COLORADO
Colorado Water Conservation Board
Department of Natural Resources

1313 Sherman Street, Room 718
Denver, CO 80203

October 6, 2016

Fort Lyon Canal Company
Attn: Amy VanHorn, Water Master
750 Bent Avenue
Las Animas, CO 81054

RE: Official Notice to Proceed – WSRF Grant – **POGG1 2017-489 – Adobe Creek Dam Seepage Evaluation in the Arkansas River Basin**

Dear Amy,

This letter is to inform you that the purchase order to assist in the above WSRF grant project has been approved. The emailed documents serve as your 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 your expiration date. Please reference the project name, contract number, and basin when corresponding with or invoicing 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 of the project manager.

Please refer to the **Exhibit A** reporting and final deliverable criteria requirements in order to avoid a delay in payment.

If an extension to the project is necessary, a formal letter of request must be submitted to the project manager with a proposed completion date **30 days** prior to the current expiration date along with the updated insurance certificates and updated schedule. There will be no prior notice from the CWCB contract compliance staff informing the grantee that the project is approaching its deadline, therefore the grantee must monitor the completion progress accordingly.

If you have any questions or concerns regarding the project, please contact Derek Johnson, Project Manager at 303-866-3441 x3254 or at Derek.johnson@state.co.us. You can contact me at 303-866-3441 ext. 3250 for invoicing and payment disbursement questions.

Thank you.

Sincerely,

Doriann Vigil
Program Assistant II
O 303-866-3441 ext. 3250
1313 Sherman Street, Rm. 719, Denver, CO 80203
Dori.vigil@state.co.us / cwcb.state.co.com

Attachments

STATE OF COLORADO
Department of Natural Resources

ORDER
Number: POGG1 PDAA 201700000489
Date: 10/07/16
Description:
PDAA 2500 WSRF - FLCC-Adobe Crk Dam Seepage Ark Basin
Effective Date: 10/07/16 Expiration Date: 03/01/17

BUYER
Buyer:
Email:

VENDOR
FORT LYON CANAL COMPANY
750 BENT AVENUE
LAS ANIMAS, CO 81054

Contact: .
Phone: .

**** 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: FOB Dest, Freight Allowed
VENDOR INSTRUCTIONS:

Line Item	Commodity/Item Code	UOM	QTY	Unit Cost	Total Cost	MSDS Req.
1	G1000		0	0.00	$5,000.00	☐
Description: PDAA 2500 WSRF - FLCC-Adobe Crk Dam Seepage Ark Basin						
Service From: 10/07/16 Service To: 03/01/17						

Line Item	Commodity/Item Code	UOM	QTY	Unit Cost	Total Cost	MSDS Req.
2	G1000		0	0.00	$45,000.00	☐
Description: PDAA 2500 WSRF - FLCC-Adobe Crk Dam Seepage Ark Basin						
Service From: 10/07/16 Service To: 03/01/17						

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

DOCUMENT TOTAL = $50,000.00

Exhibit A

Statement of Work
Date: 7/05/16

WATER ACTIVITY NAME - EVALUATION OF THE SEEPAGE AND OUTLET CONDUIT ISSUES AT ADOBE CREEK DAM

GRANT RECIPIENT – FORT LYON CANAL COMPANY

FUNDING SOURCE – WSRA BASIN AND STATEWIDE GRANT FUNDS

INTRODUCTION AND BACKGROUND

The Fort Lyon Canal Company (FLCC) has an immediate and critical need to perform subsurface investigations and engineering evaluations to determine the extent of dam and outlet works rehabilitation necessary for safe water storage impounded behind Adobe Creek Dam. Adobe Creek Dam is an approximately 32-foot-high and 7,400-foot- long embankment dam originally constructed in 1904 by the FLCC. Uncontrolled seepage and the potential for the initial stages of a piping failure were recently observed by the Division 2 Dam Safety Engineer in the area of the downstream dam toe, immediately left of the outlet works. Numerous temporary repairs to the area have been made over the years, and additional temporary repairs were made to the dam in March of 2016 with the goal of keeping the dam operational without storage restrictions through the 2016 water year.

The Division 2 Dam Safety Engineer recommends full replacement or rehabilitation of the of the seepage control system and outlet works due to the seepage issues, the patchwork of temporary repairs, and the age of the dam components.

OBJECTIVES

The objective of this water activity is to determine the condition of the dam outlet works and subsurface conditions to determine alternatives for feasible repair and rehabilitation of the Adobe Creek Dam, if required. The investigations and analysis are scheduled to occur in the fall of 2016, dependent on receipt of funds. Grant funds will be sought in order to accomplish this water activity.

TASK 1 – SUBSURFACE INVESTIGATIONS

Description of Task

This task includes drilling of two exploratory holes into the crest of the dam to a depth of about 45 feet each, drilling up to four exploratory drill holes into the downstream toe of the dam to an assumed depth of about 30 feet each, and installing piezometers in each drill hole for future monitoring off the piezometric surface within the dam. Laboratory soils testing of sample soils will be performed to determine the subsurface soil characteristics.

Method/Procedure

A truck mounted drill rig will be used to drill the holes safely within hollow stem augers. The drilling plan will be approved by the Colorado Dam Safety Branch prior to the drilling and the subsurface borings will be supervised by a geotechnical engineer or geologist under the direction of W.W. Wheeler and Associates, Inc. (Wheeler).

Deliverable

A geotechnical report will document the identified subsurface stratigraphy and laboratory testing results and the report will include detailed drilling logs and piezometer installation logs.

TASK 2 – OUTLET INSPECTION

Description of Task

This task includes performing a detailed inspection of the interior of the four vitrified clap pipe (VCP) outlet works conduits.

Method/Procedure

W.W. Wheeler and Associates, Inc. will perform this task with the aid of the FLCC.

Deliverable

A copy of the video inspection and a brief letter report summarizing the video inspection findings.

TASK 3 – SEEPAGE ANALYSIS

Description of Task

This task includes a two-dimensional, finite element seepage model of the dam based on the subsurface investigations and laboratory testing described in Task No. 1. The model will be calibrated based on the installed piezometer readings. The seepage exit gradients and estimated seepage flow rates will be compared to current accepted design standards to assess the effectiveness of the existing seepage control systems in the dam.

Method/Procedure

Kumar and Associates, Inc. will perform this work under the direction of Wheeler.

Deliverable

The results of the analysis will be summarized in the geotechnical report described in Task No. 1.

TASK 4 – REPAIR AND REHABILITATION CONCEPT DEVELOPMENT

Description of Task

Based on the results of Task Nos 1 through 3, Wheeler will develop conceptual level design alternatives for the rehabilitation and repair of the dam, outlet works, and the seepage collection systems.

Method/Procedure

Wheeler will perform this task using AutoCAD drawings and available site topography in and around the maximum dam section.

Deliverable

Conceptual level design drawings and calculations will be included in the feasibility report described in Task No. 6.

TASK 5 – COST OPINIONS AND ANALYSIS

Description of Task

Develop detailed itemized construction cost opinions for the conceptual dam rehabilitation and seepage collection system alternative designs developed in Task No. 4.

Method/Procedure

Wheeler and will perform this task and utilize their database of similar dam construction bid items and the R.S. Means Heavy Civil Estimating Guide.

Deliverable

A detailed, spreadsheet-based, cost opinion of each conceptual repair design alternative will be included in the feasibility report included in Task No. 6.

TASK 6 – REPAIR AND REHABILITATION FEASIBILITY ASSESSMENT REPORT

Description of Task

Prepare a feasibility report summarizing the work described in Task Nos. 1 through 5.

Method/Procedure

Wheeler will prepare the feasibility report.

Deliverable

A feasibility report as described above. The geotechnical report will be an appendix to the feasibility report.

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

	Task Cost Match by FLCC	Task Cost Payment by WSRA	Total Task Cost
TASK 1 – Subsurface Investigations	$4,167	$20,833	$25,000
TASK 2 – Outlet Inspection	$833	$4,167	$5,000
TASK 3 – Seepage Analysis	$667	$3,333	$4,000
TASK 4 – Repair And Rehabilitation Concept Development	$833	$4,167	$5,000
TASK 5 – Cost Opinions And Analysis	$2167	$10,833	$13,000
TASK 6 – Repair And Rehabilitation Feasibility Assessment Report	$1,333	$6,667	$8,000
TOTAL WATER ACTIVITY COST	**$10,000**	**$50,000**	**$60,000**

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	Project Schedule	Start Date	Finish Date
1	Subsurface Investigations	Upon NTP	NTP + 20 days
2	Outlet Inspection	Upon NTP	NTP + 20 days
3	Seepage and Stability Analysis	Upon NTP + 20 days	NTP + 40 days
4	Repair and Rehabilitation Concept Development	NTP + 40 days	1/31/17 - 3/1/17
5	Cost Opinions and Analysis	NTP + 40 days	1/31/17 - 3/1/17
6	Repair and Rehabilitation Feasibility Assessment Report	NTP + 40 days	1/31/17 - 3/1/17

NTP = Notice to Proceed, assumed October 1, 2016. Delays in the NTP will delay the schedule accordingly.

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