COLORADO
Colorado Water Conservation Board
Department of Natural Resources

1313 Sherman Street, Room 718
Denver, CO 80203

May 27, 2015

Mr. James Dietrich
Montezuma County
109 W. Main Street, Suite 302
Cortez, CO 81321-3154

RE: Notice to Proceed - WSRA Grant – POGG1 2015-276 Montezuma County McElmo Creek Rehabilitation in the Southwest River Basin

Dear James,

This letter is to inform you that the purchase order to assist in the above WSRA grant project was approved on May 27, 2015. This email and attachments serve as the original contracting documents.

With the executed purchase order, you are now able to proceed with the project and invoice the State of Colorado for costs incurred through October 30, 2015. Please provide the project name, purchase order number, and basin when corresponding with or invoicing the State of Colorado for your project. Upon receipt of your invoice(s), the State of Colorado will provide payment no later than 30 days after review and signed approval by the project manager. In addition, the final deliverable described in Exhibit A will need to be provided before the contract expiration date and final payments are distributed to you.

If you have any questions or concerns regarding the project, please contact me. You can contact Dori Vigil at 303-866-3441 ext. 3250 for invoicing and payment disbursement questions.

Sincerely,

//s//

Craig Godbout
Program Manager
Colorado Water Conservation Board
Water Supply Planning Section
1313 Sherman Street, Suite 718
Denver CO 80203
(303) 866-3441, ext 3210 (office)(303) 547-8061 (cell)
craig.godbout@state.co.us

Attachments

STATE OF COLORADO
Department of Natural Resources

ORDER
Number: POGG1 PDAA 20150000000000000276
Date: 05/27/15
Description:
PDAA WSRA MONTEUMA CNTY - MCELMO CRK REHAB SOUTHWEST BASIN
Effective Date: 05/27/15 Expiration Date: 10/30/15

BUYER
Buyer:
Email:

VENDOR
MONTEZUMA COUNTY
109 W MAIN ST
STE 302
CORTEZ, CO 81321-3154

Contact: J. Dietrich
Phone: 9705658317

**** IMPORTANT ****
The order number and line number must appear on all invoices, packing slips, cartons and correspondence

BILL TO
COLORADO WATER BOARD CONSERVATION
1313 SHERMAN STREET, ROOM 718
DENVER, CO 80203

SHIP TO
COLORADO WATER BOARD CONSERVATION
1313 SHERMAN STREET, ROOM 718
DENVER, CO 80203

SHIPPING INSTRUCTIONS
Delivery/Install Date:
F.O.B:
VENDOR INSTRUCTIONS:

Line Item	Commodity/Item Code	UOM	QTY	Unit Cost	Total Cost	MSDS Req.
1	G1000		0	0.00	$20,000.00	☐

Description: PDAA 2500 MONTEZUMA CNTY - MCELMO REHAB SOUTHWEST BASIN

Service From: 05/27/15 Service To: 10/30/15

TERMS AND CONDITIONS
https://www.colorado.gov/osc/purchase-order-terms-conditions

DOCUMENT TOTAL = $20,000.00

Exhibit A

Statement of Work

WATER ACTIVITY NAME - Rehabilitate the McElmo Creek Flume

GRANT RECIPIENT – Montezuma County

FUNDING SOURCE - Southwestern Colorado Basin Roundtable

INTRODUCTION AND BACKGROUND

Provide a brief description of the project. (Please limit to **no more than 200 words**; this will be used to inform reviewers and the public about your proposal)

This water education project will implement the repairs to the steel and concrete foundation of the McElmo Creek Flume. This is the last of the 104 flumes originally built on the Montezuma Valley Irrigation system in the 1890s. The rehabilitation of this National Register property is necessary so that it can be interpreted to the visiting public at a new formal pullout on the Trail of the Ancients Scenic Byway on Highway 160. Waysides at this new stop will tell the story of the 19th and 20th century water history in Montezuma County. Without the construction of this irrigation system which allowed ranching and farming to prosper, Montezuma County and the City of Cortez would not have developed. This water history is not interpreted for the public anywhere else in the County. This major highway across southern Colorado is traveled by hundreds of people daily, including the half million people who visit Mesa Verde National Park every year. The rehabilitation of the McElmo Creek Flume is an integral part of this new stop so that the actual Flume can be viewed and its function understood by the public.

OBJECTIVES

List the objectives of the project

The objective of this project is to rehabilitate the concrete and steel supports of the Flume. The Flume has been out of use since 1992 and has deteriorated rapidly due to water and wind events. The southern end of the Flume is currently unsupported since the bank of McElmo Creek has eroded from beneath it, and the concrete and steel are failing in other parts of the foundation. These repairs must be done to insure the survival of the Flume for the foreseeable future. It is the key piece to be interpreted in the new stop on the Trail of the Ancients.

TASKS

Provide a detailed description of each task using the following format

TASK 1 – Shoring and Masking to Protect McElmo Creek Flume

Description of Task

To avoid the cost and difficulty of removing and storing the wooden superstructure of the McElmo Creek Flume while conducting the foundation, steel and concrete repairs, shoring and masking is required to prevent damage to the fragile wooden flume elements.

Method/Procedure

Masking will consist of the use of tarps, sheet metal shields, and other means for protecting woodwork during the processes of removing decayed concrete, cleaning the steel of rust and scale, and applying primer. The use of movable, flexible barriers will permit temporary wrapping of wood elements where overspray might otherwise damage them, and will assist in the collection and removal of dust and debris produced by the cleaning process.

Deliverable

Shoring and wood member protection will be installed so that the wooden trough of the McElmo Creek Flume will not be damaged by the repairs to the concrete and steel foundation.

TASK 2 – Foundation Repair

Description of Task

The existing piers and diagonal braces at the south end of the Flume will be supported with a new foundation system.

Method/Procedure

The existing bedrock will be exposed and evaluated. If sound rock is found, a new spread footing will be cast on top of it. Should the bedrock be not stable, micropiles or helical piers will be used to support the new footing (subject to approval by the owner's representative).

A concrete column or wall will extend from the footing to the base of the piers. A concrete cap will be used to provide support to both the piers and diagonal braces. Although no drawings, photos or photographs existed showing the original appearance of the flume at this location, it is likely that the existing piers were founded directly on bedrock. Since the bedrock has been eroded by recent severe weather events, any repair will alter the appearance of the flume. The lack of support is of structural concern and foundation repairs are required to prevent catastrophic failure of the structure.

Erosion protection will also be provided at the base of the new footing. A rip-rap structure of a wire-enclosed rock gabion system is proposed as the erosion protection measure.

Deliverable

A new foundation and column or wall will be installed to support the southern end of the Flume. The new foundation will be resting on bedrock or micropiles to provide vertical support for the superstructure and prevent a catastrophic failure of this portion of the flume.

TASK 3 – Concrete Repair

Description of Task

Deteriorated, damaged, or defective concrete will be removed until sound material is reached. Care will be taken in the removal process to not damage the embedded steel. Final construction drawings and specifications will address the requirement for new materials to match the old in composition, design, color and texture.

Method/Procedure

All exposed steel surfaces will be thoroughly cleaned of all loose concrete, rust, and other contaminants. Cleaning and repairs will be done in accordance with the Secretary of the Interior's Standards with emphasis on using gentler methods (scraping and wire brushing) unless more abrasive cleaning is needed. For areas with minor corrosion, wire brushing or other hand methods should be suitable. For areas with more severe corrosion, abrasive cleaning methods may be necessary.

The steel to be cleaned under this section (Concrete Repair) will be encased in new concrete. For this reason, the steel needs to be cleaned throughout to minimize the risk of future corrosion. The effectiveness of the cleaning method will be assessed on site by the owner's representative.

Surfaces of sound concrete will be prepared to receive the repair material by removing thin layers of surface concrete. Similar methods to those described will be used unless abrasive cleaning is necessary.

A repair material compatible with the existing concrete substrate will be used to restore the original cross section. Conventional concrete composed of Portland cement, aggregates, and water is proposed for the repair.

Deliverable

The existing deteriorated concrete will be replaced with new in kind materials. Corrosion byproducts will be removed from all reinforcing steel to provide a long-term repair. New concrete will encase the reinforcing and restore the original cross sections of these members.

TASK 4 – Steel Corrosion Repair

Description of Task

As with cleaning and repair of the steel described in the Concrete Repair section above, the Secretary of the Interior's Standards recommendations regarding scraping, wire brushing, and using softer grit for cleaning will be used. The repairs addressed in this section apply to the two exposed steel beams, also called girders, supporting the wooden superstructure. If scraping, wire brushing, or soft grit does not adequately remove the corrosion, more abrasive cleaning may be necessary for this structural steel. The cleaning method used will not result in substantial damage of the steel surface. The effectiveness of the cleaning method will be assessed on site by the owner's representative.

Method/Procedure

All exposed steel surfaces will be thoroughly cleaned of rust and other contaminants by scraping, wire brushing, and using softer grit. If scraping, wire brushing, or soft grit does not adequately remove the corrosion, more abrasive cleaning may be necessary for this structural steel.

Cleaned steel will be protected with appropriate coating. A zinc rich primer, e.g. Sherwin-Williams Corothane 1 or equivalent is recommended. ANA did not observe any evidence of paint applied to the surface of the steel elements. The protective coatings are not clear: the available, zinc-rich paints are typically gray, green or reddish. Topcoats of paint (non zinc-rich) can be added to arrive at a final color similar to that in historic photographs.

Diagonal brace-girder connections at the northern frames will be fully exposed and evaluated by a structural engineer to determine the extent of corrosion damage. Because of the corrosion between the angle and the girder bottom flange, the existing angle needs to be removed to allow cleaning and protection of the corroded surfaces as described above. Severely damaged connection elements will be replaced as directed by the owner's representative with new material that will match the old in composition, design, color, and texture.

The girder bearing pockets, which is where the steel beams are supported in the concrete abutments, will be filled with a suitable sealant (to be approved by the owner's representative) to prevent moisture and water from collecting inside the pocket.

Extensive corrosion damage was observed at all of the plates that provide support for the wooden stringers. Because the level of corrosion has compromised their structural capacity, all plates will be replaced. The new plates should be protected with appropriate coating. The new material will match the old in composition, design, color, and texture. As an alternative, a self-weathering steel (COR-TEN) could be used for the replacement plates. When exposed to weather, this material forms a stable layer at the surface with a rust-like appearance that functions as a protective layer for the steel.

Deliverable

The cleaned or replaced steel supports will be protected from future corrosion as practical. The replaced and stabilized elements will insure the future stability of the Flume.

REPORTING AND FINAL DELIVERABLE

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the statement of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

BUDGET

Provide a detailed budget by task including number of hours and rates for labor and unit costs for other direct costs (i.e. mileage, $/unit of material for construction, etc.). A detailed and perfectly balanced budget that shows all costs is required for the State's contracting and purchase order processes. Sample budget tables are provided below. Please note that these budget tables are examples and will need to be adapted to fit each individual application. Tasks should correspond to the tasks described above.

The budget below for the repair work is based on published construction cost data, using the construction documents produced by the 2013 concrete and steel assessment project at the McElmo Creek Flume.

Total Costs				
	Labor	Other Direct Costs	Matching Funds (If Applicable)	Total Project Costs
Task 1 – Shoring & Masking of Flume				$15,000
Task 2 –Foundation Repairs				$39,000
Task 3 – Concrete Repairs				$44,000

Task 4 – Steel Repairs				$30,000
General Conditions, O&P Owner's representative Contingency (7.5%) **Total Costs**:				$6,100 $19,500 $11,500 **$165,120**

SCHEDULE

Provide a project schedule including key milestones for each task and the completion dates or time period from the Notice to Proceed (NTP). This dating method allows flexibility in the event of potential delays from the procurement process. Sample schedules are provided below. Please note that these schedules are examples and will need to be adapted to fit each individual application.

Task	Start Date	Finish Date
1 Shoring & Masking of Flume	Upon NTP	NTP + 10 days
2 Foundation Repairs	NTP + 10 days	NTP + 40 days
3 Concrete Repairs	NTP + 40 days	NTP + 70 days
4 Steel Repairs	NTP + 70 days	NTP + 100 days
5		
6		
7		

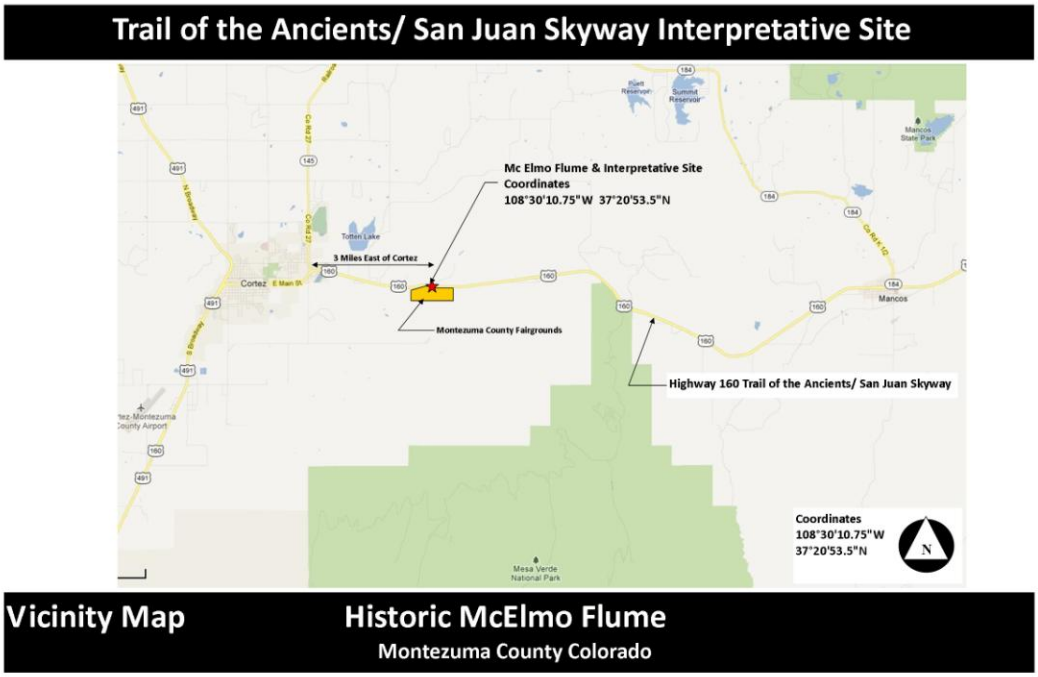
NTP = Notice to Proceed

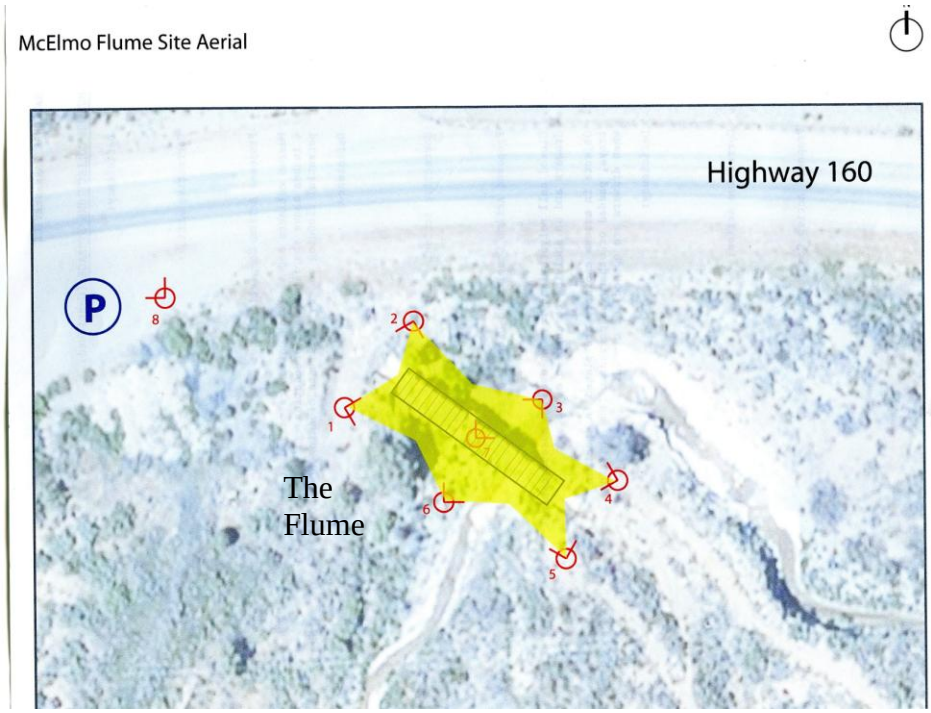
PAYMENT

Payment will be made based on actual expenditures and invoicing by the applicant. Invoices from any other entity (i.e. subcontractors) cannot be processed by the State. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 5 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and help promote the development of a common technical platform.

EXHIBIT B

Rehabilitate the McElmo Creek Flume





This map was produced for the LIDAR scanning of the Flume which was done in August, 2012.