plans & Specifications: The scope of work for this item includes the final design and plans for the new raw water storage tank. The final design will be prepared using the approved preliminary design prepared in Task 9 of the original contract. The scope of work will include the following:

- Tank sizing calculations
- Determine overflow path and erosion control measures
- Site plan grading design (includes hydro facility)
- Prepare final construction documents
- Prepare final specifications and contract documents
- Create one bid package by combining with hydroelectric facility

FEE FOR TASK 18.5: \$29,700

FEE TYPE: LUMP SUM

18.6 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 18.6: \$19,250

FEE TYPE: LUMP SUM

18.7 FERC Permitting (Sacramento FERC Office): The scope of work for this item includes the preparing and filing the necessary documents for Federal Energy Regulatory Commission (FERC) permitting. This scope of work assumes that the permitting will be a Conduit Exemption Permit and that all of the NEPA documents prepared during the Environmental Assessment portion of the project can be used for the permit submittal. This scope of work is anticipated to include Pre-filing 1st Stage and the Post Filing application and submittal.

FEE FOR TASK 18.7: \$35,000

FEE TYPE: T&M NTE

18.8 Power Purchase Agreement Support: The scope of work for this item includes support services (on an as needed basis) for power purchase agreements related to the sale of power to utility company(s) from the hydroelectric generating station.

FEE FOR TASK 18.8: T&M

FEE TYPE: T&M

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TASK 19 WATER TREATMENT PLANT PRELIMINARY DESIGN: Provide as-needed consulting services for the new water treatment plant of the overall project. These services are intended to provide the Town with an overview of the size, configuration and operation of the proposed treatment plant. Any consulting services provided to the Town for water treatment plant consulting services will be provided on a time and material basis in accordance with the rates and fees shown in Exhibit B. In general the scope of work may include the following items at the discretion of the Town.

- A. Provide a maximum of a 6 month pilot test of Pall microfiltration equipment in accordance with the proposal received January 28, 2011 from Pall Water Processing.
- B. Provide support and analysis during the pilot testing of the CC Cragin raw water at the SRP generating station.
- C. Develop overall operation/treatment schematic for the proposed water treatment plant showing incoming and outgoing flows to and from the plant.
- D. Perform water treatment process planning
 - o Pre-treatment recommendations
 - o Backwash/enhanced backwash discharge disposal/reuse
 - o Clean-in-place waste discharge disposal and/or neutralization
 - o Post-treatment recommendations
- E. Provide overall site plan of treatment plant site. Show the following:
 - o Buildings (hydro and WTP) size and configuration
 - o Parking, access and fencing
 - o Raw and finished water storage
 - o Prepare master grading plan for WTP site
 - o Prepare hydraulic profile of entire WTP site with all proposed facilities
- G. Provide preliminary water treatment building floor plan showing proposed equipment.

FEE FOR TASK 19: \$133,000

FEE TYPE: T&M NTE

TASK 20 DUCTILE IRON PIPE PURCHASE: This contract includes the provision to purchase ductile iron pipe for the raw water and treated water portion of the project. This pipe purchase will be based on the bid received from Dana Kepner Company, Inc. dated March 15, 2011. This bid includes the following materials:

Description	Quantity (feet)	Bid Price (per foot)	Total Cost
18" DIP Class 250	38,540	\$27.47	\$ 1,058,693.80
18" DIP Class 300	15,700	\$30.41	\$ 477,437.00
18" DIP Class 350	8,300	\$32.06	\$ 266,098.00
		Total	\$1,802,228.80

Contract amendment #1 references a provision for a fee of \$12,500 for the services related to pipe acquisition. This amount has been included in the lump sum fee shown below.

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The process for the payment, delivery and acceptance for this pipe is as follows:

1. Dana Kepner will provide an invoice for the pipe to Sunrise Engineering.
2. Sunrise Engineering will submit the invoice to the Town for payment.
3. Town of Payson will pay Sunrise Engineering the full invoice amount within 14 calendar days of receipt.
4. After payment is received, Sunrise Engineering will authorize Dana Kepner to begin delivering and unloading the pipe to the designated site as outlined in the bid.
5. As the pipe is delivered and unloaded at the site, a designated Town representative will keep inventory (by pipe class type) and inspect the pipe for defects. Any pipe that is defective will be brought to the attention of Dana Kepner and Sunrise Engineering for replacement.
6. Once the Town has inventoried and inspected the pipe they will sign an acceptance, custody and release of liability between the Town and Sunrise Engineering. At this point the Town will own and be responsible for the pipe.
7. After the acceptance, custody and release of liability is signed by the Town, Sunrise Engineering will pay Dana Kepner within 14 calendar days. Sunrise Engineering will provide written proof of payment to the Town.

FEE FOR TASK 20: \$1,814,729

FEE TYPE: LUMP SUM

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 Exhibit A.
- B. Reproduction, mileage and travel costs shall be billed as a reimbursable expense in addition to the contract cost in accordance with the rates and fees shown in Exhibit A.
- C. The fee schedules shown in Exhibit A can be revised to the current annual fee schedule on the anniversary of the contract execution for providing Time and Material services.

	Contract Amendment #2	 SUNRISE ENGINEERING
	C.C. Cragin Reservoir Raw Water System Final Design	

EXHIBIT A

SUNRISE ENGINEERING, INC.

Arizona Offices 2011 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	\$0.55 <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