AMENDMENT NO. 1

TO

CONTRACT FOR PROFESSIONAL ENGINEERING SERVICES

W.O. 19-12

WEST END RESERVOIR PROJECT

THIS AGREEMENT, made and entered into on _____, by and between the following:

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

and

HDR Engineering, Inc.
970 South 29th Street West
Billings, Montana 59102
Hereinafter designated the Contractor

WITNESSETH:

WHEREAS, the City and Contractor have entered into a contract dated April 2, 2019, for Contractor to provide engineering services to the City for Work Order 19-12 West End Reservoir Project, 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:

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

- Provide Preliminary and Final Design services for the following major elements of work:
    - **New Duck Creek Bridge Intake**
        - Perform bathymetric survey across the entire river channel, upstream and downstream 250 feet.
        - Investigate historical river migration patterns and gravel bar development.
        - Provide for river channel stabilization (if needed).
        - Design initially to allow 30 mgd of raw water conveyance to the lift station wet well.
        - Design additional intake bays to allow for expansion to accommodate 60 mgd in the future. Any expansion beyond 60 mgd will be in a separate structure.
        - Design intake to allow gravity flow of up to 60 mgd from the intake to the pump station wet well.
        - Intake structure to be designed to operate during lowest expected water surface and during high water events.
        - Provide means to clean the intake screens such as air purge manifolds, air purge equipment, and accessories.
        - Provide means to isolate structure.
        - Should the intake structure be crib and barrel, provide blank screen panels to allow the intake screen panels to be removed for maintenance.
        - Evaluate site requirements to determine if air purge control equipment can be included in the pump station or if a separate control building is required to house air tank and control equipment.
        - Conveyance from the intake to the pump station wet well will be either pipe or box culvert.

    - **Permitting**
        - Prepare a Joint Permit Application (JPA) for the project including agency coordination and the anticipated permit requirements below:
            - DNRC
            - FWP/124
            - DEQ 318
            - Yellowstone County Floodplain Permit
            - Montana Land-Use License or Easement on Navigable Waters
        - Provide a USACE/404/Section 10 Permit
        - Provide an analysis to determine No Rise condition to avoid a Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR)
        - Provide an Encroachment Permit for Montana Rail Link (MRL) and Montana Department of Transportation (MDT).

- Provide a Building Permit for required facilities.
- Submit preliminary engineering report and project documents to DEQ for approval to construct. Submit as-builts to DEQ at conclusion of the project.
- Complete a wetland delineations at intake/pump station site and at pertinent locations along raw water pipeline route.

- **Raw Water Pump Station**
  - Design initially for 30 mgd (55 cfs) pumping capacity, expandable to 60 mgd (110 cfs). A concept to expand the structure for capacity beyond 60 mgd will be included.
  - Design pump station to be continuously and intermittently operated. For intermittent operation, starting and stopping of the pump station will include the option to be done manually or automatically from a remote location.
  - Pump type and associated structure concept to be determined during design.
  - Superstructure over the pump station will be evaluated during preliminary design. Scope assumes metal building or precast walls with an embedded brick fascia and precast roof.
  - Provide heat and ventilation for the superstructure.
  - Provide means for equipment removal via bridge crane or monorail.
  - Provide fence around pump station site.
  - Provide gravel access road to pump station from Duck Creek Road.

- **Electrical/Controls/Instrumentation**
  - Provide switchgear and/or motor control center in the pump station to meet electrical requirements for the pump station and intake facility with provisions to expand to meet a 60 mgd design condition and concept to expand beyond 60 mgd.
  - Provisions for providing power to the site will be determined during pump station design. Overhead power lines currently located north of the project site along Duck Creek Road will be the likely power source.
  - Provide exterior lighting for the pump station.
  - Provide variable frequency drives for operational flexibility.
  - Provide manual or automatic operation.
  - Provide pressure transducer on pump station discharge.
  - Provide ultrasonic sensor in pump station wetwell if wetwell is included otherwise provide pressure transducer on suction header.
  - Provide high level and low level alarm in pump station wetwell if wetwell is included.
  - Provide flow meter on pump station discharge.
  - Provide PLC or Remote I/O in the pump station for pump station operation. Provide OIT in control panel. Provide radio and

antenna to communicate with existing SCADA system. City to provide the firewall.
- Provide controls for air purge system inside pump station. Air tank to be located inside or adjacent to pump station.
- Provide security cameras at key locations.

- **Raw Water Transmission Line**
  - Survey route from pump station north along Duck Creek Road (entire ROW). Include land area to east of Duck Creek Road for boring under I-90 and MRL ROW. Continue survey north on 48th St W to the north end of project site.
  - Provide borings along pipeline route for geotechnical evaluation.
  - Subsurface Utility Engineering Quality Level B (SUE QL-B). Designate underground utilities by markings provided through an 811 call.
  - Plan sheets to include plan and profile (Horizontal 1”=40’/Vertical 1”=10’).
  - ROW/easement acquisition coordination with City for entire alignment.
  - Meet with MRL and MDT to discuss project and procure encroachment permits for survey, geotechnical borings and utility potholing.
  - Prepare Geotechnical report to support permitting for MRL and MDT crossings.
  - Prepare traffic control plans and specifications for work along the alignment and work within MDT and MRL ROW including bore pits between I-90 and the MRL tracks.
  - Coordinate work with private utility companies. Provide preliminary alignment plans to private utility companies and coordinate any conflicts, relocations or special construction conditions.
  - Coordinate with and provide preliminary alignment plans to Billings Bench Water Association (BBWA) and Canyon Creek Ditch Company for crossings of those ditches along 48th Street W.

- **Items not included in scope of work**
  - It is assumed that a No Rise will be obtained during the hydraulic analysis and that a CLOMR and LOMR are not required from FEMA. Any design not resulting in a No Rise will require an amendment.

Appendix A, Section 3. Add the following to the Scope of Work after Task 800.

DETAILED SCOPE OF SERVICES

The scope of services that will be utilized on the West End Raw Water Delivery Project is presented in Tasks 900-1400. Tasks 1500-1700 to be added by future amendment. The scope of services is organized as follows:

Task Series	Description
900	Project Initiation, Coordination and Management
1000	Data Collection and Field Work
1100	Permitting
1200	Preliminary Design Phase
1300	Final Design Phase
1400	Shale Material Processing Pilot Study
1500	Bidding Services (to be added by future amendment)
1600	Construction Services (to be added by future amendment)
1700	Programming Services (to be added by future amendment)

TASK SERIES 900 – PROJECT INITIATION, COORDINATION AND MANAGEMENT (FOR RAW WATER DELIVERY DESIGN)

Task 910 – Project Initiation

The purpose of this task is to kick off the project externally and internally. A project management plan (PMP) will be developed for all team members to have available to understand the project, the project team and the project requirements. The PMP is updated with significant changes in the project. The project will be kicked off with the City with pertinent staff from the City and HDR to review the project components and the process for completing the design.

Deliverables:

- Half day meeting with City
- Agenda and meeting minutes

Task 920 – Meetings with City Staff

During the preliminary design and final design phases of the project, key members of the Consultant design team will meet with the City staff to review the project components. Primary components are intake structure, pump station, raw water transmission line and permitting. Meeting agendas will be prepared and distributed to all parties attending the meeting. During preliminary design, three meetings will be held with City personnel including one at the completion of the draft Preliminary Design Report. During final design 3 meetings will be held with City personnel. Six total meetings are planned and each meeting will include discussion of the intake structure, pump station, raw water pipeline and permitting status. Meetings to normally be held at the City Public Works Conference Room.

Deliverables:

- Meeting notes, minutes and decision log updated

Task 930 – Design Services Project Management

As part of this task, the Engineer's Project Manager will lead coordination of the design team with the City as well as supervise the design team. Project Manager and Accountant will monitor project status, maintain project schedule and prepare financial documents.

Deliverable – Monthly invoices and project progress updates

TASK SERIES 1000 – DATA COLLECTION AND FIELD WORK

Task 1010 – Review Existing Information

Obtain and provide review of existing as-built drawings from City of Billings, MDT, MRL and private utility companies for MDT/MRL crossing and pipeline alignment. Research and obtain (if possible) historic photographs of existing Yellowstone River channel in project area to compare historic migration patterns.

Deliverables:

- Summary of available information for MDT/MRL crossing
- Yellowstone River migration patterns in area of intake

Task 1020 – Topographic Survey

Perform a topographic survey of the pump station, floodplain in the immediate area, and pipeline alignment. Pump Station site is approximate 2 acres. This will include survey to edge of shore for intake pipeline from intake structure to pump station.

Topographic survey will also include survey along the 3.7 miles raw water pipeline route (entire ROW) from the pump station north along Duck Creek Road, across I-90 and the MRL easement and north along 48th Street W to the north end of the project site (Austrian Pine Drive). Survey will include Subsurface Utility Engineering (SUE) Quality Level B (designate underground utilities by markings provided through an 811 call).

Deliverables

- Topographic survey of pump station site and pipeline alignment

Task 1030 - Bathymetry

Perform bathymetric survey and mapping across the entire river channel, as well as upstream and downstream 250 feet from the proposed intake location to determine depth of river channel and obtain data to produce river cross sections in project area.

Deliverables:

- Bathymetric survey of river channel

Task 1040 – Geotechnical Investigation

Perform geotechnical borings of pump station site, intake pipe, borings along pipeline alignment (BBWA canal, Canyon Creek Ditch and Canyon Creek) and MDT/MRL ROW to determine design requirements and limitations for new structures. A total of 16 borings are included for new facilities. Anticipated borings include 1 for intake at edge of bank, 1 for intake discharge line, 1 for pump station, 5 for MDT/MRL crossing, 8 along raw water pipeline alignment.

Deliverables:

- Geotechnical report for pump station, intake pipe and pipeline crossings
- Geotechnical report for MDT and MRL crossings to support MDT and MRL crossing permit

Task 1050 – Pothole Existing Utilities

Identify areas to perform subsurface utility potholing at the MDT and MRL crossing and along the raw water pipeline route. Survey pipe elevations in the field for incorporation into the design. Equipment, operators and materials necessary for traffic control will be provided.

A contingency of $25,000 is included for potholing existing utilities along raw water alignment (MDT/MRL crossing, Canyon Creek, BBWA and Canyon Creek Canal crossings).

Deliverables:

- Surveyed elevations of existing underground utilities in project area necessary for inclusion in the MDT and MRL crossing and along the raw water pipeline alignment

Task 1060 – Groundwater Elevation Monitoring

Install up to three transducers in piezometers to monitor groundwater through the peak elevation in spring 2020. Monitors to be left in throughout construction.

Deliverables:

- Groundwater level information

TASK SERIES 1100 – PERMITTING

Provide technical criteria, written descriptions and design data for use by the City in obtaining approvals of government authorities that have jurisdiction to approve the construction of the project(s).

Task 1110 – Encroachment Permitting for MDT and MRL

Meet with MDT and MRL to review crossing requirements and obtain necessary encroachment permits for survey, geotechnical borings, utility potholing and other design work to be completed within the MDT and MRL right-of-way. Prepare Geotechnical report for MDT and MRL per permit requirements and finalize utility occupancy permits and approvals through MDT and MRL for the crossing.

Assumptions:

- At its discretion, MRL can require third party review of the crossing through its ROW. HDR will provide information required for this review to MRL or its third party reviewer. No fee is included for MRL should they require a third party review.

Task 1120 – Joint Permit Application

Prepare and submit a Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplains, and Other Water Bodies Permit. The completed application will be submitted to:

- Montana Department of Fish, Wildlife and Parks (FWP, Montana Stream Protection Act 124 Permit)
- Yellowstone County Floodplain Administrator (Floodplain Permit)
- U.S. Army Corps of Engineers (USCOE, Federal Clean Water Act - Section 404 Permit, Federal Rivers and Harbors Act - Section 10 Permit)
- Montana Department of Environmental Quality (DEQ, Short-Term Water Quality Standard For Turbidity – 318 Authorization, Federal Clean Water Act 401 certification)
- Montana Department of Natural Resources and Conservation (DNRC, Navigable Rivers Land Use License, Lease or Easement)

Assumptions:

- It is assumed the project will meet the criteria for a Section 404 Nationwide Permit. If an Individual Permit and Section 404(b)(1) Analysis is required, these services can be added through contract amendment.
- Stream/wetland mitigation is not required
- Permit application fees, permitting costs, compensatory mitigation (if required), etc., will be passed through to the City at no cost to HDR
- It is assumed that one on-site meeting is required with the regulatory agencies and is included with the fee estimate
- A biological assessment, cultural study/SHPO consultation, etc., is not included in this fee estimate

Deliverables:

- Completed Joint Application
- Cover letters for each agency Joint Application is submitted to

Task 1130 – No Rise Analysis

Hydraulic analyses will be performed to assess impacts to flood levels in the project area during the occurrence of the base flood discharge.

Assumptions:

- It is assumed that a No Rise will be obtained during the hydraulic analysis and that a CLOMR and LOMR are not required from FEMA. Any design not resulting in a No Rise may require an amendment.
- Mitigation options will be acceptable to permitting agencies

- If mitigation is not possible or unacceptable to permitting agencies, an amendment may be required to proceed with preparation of a Conditional Letter of Map Revision (CLOMR)

Deliverables:

- Completed no-rise certification

Task 1140 - Pump Station Building Permit

Prepare an Application for Building Permit for submittal to the Department of Labor and Industry. Prepare a Floodplain Permit for submittal to Yellowstone County.

Deliverables:

- Department of Labor and Industry Application for Building Permit
- Yellowstone County Floodplain Permit application

Assumptions:

- Permit fees for Building and Floodplain permits will be paid by the City

Task 1150 – DEQ Coordination/Permitting

Coordinate with DEQ on project requirements. Apply for any variances. Obtain approval for new water source for a water treatment. Submit design report, plans and specifications to Montana DEQ for approval to construct for intake, pump station, raw water pipeline and pre-sedimentation basin.

Deliverables:

- Two sets of plans and specifications for each construction project and associated preliminary engineering report to DEQ.

Assumptions:

- DEQ review fee will be paid by the City

Task 1160 – Wetland Delineation

Conduct wetland delineation of the proposed pump station/intake pipe site and along the raw water pipeline alignment and develop a report for submittal to the U.S. Army Corps of Engineers (USACE) to support regulatory approvals. The wetland delineation will be based on the USACE standard three-parameter approach. HDR will determine the approximate size and classifications of wetlands identified in the field, if any, and render a preliminary opinion on whether they would be considered “jurisdictional wetlands” per the 2008 Clean Water Act jurisdiction guidance. HDR will prepare a Wetland and Stream Delineation Report suitable for USACE review and use for a Section 404 permit application. The report will include a description of the project area, the delineation methods, and the finding and rationale used to reach the mapping conclusion. HDR will digitize the field-verified wetland/upland boundaries and drainage features on aerial photography and will provide a file of the boundaries in AutoCAD and/or GIS format to be incorporated into engineering exhibits.

Deliverables:

- Wetland and Stream Delineation Report

TASK SERIES 1200 – PRELIMINARY DESIGN PHASE (30% DESIGN)

This task series will further develop recommendations from the Raw Water Delivery Technical Memorandum Option 2 – Yellowstone River Pump Station.

The tasks associated with the preliminary design include the following:

Task 1210 – Intake Structure and Pump Station Preliminary Engineering

Prepare a preliminary engineering (PER) report for the Intake Structure and Pump Station that describes the basis of design. Preliminary drawings will be developed showing plan and section views of proposed structure and key sections. Chapters included and some of the key items the chapters will cover include:

- Introduction
- Design Objectives and Criteria
  - Initial and ultimate capacity
  - Sizing criteria
  - Conveyance to pump station
  - Seasonal/operational Limits
  - Redundancy
- Pump Design
  - Initial and ultimate pumping capacity
  - Define pumping parameters for raw water conveyance
  - Evaluate type and size of pumps based on criteria developed
  - Provide layout of pumps and piping
- Codes, Regulations and Permitting
  - Fish Wildlife and Parks Requirements
- Intake Alternatives
- Screen Cleaning Alternatives
  - Invasive Mussel mitigation
- Structural
  - Summarize site geotechnical and groundwater
  - Construction considerations for wetwell and intake pipe
- Electrical
  - Determine pump station and intake structure electrical demands
  - Identify and discuss project with electrical utility provider
  - Investigate backup power options
  - Provide one-line drawings
- Intake Structure Air Purge Cleaning
  - Provide summary of control and operation of air purge system
- Instrumentation and Control
  - Develop P&IDs for pump station and intake

    - Provide description of instrumentation and control for pump station
- Site Civil
    - Pump station access
    - Drainage
- Landscaping
    - Summarize landscaping criteria
    - Identify limits of landscaping
    - Identify general items included in landscaping
- Construction Considerations
- Opinion of Probable Construction Cost

Deliverables:

- Draft Intake Structure and Pump Station Preliminary Engineering Report

Task 1220 – Raw Water Pipeline Preliminary Engineering

Prepare a preliminary engineering report for the Raw Water Pipeline. A preliminary alignment will be developed as well as proposed alternatives for crossings at of MRL and MDT, Canyon Creek, BBWA and Canyon Creek Ditch. Chapters will include:

- Introduction
- Pipeline Hydraulics
- Pipeline Materials
- Pipeline Alignment
- Utility Conflicts
    - Public Utilities
    - Private Utilities/Hazardous Liquid and Natural Gas Crossings
- MDT and MRL Crossing
    - Evaluate alignment, depth, size and boring options
- Coordination with Ditch Companies
- Cathodic Protection
- Easements/ROW
- Permitting Requirements
- Construction Considerations
- Maintenance of Traffic
- Opinion of Probable Construction Cost

Deliverables:

- Draft Raw Water Pipeline Preliminary Engineering Report

Assumptions:

- City will prepare easement/land acquisition documents for the raw water pipeline

Task 1230 – Internal Team Meetings

Weekly conference calls will be conducted to coordinate between team members and to communicate information received from the City as well as obtain questions or decisions needed from the City.

Task 1240 – Preliminary Engineering Design Review

Conduct internal reviews of each PER by discipline. Incorporate review comments and submit to City for review. Conduct PER design review meeting with the City.

Deliverables:

- Final Intake Structure and Pump Station PER and Raw Water Pipeline PER (5 copies of each document)

TASK SERIES 1300 – FINAL DESIGN PHASE

In this task, the preliminary design will be developed into more detailed engineered project elements. The intake structure and pump station will be developed with a Building Information Management (BIM) model to the 60% design level and then 95% level before being finalized for bid documents. The BIM model will be regularly shared with project staff and the City in digital format using Navisworks ™ reader software for model communication. Specifications will be prepared for 95% review and then finalized for bid. Specific tasks will include the following:

Task 1310 – 60% DESIGN

The BIM models prepared for the PERs will be further developed for the Intake Structure and Pump Station for all disciplines providing structural sizing, pump and equipment location, electrical and mechanical facility location. P&ID drawings and electrical one-line drawings will be updated from preliminary design. Plan and profile drawings, crossing and connection details will be provided for the Raw Water Pipeline.

Deliverables – See Task 1320

Task 1320 – Internal and External 60% Review

BIM models, 2D drawings and calculations will be reviewed internally for the intake structure, pump station and raw water pipeline. Review comments will be resolved and applicable comments incorporated in City review set. Update opinion of probable construction cost. City review comments will be resolved and applicable comments will be carried forward into the 95% review.

Deliverables:

- BIM model and 2D drawings (5 half sized sets) for review
- List of City review comments and how the comments were resolved
- Opinion of probable construction cost

Assumptions:

- City will provide one set of review comments

Task 1330 – Prepare 95% BIM Model and Drawings

The BIM models for all disciplines will be fully developed showing all details necessary for construction. Plan and section drawings will be extracted from the Building Information Model. Notes and additional details will be added to the drawings to complete the design. Existing 2D drawings will be further detailed. 2D site drawings, P&IDs drawings, plan and profile and 2D electrical drawings will be detailed for construction. Update opinion of construction cost.

Deliverables – See Task 1350

Task 1340 – Prepare Detailed Specifications

Final detailed specifications suitable for bidding and construction will be developed. These detailed specifications will be incorporated with the City's front-end documents.

Deliverables – See Task 1350.

Task 1350 – Internal and External 95% Review

BIM model, 2D drawings and specifications will be reviewed internally. Review comments will be resolved and applicable comments incorporated in City review set. BIM model will be reviewed with City as well as the 2D drawing set. Key components for the specifications will be reviewed with the City. City review comments will be resolved and applicable comments will be carried forward into the final bid set.

Deliverables:

- BIM model
- 2D drawing set and specifications for review
- List of City review comments and how the comments were resolved
- Updated opinion of probable construction cost

Assumptions:

- City will provide one set of review comments

Task 1360 – Final Design

Based on review comments, update BIM model and finalize 2D drawings and specifications. Update opinion of probable construction cost.

Deliverables:

- Bid Documents for advertisement
- 4 sets of hard copy documents (half-sized drawings) and one electronic set for the City and electronic sets for each plan room
- Sets for bidders as required
- Finalize opinion of probable construction cost

TASK SERIES 1400 – SHALE MATERIAL PROCESSING PILOT STUDY

Current evaluations of the site have determined that the remaining materials on the site generally fall into three categories: 1) top soil that was removed to uncover the gravels and stockpiled on-site, 2) a shale formation that is under the entire site, and 3) a mix of rock, gravel, sand and silts that lie over the shale formation (commonly referred to as overburden materials). After evaluation of a number of alternative configurations a layout for embankments, landscaping, and recreational development a layout for site improvements has been identified that meets the needs of the city. This layout was used to estimate the volume of material required for construction of embankments.

It has been determined that the amount of overburden on the project site is insufficient to complete construction of the desired reservoir embankments. The only remaining material with sufficient quantity to support construction of the reservoir embankments is the underlying shale formation. Test pit explorations have determined that the shale material can be excavated, but the excavated material will not achieve the desired permeability for embankment materials without further processing to achieve desired grain sizing, moisture content, and other characteristics.

The process for achieving the desired characteristics in the shale materials varies from site to site and can significantly affect the cost of the project. Based on common practice adopted by other State and Federal agencies, a pilot study will be conducted where a contractor(s) is hired to excavate, process, place and compact a limited amount of shale materials at the site. The following tasks will be conducted by HDR in collaboration with the City to evaluate the level of effort required to construct structurally sound embankments using the available shale materials.

Task 1410 – Prepare Contractor Solicitation

The HDR team will prepare a scope of work for contractor services that the City can use to solicit price proposals from contractors. The work requires an approach that is not common in construction contracts and has a general character similar to work associated with geotechnical explorations. In addition, there is sensitivity to adversely affecting a fair and impartial selection of a contractor to perform the entire project. HDR will work with the City to pre-qualify three to five contractors with these needs and concerns in mind. HDR will mark the areas to be excavated and then filled.

The scope of work for the contractor will include:

- Mobilization
- Site Dewatering
- Excavation
- Application of Water to Achieve Desired Moisture Contents
- Transport of Materials
- Placement and Compaction
- Specific Equipment Required for the Work
- A Time Frame for the Work

- Minimum Required Personnel
- A General Description of the Field Processes

Deliverables:
- Scope of work for contractor services

Assumptions:
- The bid price for this solicitation will be over $80,000. HDR will prepare bid documents for advertisement.

Task 1420 – Support of Bid and Award Services

HDR will provide support during the bid process that includes:
- Response to Contractor Questions
- Development of Addendum to Address Needed Modifications to the Scope
- Conduct a pre-bid meeting.
- Evaluation of Bids
- Recommendation of Award

Deliverables:
- Addendum
- Pre-bid agenda and minutes
- Award Recommendation

Assumptions:
- The contract could be awarded to either one or two contractors at the discretion of the City

Task 1430 – Field Work

HDR will coordinate with the Contractor(s) and confirm the schedule for the work. During the work on-site HDR will work with the Contractor(s) to perform the following work:

- Removal and stockpile of overburden materials
- Establishment of dewatering equipment and route for discharge of pumped water
- Ripping the shale formation and breaking down the material to a smaller size
- Application of water to the shale material as it is being processed.
- Preparation of embankment foundation
- Placement and compaction of embankment material
- Retrieval of soil samples for testing

HDR will video and photograph portions of the work with the intent of providing a record that can be used to inform prospective bidders of the level of effort required for the work on the entire project. The graphical record will be accompanied by a report to document observations and recommendations made by the HDR team during the work.

Deliverables:

- Video and photographic record of the work
- Field report

Assumptions:

- The work will be done collaboratively with the Contractor(s) under a time and materials basis with a not to exceed budget value

Task 1440 - Shale Pilot Study Report

Prepare a Shale Pilot Study Report summarizing findings, lab results and recommended embankment design criteria.

Deliverables:

- Shale Pilot Study Report

TASK SERIES 1500 – BID PHASE SERVICES

Bid phase services are not included in this amendment. During final design, HDR will discuss bid package alternatives with City personnel to determine number of bid packages required for construction. It is anticipated that the pump station and river intake structure will be one package and the raw water pipeline another.

TASK SERIES 1600 – CONSTRUCTION SERVICES

Construction services are not included in this amendment.

TASK SERIES 1700 – PROGRAMMING SERVICES

Programming services are not included in this amendment.

Appendix B, Section 1, Paragraph A. Add paragraph 9, Raw Water Delivery Design and update the total with the following:

9. TASK SERIES 900 – PROJECT INITIATION, COORDINATION AND MANAGEMENT	$108,900
10. TASK SERIES 1000 – DATA COLLECTION AND FIELD WORK	$207,900
11. TASK SERIES 1100 – PERMITTING	$151,000
12. TASK SERIES 1200 – PRELIMINARY DESIGN PHASE	$356,100
13. TASK SERIES 1300 – FINAL DESIGN PHASE	$1,076,000
14. TASK SERIES 1400 – SHALE MATERIAL PROCESSING PILOT STUDY	$196,300
Total	**$2,096,200**

Appendix E. Add Paragraphs G-K:

G. Complete Intake Design –	February 2021
H. Complete Pumping Station Design –	May 2021
I. Complete Raw Water Pipeline Design –	February 2021
J. Complete Shale Material Processing Pilot Study –	August 2020

CONSULTANT

NAME: _____

BY: _____

TITLE: _____

DATE: _____

CITY OF BILLINGS, MONTANA

BY: _____
Mayor

DATE: _____