

AMENDMENT NO. 4
TO
CONTRACT FOR PROFESSIONAL ENGINEERING SERVICES
W.O. 14-11
WASTEWATER TREATMENT PLANT NUTRIENT UPGRADE,
EXPANSION AND IMPROVEMENTS

THIS AGREEMENT, made and entered into on August ____, 2017, by and between the following:

CITY OF BILLINGS, a Municipal Corporation,
Billings, Montana 59103,
Hereinafter designated the City

and

HDR Engineering, Inc.
2913 Millennium Circle
Billings, Montana 59102
Hereinafter designated the Contractor

WITNESSETH:

WHEREAS, the City and Contractor have entered into a contract dated June 9, 2014, for Contractor to provide engineering services to the City for Work Order 14-11 Wastewater Treatment Plant Nutrient Upgrade, Expansion and Improvements, and;

WHEREAS, the City has need for additional engineering services, and;

WHEREAS, the City has authority to contract for consulting engineering services, and;

WHEREAS, the Contractor represents that he is qualified to perform such services, is in compliance with Montana Statutes relating to the registration of professional engineers and is willing to furnish such services to the City;

NOW, THEREFORE, in consideration of the terms, conditions, covenants and performance contained herein, or attached and incorporated herein, the Parties hereto agree as follows:

Part I, Section 4. is amended as follows:

Increase the amount of compensation by Eighty Nine Thousand Eight Hundred and no/100 DOLLARS (\$89,800) to Twelve Million Fifteen Thousand Eight Hundred and no/100 DOLLARS (\$12,015,800.00).

Appendix A, Section 3. Add the following to the Scope of Work:

MDEQ is currently working on a water quality model that includes the Billing reach of the Yellowstone River. HDR has acquired a working copy of that water quality model from DEQ. The work will investigate different discharge scenarios and provide a third party review of the water quality model from MDEQ.

While the water quality modeling continues to evolve, the phases of the investigation will evolve. Initial investigations include: reviewing MDEQ's current water quality modeling efforts, potentially influencing the future development and refinements to the water quality model, identifying data gaps and recommending monitoring activity to attempt to fill those data gaps, and exploring alternative discharge scenarios and sensitivity of the water quality model response.

MDEQs water quality modeling is based on sampling MDEQ conducted in 2012. The City of Billings may pursue a site specific variance from MDEQs nutrient criteria. To pursue a variance MDEQ requires a minimum of three years of summer time, low flow, water quality monitoring. This work represents the first year of that monitoring.

OBJECTIVES

PHASE 1

1. Assess MDEQ's current Yellowstone River water quality model that includes the Billings reach.
2. Understand the potential regulatory implications of wastewater treatment and other management alternatives from the current water quality model.
3. Complete one season of Water Quality Sampling on the Yellowstone River.

PHASES 2, 3, AND AS NEEDED

- 1. To be determined.

SCOPE OF SERVICES

This scope of services is for the Consultant to assist the Owner through various technical assistance activities related to watershed water quality. The proposed scope of Consultant services are identified in the following tasks. Consultant will commence with services upon written notice to proceed with the selected tasks. Schedule will be determined at the time of notice to proceed.

PROJECT MANAGEMENT

Objective and Approach

CONSULTANT will provide project management activities for this task. Project management and administrative activities include the following:

- Conduct scheduling, invoicing, work planning, and administrative activities to manage, to the extent possible, scope, budget, and schedule relative to activities summarized within this scope of services.
- Conduct quality control reviews for deliverables anticipated under this contract, consistent with the standard of care for the engineering profession.
- Coordinate with the OWNER to address project expectations, scheduling, budget, progress, and coordination topics related to work being conducted as part of this contract.

Assumptions

- If the scope changes during the life of the project, modification to the original contract agreement will be required per the terms and conditions of the agreement.
- Quality control reviews of work activities and project deliverables are included in each task.

Deliverables

- Monthly invoices.

REVIEW WATER QUALITY MODEL

Objective and Approach

Review the transmittal information provided by DEQ. Review the water quality model of the Yellowstone River from DEQ. Create graphs of the data within the water quality model to readily see the input data. De-construct the water quality model and assess the inputs including:

- Selected simulation date.
- Water balance.
- Headwater boundary conditions.
- Reach definitions.
- Meteorological inputs.
- Point sources and diffuse sources.
- Model coefficients, rates, and parameters.
- Evaluate the status of the water quality model calibration. Examine qualitatively (graphically) and quantitatively (numerical RMSE or similar statistics) the water quality model performance between the observed data and predicted results.

Assumptions

- No simulations will be performed.
- Current version of the water quality model will be reviewed within the context of available data and appropriate range of model parameters.

Deliverables

- Report the findings in a brief technical memorandum, provided electronically, and one conference call.

SIMULATE MANAGEMENT SCENARIOS**Objective and Approach**

Use the current water quality model and simulate alternative management scenarios. These scenarios may include alternative nitrogen and/or phosphorus concentrations. The concentrations may be change from the following sources, Billings POTW, other point sources (irrigation and/or tributaries), nonpoint sources, and/or groundwater.

Assumptions

- Up to 10 scenarios will be simulated.
- Limited “what if” scenarios are included in this task, but additional analysis and scenarios can be run on a time and materials basis based on the City’s objectives as methods for compliance with water quality standards become more apparent.

Deliverables

- Report the findings in a brief technical memorandum, provided electronically, and one conference call.

IDENTIFY WATER QUALITY MODELING DATA GAPS**Objective and Approach**

The results of previous tasks will be evaluated and areas of data gaps identified. Recommendations for filling these data gaps will be developed.

Assumptions

- Data gaps may occurred due a lack of monitoring data, water quality model input information, and/or other reasons.

Deliverables

- Report the findings in a brief technical memorandum, provided electronically, and one conference call.

WATER QUALITY SAMPLING**Objective and Approach**

This task includes the labor and expenses for completing a single year sampling on the Yellowstone River for water quality data as outlined in the Sampling and Analysis Plan (SAP- June 2017). The SAP includes a subset of eight (8) of MDEQ’s 2012 sampling sites for a variety of water quality parameters.

Assumptions

- MDEQ will review and accept the SAP as is and not require additional sampling.
- Sonde data will not be collected in the 2017 sampling season.
- City of Billings will contract all analytical work separately.

Deliverables

- Raw water quality data.

WATER QUALITY DATA ANALYSIS**Objective and Approach**

The data gathered will be assimilated into an Excel Spreadsheet and Word document summary report with graphs of the data collected.

Assumptions

- Additional work to submit data to the State/National database is not included.

Deliverables

- A single year Water Quality Analysis Technical Memorandum and Excel Database.

BUDGET

Task	Title	Budget
100	Project Management	\$4,500
200	Review Water Quality Model	\$11,500
300	Simulate Management Scenarios	\$9,700
400	Identify Water Quality Modeling Data Gaps	\$3,600
500	Water Quality Sampling	\$51,700
600	Water Quality Data Analysis	\$8,800
Total		\$89,800

All other terms and conditions of the contract to which this amendment applies shall remain in full effect.

CONSULTANT

NAME: _____

BY: _____

TITLE: _____

DATE: _____

CITY OF BILLINGS, MONTANA

BY: _____

Mayor

DATE: _____