

**CHANGE ORDER
NO. 1**

PROJECT TITLE: NISP FEIS Preparatory Tasks

SERVICE PROVIDER: Otak

WORK ORDER NUMBER: 1

PO NUMBER: 9183491

DESCRIPTION:

1. Reason for Change: Task 3 was described originally as just the development of the written portion of a monitoring plan. Given the value of baseline data to our immediate NISP response efforts and the type of water year we are experiencing in 2018, it was decided that gathering a subset of data as planned for future years, would be very helpful for informing the 2018 NISP FEIS comments. Please see attached revised scope for Task 3.
2. Description of Change: see above
3. Change in Work Order Price: \$14,600
4. Change in Work Order Time: from July 31, 2018 to December 1, 2018

ORIGINAL WORK ORDER PRICE	\$ 49,900.00
TOTAL APPROVED CHANGE ORDER	.00
TOTAL PENDING CHANGE ORDER	.00
TOTAL THIS CHANGE ORDER	14,600.00
TOTAL % OF THIS CHANGE ORDER	%
TOTAL C.O.% OF ORIGINAL WORK ORDER	%
ADJUSTED WORK ORDER COST	\$ 64,500.00

SERVICE PROVIDER: *Julie E. Ash* Date: 7/13/18
Julie E. Ash, PE, CO WNR Technical Director

ACCEPTANCE: *Gerry Paul* Date: 7/13/18
Name, Project Manager

REVIEWED: *Beth Diven* Date: 7/16/18
Beth Diven, Buyer

ACCEPTANCE: _____ Date: _____
Gerry Paul, Purchasing Director
(if greater than \$60,000)

Original Scope for Task 3:

Task 3: Long-term Sediment Transport Data Collection and Monitoring Plan

Otak will review existing information and work with the City and Colorado State University experts to develop a long-term monitoring plan for Poudre River geomorphology through Fort Collins, or for an agreed upon reach of river. Repeat cross section and profile measurements, sediment samples, and bedload measurements will help the City understand how the Poudre is functioning and establish a baseline upon which to compare post-NISP conditions and measurements. Scope for this task includes the development of a monitoring plan, including locations, frequencies, and methods, that will outline a recommended option to monitor the channel's geomorphology.

Deliverables: Technical memorandum and GIS database describing tasks, locations, frequencies, and methods to be used to develop the monitoring plan.

Cost: Scope for this task assumes 52 hours and cost shall not exceed \$6,240 without authorization from the City. Change Order for Field Work

Revised Scope for Task 3:

Task 3: Long-term Sediment Transport Data Collection and Monitoring Plan

Otak will review existing information and work with the City and Colorado State University experts to develop a long-term monitoring plan for Poudre River geomorphology through Fort Collins, or for an agreed upon reach of river. Repeat cross section and profile measurements, sediment samples, and bedload measurements will help the City understand how the Poudre is functioning and establish a baseline upon which to compare post-NISP conditions and measurements. Scope for this task includes the development of a monitoring plan, including locations, frequencies, and methods, that will outline a recommended option to monitor the channel's geomorphology.

Field work as part of this task includes collecting bed material data before and after runoff this spring. The data gathered will be used in two ways: 1) to help us better determine what bed material is actually mobilized and 2) to ground truth flushing flow values presented by Anderson in the flushing report and our own resulting flushing flow values. Sampling will occur at riffles used in the HEC-RAS model to compare the model flushing flow results with actual field data results. At each cross-section the following data will be collected:

- Tracer rocks (10 each of the following size classes, 32, 64, 90 mm for 30 total)
- Photo points (Above and below water, Across cross-section at intervals)
- Rebar (Permanent cross-sections)
- Veg Encroachment photo points
- Bar aggradation photo points and qualitative gradation

Deliverable: The data will be analyzed and results will be incorporated into our final technical report for the City of Fort Collins. A GIS database describing tasks, locations, frequencies, and methods to be used to develop the monitoring plan.

Cost: Scope for this task assumes 212 hours and cost shall not exceed \$20,840 without authorization from the City.