Agreement Between City of Rapid City and Bartlett & West, Inc. for Professional Services for Shepherd Hills Water Booster Pump Station, Project No. 21-2682, CIP # 51338

AGREEMENT made _____, 20____, between the City of Rapid City, SD (City) and Bartlett & West, Inc. (Engineer), located at 2921 E. 57th Street, Sioux Falls South Dakota 57108. City intends to obtain services for design, bidding and construction professional services for the **Shepherd Hills Water Booster Pump Station, Project No. 21-2682, CIP # 51338**. The scope of services is as described within this document and as further described in Exhibits A, B and C (attached).

The City and the Engineer agree as follows:

The Engineer shall provide professional engineering services for the City in all phases of the Project and as further defined in Exhibits A, B and C (attached), serve as the City's professional engineering representative for the Project, and give professional engineering consultation and advice to the City while performing its services.

Section 1—Basic Services of Engineer

1.1 General

1.1.1 The Engineer shall perform professional services described in this agreement, which include customary engineering services. Engineer intends to serve as the City's professional representative for those services as defined in this agreement and to provide advice and consultation to the City as a professional. Any opinions of probable project cost, approvals, and other decisions provided by Engineer for the City are rendered on the basis of experience and qualifications and represent Engineer's professional judgment.

1.1.2 All work shall be performed by or under the direct supervision of a professional Engineer licensed to practice in South Dakota.

1.1.3 All documents including Drawings and Specifications provided or furnished by Engineer pursuant to this Agreement are instruments of service in respect of the Project and Engineer shall retain an ownership therein. Reuse of any documents pertaining to this project by the City on extensions of this project or on any other project shall be at the City's risk. The City agrees to defend, indemnify, and hold harmless Engineer from all claims, damages, and expenses including attorney's fees arising out of such reuse of the documents by the City or by others acting through the City.

1.1.4 The contract will be based on an hourly rate and reimbursable fee schedule with a maximum not-to-exceed amount.

1.2 **Scope of Work**

The Engineer shall:

1.2.1 Consult with the City, other agencies, groups, consultants, and/or individuals to clarify and define requirements for the Project and review available data.

1.2.2 Perform the tasks described in the Scope of Services. (See Exhibit A and B.)

1.2.3 Conduct a location survey of the Project to the extent deemed necessary to provide adequate site information.

1.2.4 Prepare a report presenting the results of the study as outlined in the scope of services.

Section 2—Information Provided by City

The City will provide any information in its possession for the project at no cost to the Engineer.

Section 3—Notice to Proceed

The City will issue a written notification to the Engineer to proceed with the work for Tasks 1, 2, and 3 (See Exhibit A and B). If the City elects to pursue Tasks 4, and 5, the City will issue a second Notice to Proceed (See Exhibit A and B). The Engineer shall not start work prior to receipt of the written notice(s). The Engineer shall not be paid for any work performed prior to receiving the Notice to Proceed for the related tasks as identified above.

Section 4—Mutual Covenants

4.1 **General**

4.1.1 The Engineer shall not sublet or assign any part of the work under this Agreement without written authority from the City.

4.1.2 The City and the Engineer each binds itself and partners, successors, executors, administrators, assigns, and legal representatives to the other party to this agreement and to the partners, successors, executors, administrators, assigns, and legal representatives of such other party, regarding all covenants, agreements, and obligations of this agreement.

4.1.3 Nothing in this agreement shall give any rights or benefits to anyone other than the City and the Engineer.

4.1.4 This agreement constitutes the entire agreement between the City and the Engineer and supersedes all prior written or oral understandings. This agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument.

4.1.5 The Engineer shall make such revisions in plans which may already have been completed, approved, and accepted by the City, as are necessary to correct Engineer's errors or omissions in the plans, when requested to do so by the City, without extra compensation therefore.

4.1.6 If the City requests that previously satisfactorily completed and accepted plans or parts thereof be revised, the Engineer shall make the revisions requested by the City. This work shall be paid for as extra work.

4.1.7 If the City changes the location from the one furnished to the Engineer, or changes the basic design requiring a new survey for the portions so changed, the redesign will be paid for as extra work.

4.1.8 The City may at any time by written order make changes within the general scope of this Agreement in the work and services to be performed by the Engineer. Any changes which materially increase or reduce the cost of or the time required for the performance of the Agreement shall be deemed a change in the scope of work for which an adjustment shall be made in the Agreement price or of the time for performance, or both, and the Agreement shall be modified in writing accordingly. Additional work necessary due to the extension of project limits shall be paid for as extra work.

4.1.9 Extra work, as authorized by the City, will be paid for separately and be in addition to the consideration of this Section.

4.1.10 For those projects involving conceptual or process development services, activities often cannot be fully defined during the initial planning. As the project does progress, facts and conditions uncovered may reveal a change in direction that may alter the scope of services. Engineer will promptly inform the City in writing of such situations so that changes in this agreement can be renegotiated.

4.1.11 This Agreement may be terminated (a) by the City with or without cause upon seven days' written notice to the Engineer and (b) by the Engineer for cause upon seven days' written notice to the City. If the City

terminates the agreement without cause, the Engineer will be paid for all services rendered and all reimbursable expenses incurred prior to the date of termination.

If termination is due to the failure of the Engineer to fulfill its agreement obligations, the City may take over the work and complete it. In such case, the Engineer shall be liable to the City for any additional cost to the extent directly resulting from Engineer's action.

4.1.12 The City or its duly authorized representatives may examine any books, documents, papers, and records of the Engineer involving transactions related to this agreement for three years after final payment. All examinations will be performed at reasonable times, with proper notice. Engineer's documentation will be in a format consistent with general accounting procedures.

4.1.13 The City shall designate a representative authorized to act on the City's behalf with respect to the Project. The City or such authorized representative shall render decisions in a timely manner pertaining to documents submitted by the Engineer in order to avoid unreasonable delay in the orderly and sequential progress of the Engineer's services.

4.1.14 Costs and schedule commitments shall be subject to renegotiation for delays caused by the City's failure to provide specified facilities or information or for delays caused by other parties, excluding sub-contractors and sub-consultants, unpredictable occurrences including without limitation, fires, floods, riots, strikes, unavailability of labor or materials, delays or defaults by suppliers of materials or services, process shutdowns, acts of God, or the public enemy, or acts of regulations of any governmental agency or any other conditions or circumstances beyond the control of the City or Engineer. Temporary delays of services caused by any of the above which results in additional costs beyond those outlined may require renegotiation of this agreement.

4.1.15 The City will give prompt written notice to the Engineer if the City becomes aware of any fault or defect in the Project or nonconformance with the Project Documents.

4.1.16 Unless otherwise provided in this Agreement, the Engineer and the Engineer's consultants shall have no responsibility for the discovery, presence, handling, removal or disposal of, or exposure of persons to hazardous materials in any form at the project site, including but not limited to asbestos products, polychlorinated biphenyl (PCB), or other toxic substances.

4.1.17 In the event asbestos or toxic materials are encountered at the jobsite, or should it become known in any way that such materials may be present at the jobsite or any adjacent areas that may affect the performance of Engineer's services, Engineer may, at their option and without liability for consequential or any other damages, suspend performance of services on the project until the City retains appropriate specialist CONSULTANT(S) or contractor(s) to identify, abate, and/or remove the asbestos or hazardous or toxic materials.

4.1.18 This agreement, unless explicitly indicated in writing, shall not be construed as giving Engineer the responsibility or authority to direct or supervise construction means, methods, techniques, sequences, or procedures of construction selected by any contractors or subcontractors or the safety precautions and programs incident to the work of any contractors or subcontractors.

4.1.19 Neither the City nor the Engineer, nor its Consultants, shall hold the other liable for any claim based upon, arising out of, or in any way involving the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids, or gases, waste materials, or other irritants, contaminants, or pollutants.

4.1.20 Neither the City nor the Engineer, nor its Consultants, shall hold the other liable for any claim based upon, arising out of, or any way involving the specification or recommendation of asbestos, in any form, or any claims based upon use of a product containing asbestos.

4.1.21 Engineer hereby represents and warrants that it does not fail or refuse to collect or remit South Dakota or City sales or use tax for transactions which are taxable under the laws of the State of South Dakota.

4.2 City of Rapid City Nondiscrimination Policy Statement

In compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination act of 1975, the Americans with Disabilities Act of 1990, and other nondiscrimination authorities it is the policy of the City of Rapid City, 300 Sixth Street, Rapid City, SD 57701-5035, to provide benefits, services, and employment to all persons without regard to race, color, national origin, sex, disabilities/handicaps, age, or income status. No distinction is made among any persons in eligibility for the reception of benefits and services provided by or through the auspices of the City of Rapid City.

Engineer will permit access to any and all records pertaining to hiring and employment and to other pertinent data and records for the purpose of enabling the Commission, its agencies or representatives, to ascertain compliance with the above provisions.

This section shall be binding on all subcontractors or suppliers.

Section 5—Payments to the Engineer

5.1 Schedule of Pay Rates

The City will pay the Engineer for services rendered or authorized extra work according to the Engineer's hourly and reimbursable rate schedule described in Exhibit C.

5.2 Fee

5.2.1 The maximum amount of the fee for the services as detailed in Section 1.2 for Task 1, 2, and 3 shall not exceed **$528,089.00** unless the scope of the project is changed as outlined in Section 4. If expenses exceed the maximum amount, the Engineer shall complete the design as agreed upon here without any additional compensation. Sub task dollar amounts may be reallocated to other tasks as long as the total fee is not exceeded. Prime consultant may not mark up sub-consultant or sub-contractor services.

5.2.2 If the City elects to proceed with Tasks 4 and 5, and if the City secures the funding for Tasks 4 and 5, the maximum amount of the fee for the services as detailed in Section 1.2 for Task 4 and 5 shall not exceed **$427,556.00** unless the scope of the project is changed as outlined in Section 4. If expenses exceed the maximum amount, the Engineer shall complete the design as agreed upon here without any additional compensation. Sub task dollar amounts may be reallocated to other tasks as long as the total fee is not exceeded. Prime consultant may not mark up sub-consultant or sub-contractor services

5.3 Progress Payments

Monthly progress payments shall be processed by the City upon receipt of the claim as computed by the Engineer based on work completed during the month per the hourly rates and allowable reimbursable as established in Section 5.1 and approved by the City.

Net payment to the Engineer shall be due within forty-five (45) days of receipt by the City.

Section 6—Completion of Services

6.1 The Engineer shall complete services as defined in Task 1, 2, and 3 in Exhibit A on or before **June 30, 2023** based on a notice to proceed on or before May 31, 2022.

6.2 If the City elects to proceed with Tasks 4 and 5 on or before June 30, 2023, the Engineer shall complete services as defined in Tasks 4 and 5 in Exhibit A on or before **August 31, 2026**.

Section 7—Insurance Requirements

7.1 Insurance Required

The Engineer shall secure the insurance specified below. The insurance shall be issued by insurance company(s) acceptable to the City and may be in a policy or policies of insurance, primary or excess. Certificates of all required insurance including any policy endorsements shall be provided to the City prior to or upon the execution of this Agreement.

7.2 Cancellation

The Engineer will provide the City with at least 30 days' written notice of an insurer's intent to cancel or not renew any of the insurance coverage. The Contractor agrees to hold the City harmless from any liability, including additional premium due because of the Contractor's failure to maintain the coverage limits required.

7.3 City Acceptance of Proof

The City's approval or acceptance of certificates of insurance does not constitute City assumption of responsibility for the validity of any insurance policies nor does the City represent that the coverages and limits described in this agreement are adequate to protect the Engineer, its consultants or subcontractors interests, and assumes no liability therefore. The Engineer will hold the City harmless from any liability, including additional premium due, because of the Engineer's failure to maintain the coverage limits required.

7.4 Specific Requirements

7.4.1 Workers' compensation insurance with statutory limits required by South Dakota law. Coverage B-Employer's Liability coverage of not less than $500,000 each accident, $500,000 disease-policy limit, and $500,000 disease-each employee.

7.4.2 Commercial general liability insurance providing contractual, personal injury, bodily injury and property damage liability coverage with limits of not less than $1,000,000 per occurrence, $2,000,000 general aggregate, and $2,000,000 aggregate products and completed operations. If the occurrence form is not available, claims-made coverage may be provided. Claims-made coverage shall continue through the term of this Agreement, and Engineer shall purchase at its sole expense either 1) an Extended Reporting Endorsement (also known as Tail Coverage); or 2) Prior Dates Coverage from new insurer with a retroactive date back to the date of, or prior to, the inception of this Agreement; or 3) shall demonstrate through Certificates of Insurance that Engineer has maintained continuous coverage with the same or original insurer. Coverage provided under items 1), 2), or 3) will continue for at least a period of three years after completion of the terms of this Agreement. The policy shall name the City and its representatives as an additional insured.

7.4.3 Automobile liability insurance covering all owned, nonowned, and hired automobiles, trucks, and trailers. The coverage shall be at least as broad as that found in the standard comprehensive automobile liability policy with limits of not less than $1,000,000 combined single limit each occurrence. The required limit may include excess liability (umbrella) coverage. The policy shall name the City and its representatives as an additional insured.

7.4.4 Professional liability insurance providing coverage for claims arising from the negligent acts, errors or omissions of the Engineer or its consultants, of not less than $1,000,000 each occurrence and not less than $1,000,000 annual aggregate. Coverage shall be maintained for at least three years after final completion of the services. If this policy provides for claims-made coverage, the claims-made coverage shall continue through the term of this Agreement, and Engineer shall purchase at its sole expense either 1) an Extended Reporting Endorsement (also known as Tail Coverage); or 2) Prior Dates Coverage from new insurer with a retroactive date back to the date of, or prior to, the inception of this Agreement; or 3) shall demonstrate through Certificates of Insurance that Engineer has maintained continuous coverage with the same or original insurer. Coverage provided under items 1), 2), or 3) will continue for at least a period of three years after completion of the terms of this Agreement.

Section 8—Hold Harmless

The Engineer hereby agrees to hold the City harmless from any and all claims or liability including attorneys' fees arising out of the professional services furnished under this Agreement, and for bodily injury or property damage arising out of services furnished

under this Agreement, providing that such claims or liability are the result of a negligent act, error or omission of the Engineer and/or its employees/agents arising out of the professional services described in the Agreement.

Section 9—Independent Business

The parties agree that the Engineer operates an independent business and is contracting to do work according to his own methods, without being subject to the control of the City, except as to the product or the result of the work. The relationship between the City and the Engineer shall be that as between an independent contractor and the City and not as an employer-employee relationship. The payment to the Engineer is inclusive of any use, excise, income or any other tax arising out of this agreement.

Section 10-Indemnification

If this project involves construction and Engineer does not provide consulting services during construction including, but not limited to, onsite monitoring, site visits, site observation, shop drawing review and/or design clarifications, City agrees to indemnify and hold harmless Engineer from any liability arising from the construction activities undertaken for this project, except to the extent such liability is caused by Engineer's negligence.

Section 11-Controlling Law and Venue

This Agreement shall be subject to, interpreted and enforced according to the laws of the State of South Dakota, without regard to any conflicts of law provisions. Parties agree to submit to the exclusive venue and jurisdiction of the State of South Dakota, 7th Judicial Circuit, Pennington County.

Section 12-Severability

Any unenforceable provision herein shall be amended to the extent necessary to make it enforceable; if not possible, it shall be deleted and all other provisions shall remain in full force and effect.

Section 13—Funds Appropriation

If funds are not budgeted or appropriated for any fiscal year for services provided by the terms of this agreement, this agreement shall impose no obligation on the City for payment. This agreement is null and void except as to annual payments herein agreed upon for which funds have been budgeted or appropriated, and no right of action or damage shall accrue to the benefit of the Engineer, its successors or assignees, for any further payments. For future phases of this or any project, project components not identified within this contract shall not constitute an obligation by the City until funding for that component has been appropriated.

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement as of the day and year first above written.

City of Rapid City:

_____
Steve Allender, MAYOR

DATE:_____

ATTEST:

_____
Pauline Sumption, FINANCE DIRECTOR

Reviewed By:

_____
Morgan Falcone, PROJECT MANAGER

DATE: _____

Engineer:

Jane L. Todd
BARTLETT & WEST, INC.

DATE: 5/3/2022

CITY'S DESIGNATED PROJECT REPRESENTATIVE

NAME Morgan Falcone
PHONE (605) 394-4154
EMAIL morgan.falcone@rcgov.org

ENGINEERING FIRM'S DESIGNATED PROJECT REPRESENTATIVE

NAME Brian L. Hoellein
PHONE (605) 373-5909
EMAIL brian.hoellein@bartwest.com

EXHIBIT A

Shepherd Hills Water Booster Pump Station
CIP No. 51338 / Project No. 21-2682

Professional services consist of five Tasks: Preliminary Design Services, Final Design Services, Bidding Services, Basic Construction Services, and Expanded Construction Services.

Throughout this Exhibit A, Consultant means Engineer as set forth in the Agreement.

BACKGROUND

The original Water Utility System Master Plan of 2008 proposed a regional booster pump station (BPS) near the existing Elk Vale reservoir to serve future development in the North Rapid pressure zone. Current TID 84 includes this BPS relocated within the TID boundary. The Regional Booster Pump Station Feasibility study by Black & Veatch (June 2021) verified the BPS could be relocated with some improvements. The new location of the BPS is near the intersection of East Philadelphia Street and East Anamosa Street. Per IDCM 3.10.1,2, All proposed regional facilities, with the exception of on-site systems within the City of Rapid City, shall be designed, bid, and constructed by the Public Works Department.

Ultimate proposed capacity of the BPS from the Black & Veatch report was proposed as follows:

- 4,800 gpm and total dynamic head of 240 ft.
- 4 pumps total; 3 duty pumps plus one standby
- Pump rating of 1600 gpm at 240 ft head
- Flow control valves will also be included for low flow and fire flow conditions between the existing North Rapid pressure zone and Shepherd Hills development.

Proposed Shepherd Hills Regional BPS: The consultant shall provide design and construction services for a new Regional BPS located on Lot 1 Block 6 of Shepherd Hills South Subdivision. Project objectives include but are not limited to:

- The overall objective of this work is to develop a set of clear contract documents that will allow the project to be efficiently, economically, and competitively bid and constructed.

- The design philosophy for the facility will be toward functionality, energy efficiency, economy, safety, and minimal maintenance requirements while maintaining pleasing aesthetics.

- The BPS will have a design life and mechanical component life in accordance with the City Infrastructure Design Criteria Manual (IDCM) Section 3.10.3 (1) and Supplementary Design Criteria for Water Booster Stations, dated April 15, 2022.

- The structure will be architecturally pleasing, functional, and will be designed with the local environment in mind.

- The layout design of the pump station should be designed with ease of access, operation, and maintenance. Alternatives shall be considered.

- The facility shall be designed and specified as an above grade BPS structure; housing parallel booster pumps capable of providing a firm pumping capacity anticipated to be 4,800 gallons per minute (gpm). Alternative pump number and capacity arrangements shall be considered, as appropriate.

- The City is moving to variable speed drives (VFD) on many pumps. Evaluation of efficiency of VFDs will not be required as part of this project.

- Detailed surge analysis for various emergency pump stops and valve closures shall be done by the Consultant. The Consultant shall provide recommendations based on their analysis, and the consultant will incorporate surge mitigation into the proposed pump station if determined to be desirable.

- The Consultant shall assist in establishing the size of new inlet and outlet booster piping connection stubs provided for the new booster station by the developer.

- The pump station shall be designed with security, adequate site lighting, and in a way to minimize nuisance to neighbors regarding noise and aesthetics.

- The pump station shall have system controls in place for local and remote operation and monitoring. Any system controls shall be designed to be integrated into the City's existing SCADA system by a control system design specialist.

- Improvements shall meet the operational and maintenance requirements of the City.

- Improvements and modifications shall meet SDDANR requirements.

- The structure shall be designed to meet building codes and City requirements.

- The facility shall operate un-staffed with only occasional daily checks by City personnel.

- As appropriate for the project, provide low maintenance landscaping around the site to provide screening of the facility and an overall attractive and pleasant looking facility.

- The consultant shall develop unit price lump sum, and hard code bid items for the project. The contractor will be required to provide a schedule of values attached to applicable lump sum items. The consultant will develop a specification to accommodate this approach.

- The Consultant will prepare an Operations and Maintenance (O&M) Manual for overall operation of the booster station and will follow the format of an example O&M manual

provided by the City. The Contractor provided O&M Manual will be considered as supplementary to the O&M manual provided herein. Detailed operation information shall be included in the O&M Manual including Startup sequence (normal, emergency), Shutdown sequence (normal, emergency), Normal Operation, and Troubleshooting. Operations description shall include a general narrative in addition to specific control discussion (e.g. local, on, off, auto, and remote). The Consultant shall involve the integrator/instrumentation and control engineer in the development/review of the O&M Manual for development of the control language and to verify continuity between disciplines.

- The Consultant shall provide Construction Administration services. The consultant shall provide personnel with Construction Administration experience for this task. Experience shall include construction administration services associated with a booster station in similar size within the past five years.

- Specific requirements as outlined in the Supplementary Design Criteria for Water Booster Stations, dated April 15, 2022.

- The intent of this project is the design of a complete and fully operational facility. The Consultant shall incorporate all necessary components into the contract documents, whether or not those components are specifically identified in this contract.

TASK 1 - PRELIMINARY DESIGN SERVICES:

This task consists of all services necessary to take the project from beginning through the Preliminary Design submittal stage and may include the following itemized services.

1.1. Kick-off Conference: The consultant shall meet with City staff to detail project concept and scope. The consultant shall prepare an agenda, take minutes, and distribute minutes within 3 days.

1.2. Review background information provided by the City, and any other resources as necessary.

1.3. The Consultants subconsultant (Longbranch Civil Engineering) will perform site surveys sufficient for design plan preparation. The route and topography survey shall be in NAD 83 (2011) NAVD 88 South Dakota State Plane South Zone. The horizontal and vertical coordinates shall be established from the Rapid City Primary Control Network.

1.4. Identify the existing right-of-way (ROW) and property line location, and permanent and temporary construction acquisition needs necessary for the Project. Include size and extent of such ROW and easements and contact information of property owners. Not included in this Task item is work associated with acquiring property, establishing property lines, acquiring easements or any legal descriptions, or meetings with property owners.

1.5. Rapid City Utility Maintenance will provide locating services for all water and sewer mains.

1.5.1. Determine locations of existing water mains and services that will be impacted by the project.

1.5.2. Determine locations of existing sanitary sewer pipes and services that will be impacted by the project.

1.5.3. Rapid City Utility Maintenance will provide a vacuum truck and operator in the event the vertical location of a water or sanitary sewer line or service is in question or in potential conflict with proposed facilities.

1.6. Recommend location and extent of geotechnical services investigation necessary to complete design. Geotechnical services (American Engineering Testing) will be a subconsultant to the Consultant, and payment for geotechnical services is the responsibility of the Consultant.

1.7. Controls and SCADA:

1.7.1. System controls proposed for the design shall be designed to be integrated into the City's existing SCADA system by a control system design specialist(s). The City's existing controls system integrator (Dakota Pump) will be a subconsultant to the Consultant for Tasks 1 and 2 Design, and Task 3 Bidding. It is anticipated that the contract provisions will require the system integrator to sell hardware, software, controls related panels, programming, assistance with field installation, start-up and commissioning to the Contractor at a pre-bid established cost for installation by the Contractor, which will be hard coded into the bid form.

1.7.2. Payment for instrumentation and control professional services is the responsibility of the Consultant under Tasks 1, 2, and 3. Work will include meetings and any field investigation to clearly gain an understanding of the existing SCADA system and how the new BPS will be able to interact with the existing master control PLC. The Consultant will complete a "desktop" radio path study between the Shepherd Hills booster site, and the existing master PLC location during this task of the project.

1.7.3. Complete instrumentation and control diagrams including local equipment control, control at the local panels, and remote SCADA control are expected for all systems required for the operation of the pump station are expected in design. The general Control Narrative and local level P&ID process trains shall be developed as part of conceptual design phase of the project. It is anticipated that the level of detail shown will expand with subsequent submittal deliveries. The Consultant can expand on the details provided but at a minimum the following items shall be shown on the P&ID Drawings and Narrative Specification submitted. Note, some of these items will be completed during Phase 2.

1.7.3.1. A mockup of the P&ID drawing shall be provided to the Project Manager for review before the preliminary submittal package is submitted.

1.7.3.1.1. P&IDs will follow ANSI/ISA Standards, specifically ANSI/ISA-5.1-2009.

1.7.3.1.2. ISA Compliant Legend Sheets – General Instrument Function Symbols and Tagging

1.7.3.1.3. P&ID with the following Levels. Levels will be laid out in such a manner that the City can reference the level and read across and see the associated process and instrumentation components. Levels are to be shown from the top down on the sheet, starting with SCADA functions.

- SCADA
- Control Panel
- PLC/ I/O
- Operator Interface/Control Devices
- Power
- VFD's
- Motor Controls in general
- Field
- Process shown from Left to Right
- Repetitive Inputs could be detailed out
- Piping / ducts / channels / valves must be displayed with size
- Piping Material and Schedule or Pressure Class should be displayed
- Note when the process flow is above or below grade
- General process flow shall be left to right
- P&IDs shall be Black & White

1.7.3.1.4. Equipment design data, with specific manufacturer and model filled in with record drawings. Location on the drawings to be determined by Consultant.

1.7.3.2. Additional Instrumentation and Control Systems Deliverables:

- Building Instrumentation Location Plan (Key Plan) Control Systems Network Schematic
- Instrument List
- I/O Schedule
- Signal Cable Schedule
- Conduit label and Fill Schedule
- Panel Drawings which include end device connection locations
- Wires and conduits shall be labeled. Instruments and equipment shall be tagged

1.7.3.3. An outline of the Control Narrative with one process detailed out shall be provided to the Project Manager for review before the preliminary submittal package is formally submitted.

1.7.3.4. The Control Narrative shall describe the following:

- Overall System Overview / Description of Process
- Include an overview of the Control System Network, show relationships between the Main PLC and any Sub PLC's or

Controls provided on packaged equipment. Also, display any radio or other general connectivity to operations controls

- All equipment including but not limited to major equipment pieces, emergency stops, switches, etc. The Narrative shall contain descriptions of the following sections.
- Associated plan sheet reference
- General description of the equipment
- Hard-Wire control
- Hardwired Interlocks
- If Local Controllers/PLCs are provided with major equipment, list their High-level description of and their functions. This includes local HMI Screen devices.
- Describe equipment control methods and interfacing with the Main PLC (such as level control and pressure control.)
- Software Control
- Software Interlocks
- Serial Connections (Ethernet, RS-485, TPC/IP, etc..) shall be identified and planned usage described
- If applicable, describe RTU Equipment Status, Control Methods, and Interface Strategy with a higher-level PLC
- SCADA Graphic Displays
- HMI Screen Requirements
- Alarm Handling / Failure modes
- Trending / Data Historian Requirements

1.7.4. A description of the control equipment to be provided by the controls system integrator above the "gutter" will be incorporated into the report.

1.7.5. One (1) meeting involving the City, Consultant, and DPI (sub-consultant) is included to review initial findings, discussion of needed equipment, and P&ID drawing.

1.8. The facility shall take special care to accommodate the accessibility needs for the disabled as required by the City, paying particular attention to the Americans with Disabilities Act (ADA).

1.9. The site design shall protect the surrounding environment and comply with existing environmental regulations and laws.

1.10. ~~Attend Public Works and Council meetings as necessary.~~ Not included in fee.

1.11. Quality Assurance/Quality Control Plan (QA/QC) is critical to project success and is expected throughout the project. QA/QC shall include but shall not necessarily be limited to: Schedule monitoring and compliance, milestone monitoring, project reviews, both internal and external, project communications, project meetings,

Standards used, Cost review and control, and technical design review. The Consultant is responsible for providing a quality control plan at the kickoff meeting.

1.12. Public Involvement/Presentations: Arrange and attend one (1) public meeting. The Consultant shall provide the City with all necessary drawings, renderings, and exhibits to convey the intent of the design to City Departments, committees, neighborhood groups, and other interested parties.

1.13. Private Utilities Base Plan Verification Meeting: The consultant shall send base plans to the private utilities requesting verification that their utilities are shown correctly per their records. Consultant shall coordinate one (1) meeting with the private utilities after submitting plans to verify that the utilities are shown correctly and to make plan revisions as needed.

1.13.1. The Consultant will contact and coordinate with the Missouri River Basin electrical transmission line organization on the electrical line easement and use of that easement for an access approach, driveway, parking lot, and security fencing. This task excludes any Consultant effort associated with modifications to the electrical transmission line power poles, or negotiating any terms for easement use associated with the Shepherd Hills BPS project.

1.14. Developer Coordination Meeting: Attend one (1) coordination meeting (assume 4 hours) with the land Developer. The Consultant shall provide the City with all necessary drawings, renderings, and exhibits to convey the intent of the design to the Developer.

1.15. Preliminary Design Submittal

The Preliminary Design Submittal shall generally consist of the following documents:

1.15.1. Preliminary Design Report

1.15.1.1. Title - The Design Report shall be named the "Shepherd Hills Water Booster Pump Station Design Report". The cover shall include the City project number and CIP number. Two design report submittals are anticipated: Preliminary and Final and shall be indicated on the cover. All comments shall be addressed and incorporated as needed into subsequent submittals. The Design Report shall include the following sections:

1.15.1.2. Project Overview – This section shall include a description of the project, why the project is needed, a brief history of background information used in the design process, and regulatory requirements and criteria used in the design of this project.

1.15.1.3. Site Design - The Design report shall include a section on the site-specific design components including parking lot design, landscaping, drainage, ADA requirements, site security, site lighting, site grading, and underground utilities required as a part of this project. Site design shall meet all

applicable City ordinances, applicable design criteria, specifications, policies and building code requirements. Site design components shall consider ease of maintenance and shall consider impacts to neighboring properties. The Consultant shall provide input on the inlet and outlet booster piping distribution connections for the station and provide recommendations for alternate piping configurations, if required. Site design includes a concrete retaining wall. The site design does not include design of any suction and/or discharge piping crossing the adjacent streets.

1.15.1.4. Building Design - The Design Report shall document that the aesthetics and architecture of the pumping station will be modeled after the North Rapid Booster Station and include discussion of how the pumping facility will blend into the site, match, and complement the existing City Infrastructure. The building design shall incorporate building security, lighting, safety features and ease of maintenance. The building shall comply with regulatory requirements.

1.15.1.5. Design Life – The Design Report shall document the anticipated design life for the pumping facility and components. The facility shall be designed to meet the design life identified in the Infrastructure Design Criteria Manual and Draft Supplement Design Criteria. Deviations shall be documented in the report.

1.15.1.6. Pump Design - Once current and future pumping rates and head conditions are understood, the Consultant will seek pump alternatives from at least two (2) pump representatives. Pump types are anticipated to be End Suction Centrifugal and/or Horizontal Split Case Centrifugal. Pump curves, dimensions and motor information will be obtained by the Consultant.

1.15.1.7. Pump Layout Options - The Consultant shall provide up to three (3) booster pump type (End Suction Centrifugal and/or Horizontal Split Case Centrifugal) layout options for the booster pump facility. The Consultant shall discuss horizontal vs vertical orientation of pumps, as appropriate for the concept layouts. The Consultant shall provide a summary of the pumps including pump cost, footprint, and horsepower/electrical consumption. The Consultant shall provide system head curve(s) versus pump curve(s) graphs that include variable speed curves (to show operating range), and pump acceptable operating range. The Consultant shall provide analysis for a single pump to all firm capacity pumps in operation to show the system head curve operating conditions are met. The Consultant shall provide recommendations for the type of pump from the aforementioned pump option analysis. The Consultant shall confirm that a minimum of two (2) manufacturers exist that can supply the recommended pump design. The consultant shall provide a preliminary layout design of the pump station incorporating the City’s desire for ease of access, operation, and maintenance. Pump layout, orientation, and design shall follow the design criteria set forth in the ANSI Hydraulic Institute Standards when

appropriate. It is currently anticipated a jockey pump will not be incorporated into the pump station design. Low flows will be provided by a control valve for water flow from North Rapid service zone to the Shepherd Hills area.

1.15.1.8. The Consultant shall incorporate a basket strainer(s) into the suction piping.

1.15.1.9. Surge Analysis - The Consultant's subconsultant (ZZ Technology) shall complete a detailed surge analysis for various flow, emergency, pump stop and valve closure conditions. The Consultant shall provide recommendations based on their analysis, and the consultant will incorporate surge mitigation into the proposed pump station. Anticipated flow rate, pressure and time setpoints for items such as pressure relief valves will be discussed in the design report. No field data collection is anticipated or included in this scope.

1.15.1.10. Mechanical - The Design Report shall include a discussion of the major mechanical components, anticipated HVAC requirements, and proposed equipment. It is expected that the report will provide a discussion on compliance with regulatory requirements.

1.15.1.11. Plumbing - The Design Report shall include discussion on plumbing within the pump station, and anticipated equipment.

1.15.1.12. Electrical - The Design Report shall include a discussion of the major electrical components, proposed equipment list, anticipated electrical draw for the station, and electrical code requirements and intended compliance. The report shall address the need for a stand-by generator, and initial sizing. The Consultant shall work with the City to determine if locating a stand-by generator at the Shepherd Hills Booster Station is required.

1.15.1.13. Noise Generation - The Design report shall consider anticipated noise and provide options for mitigation of operational noise production at the facility including but not limited to pump operation, generator noise, electrical gear, and HVAC systems. Consultant will provide recommendations for maximum noise db, and noise shall be limited by design to no more than the recommended and agreed-upon noise level at the property line.

1.15.1.14. Hydraulic Modeling - The Design Report shall contain a section documenting the hydraulic modeling needed to complete the booster station design. Consultant's subconsultant (Black & Veatch) will complete modeling required for the Shepherd Hills BPS. They will utilize the model they have developed for the City's water Master Plan. Detailed information related to the model runs will be included as an appendix to the Design Report.

1.15.1.15. Facility Operation - The Consultant will provide in the design report, a discussion on anticipated operation including a narrative on Normal Operation and anticipated emergency failure circumstances. Operations description shall include the general narrative that will lead to control description development.

The Design Report shall address what design measures are put in place to aid the facility to be operated un-staffed with only occasional daily checks by City personnel.

1.15.1.16. Design Assumptions and Design Decision Documentation - The consultant shall submit all design assumptions for pipe sections, water, sewer, and storm sewer locations, pavement sections, etc. Documentation of decisions which involve City input shall be described in the Design Report. Technical Memorandums shall be included as appendices to the Design Report.

1.15.1.17. Geotechnical Design - The geotechnical report shall include soil classifications, N values, water levels, proctors, CBR's, resistivity tests, pavement design, testing recommendations and trenching/excavation requirements. The consultant will utilize a subconsultant (American Engineering Testing) for this work. The Geotech report will be included if available at the time of the draft Design Report submittal. It will be included in the final version of the report, and recommendations incorporated into the design as necessary.

1.15.1.18. Consultant's Estimate - A probable opinion of construction costs for the project shall be included. The project will be bid as a series of unit and/or lump sum bid items. It is anticipated that the contractor will be required to provide a schedule of values attached to applicable lump sum items. The consultant will develop a specification to accommodate this.

1.15.1.19. It is the intent that all Design analysis and findings be clearly explained in the Design Report. This includes, but is not limited to, options presented to the City for review, an outline of compliance with regulatory criteria, and results of all analyses, including design calculations.

1.15.2. Hydraulic Modeling: The Consultants subconsultant (Black & Veatch) will complete modeling required for the Shepherd Hills BPS. They will utilize the model they have developed for the City's Water Master Plan. The modeling runs to be completed are:

- The 2025 model will consist of Low-Level Pressure Zone supply from Jackson Springs Water Treatment Plant (WTP) and Mountain View WTP.
- The 2045 model will consist of Low-Level Pressure Zone supply from Jackson Springs WTP and the proposed East Side WTP.

The 2025 and 2045 Master Plan developed demand scenarios will be used for this analysis, except for Shepherd Hills development area demand. The developer estimated Shepherd Hills 2025 and 2045 demand is different than the Master Plan estimated Shepherd Hills 2025 and 2045 demand. The Owner will provide the Consultant with the desired Shepherd Hills demand to be used for design in 2025 and 2045.

1.15.2.1. A meeting will be held with City, Consultant, and Black & Veatch to review system demands and determine demand for this study.

1.15.2.2. Sub-Task 1: North Rapid Evaluation and Flow Control Assumptions

Modeling will be completed to identify the amount of flow from the North Rapid Service Area to the Shepherd Hills development. The following information will be determined:

1.15.2.2.1. Low demand period flow rates from North Rapid to Shepherd Hills (2025 and 2045 scenarios, 2 model runs)

1.15.2.2.2. Peak Hour flow rates from North Rapid to Shepherd Hills (2025 scenario only) with existing piping conditions (1 model run)

1.15.2.2.3. Fire Flow Evaluation: Balance of North Rapid gravity flow and pumped Shepherd Hills flow (2025 and 2045 scenarios, 2 model runs)

1.15.2.2.4. A meeting will be held with City, Consultant, and Black & Veatch to confirm the flow control assumptions before starting sub-task 2.

1.15.2.3. Sub-Task 2: System Curve Development

Five model scenarios have been identified for system curve development. Two for the closed system, two for the system with the Shepherd Hills Tank in service, and 1 for system redundancy.

The closed system, Shepherd Hills Tank system and the system redundancy scenario are defined as follows:

- Closed System – The Shepherd Hills development area with no elevated storage. Flow control as defined in sub-task 1 between existing North Rapid Pressure Zone and the Shepherd Hills area.
- Shepherd Hills Tank System – The Shepherd Hills development area with elevated storage (HWL=3545). Fire Flow supply available through a control valve between existing North Rapid Pressure Zone and the Shepherd Hills area.
- System Redundancy Scenario – The system redundancy scenario is defined as the model scenario where the Shepherd Hills Regional BPS provides pumped flow to the Existing North Rapid Pressure Zone. This model scenario requires pipeline improvements between the Shepherd Hills Regional BPS and the existing North Rapid Pressure Zone. This work is part of the Water System Master Plan. System curves for this scenario will be run once the 2045 Master Plan pipeline

improvements are finalized. Shepherd Hills Tank will be assumed in place. The modeling and planning tasks associated with sizing of the pipelines for redundancy between Shepherd Hills BPS and the North Rapid Pressure Zone are part of the Water System Master Plan and are not included in this scope.

The modeling runs to be completed are:

1.15.2.3.1. 2025 Closed System: Min and Max head conditions (2 curves)

1.15.2.3.1.1. Flow control valve supplementation: Min and Max head conditions (2 curves)

1.15.2.3.1.2. Fire Flow with and without flow control from North Rapid Pressure Zone (2 curves)

1.15.2.3.2. 2045 Closed System: Min and Max head conditions (2 curves)

1.15.2.3.2.1. Flow control valve supplementation: Min and Max head conditions (2 curves)

1.15.2.3.2.2. Fire Flow with and without flow control from North Rapid Pressure Zone (2 curves)

1.15.2.3.3. 2025 New Shepherd Hills Tank in service: Min and Max head conditions (2 curves)

1.15.2.3.3.1. Fire Flow with Tank (1 curve)

1.15.2.3.4. 2045 New Shepherd Hills Tank in service: Min and Max head conditions (2 curves)

1.15.2.3.4.1. Fire Flow with Tank (1 curve)

1.15.2.3.5. 2045 System Redundancy (Shepherd Hills Regional BPS to North Rapid Zone): Min and Max head conditions (2 curves)

1.15.2.3.6. Allowance of two (2) additional undefined system curves to be modeled and run as requested.

1.15.2.4. The following evaluation tasks will be completed for each run listed above.

1.15.2.4.1. Develop system head curves as indicated above using the Innovyze system head curve development tool or other appropriate evaluation

method. A total of up to 26 modeling runs and/or system head curves are included in the budget.

1.15.2.4.2. Evaluate pressure, velocity, and head loss in transmission mains. If areas of concern are noted, they will be identified.

1.15.2.5. In addition to the two (2) meetings noted previously, hydraulics review meetings will be scheduled during this phase as required. For budgeting purposes, two (2) such meetings are included. Consultant team members will attend in person or remotely as required for the specific meeting. The Consultant will prepare minutes following the meeting within 3 days.

Modeling Exclusions:

- Evaluating mitigation alternatives for off-site pipeline improvements is not included in this scope.
- No field calibration or field data collection is included in this scope.
- The scope does not include future pumping to North Rapid Zone from the proposed East Side Water Treatment Plant.

1.15.3. Design Report Submittal: The Consultant will prepare a report which summarizes, documents, and discusses the findings, and recommendations of the previous sub-tasks.

1.15.3.1. Submit three (3) paper copies and an electronic PDF version of the Draft Design Report along with or before the submission of Preliminary plans and specifications to City's PM for review and comment. Preliminary plans and specifications are described in further detail in the following section. PDF version to be bookmarked.

1.15.3.2. The Consultant will attend a review meeting with the City for the Design Report submittal. Consultant to generate minutes from the review meeting within 3 days.

1.16. Preliminary Drawings

1.16.1. The Consultant shall develop sufficient types and numbers of drawings to convey the design concepts being proposed. Drawings to be produced shall include but shall not be limited to: Floor, equipment, and piping plans, sections, elevations, and details.

1.16.2. The Preliminary drawings shall contain, at minimum, the following sheets:

1.16.2.1. General

- Cover Sheet

- Plan Sheet Index indicating the anticipated drawing sheets shall be provided.
- Abbreviations, General Notes

1.16.2.2. Civil/Site/Underground/Landscape

- Survey Control Sheet
- Site Plan-Show existing and proposed site information and booster station features.
- Anticipated traffic control phasing and erosion control measures
- Property Layout and Land Ownership
- Utility Plan and Profile Sheets - Show existing and proposed utility mains and existing services, storm sewers, driveway locations, fittings, and proposed surfacing and drainage items. The utilities should be shown in profile as well. Design Criteria elements like profile grades, "K" values, vertical and horizontal curve data should be included, if necessary.
- Landscaping.
- Special Details – If Needed

1.16.2.3. Architectural

- Design Criteria, and Codes
- Floor Plan
- Building Exterior Elevations - General
- Building Wall Sections – General
- Roof Plan
- 3D Views
- Special Details – If Needed

1.16.2.4. Structural

- Design Criteria, and Codes
- Floor Plan
- Foundation Section
- Floor and Wall Sections – General
- Retaining Wall
- Special Details – If Needed

1.16.2.5. Process/Pumps/Above Floor Pipe and Valves

- Process Design Criteria, Hydraulics, Codes
- Floor Plan
- Sections - General
- 3D Views
- Special Details – If Needed

1.16.2.6. Mechanical/HVAC

- Design Criteria, and Codes
- Floor Plan
- Sections - General

- Special Details – If Needed

1.16.2.7. Plumbing
- Design Criteria, and Codes
- Floor Plan
- Sections - General
- Special Details – If Needed

1.16.2.8. Electrical
- Design Criteria, and Codes
- Floor Plan
- Sections - General
- Special Details – If Needed

1.16.2.9. Instrumentation and Control
- Design Criteria, and Codes
- P&ID Diagram(s)
- Floor Plan

1.16.2.10. Special Details – If needed, anticipated Rapid City Standard Details.

1.16.3. Preliminary Plans Submittal:

1.16.3.1. Preliminary Drawings: Submit three (3) paper copies and an electronic PDF version of the Preliminary plans and specifications to City for review and comment.

1.16.3.2. The Consultant will attend a review meeting with the City of the Preliminary Plans submittal. Consultant to generate minutes from the review meeting within 3 days.

1.16.3.3. Plan sheets shall be prepared utilizing the latest City of Rapid City Drafting Standards. Use current City-provided drawing templates.

1.17. Preliminary Design Specifications

1.17.1. Detailed Table of Contents including all anticipated specifications. Specifications will utilize the most current CSI numbering system, consisting of 48 divisions.

1.17.2. Utilizing the City's Front-End Documents, the Consultant will work with the City to prepare them. (It is anticipated they will be similar to the North Rapid BPS project)

1.17.3. Consultant will prepare Schedule of Bid Items. It may be a combination of unit priced and lump sum items, including a specification defining schedule of values and how they relate to the lump sum portions of the pricing.

1.17.4. Preliminary Design phase level major equipment specifications including but not limited to pumps, valves, variable frequency drive, surge equipment, HVAC equipment etc.

1.17.5. A control and instrumentation specification with modes of operation shall be a requirement in this submittal. This specification should include a general operation and control narrative along with control descriptions.

1.17.6. Preliminary Design Specifications Submittal:

1.17.6.1. Submit three (3) paper copies and an electronic PDF version of the Preliminary Design Specifications to City for review and comment. PDF version to be bookmarked.

1.17.6.2. The Consultant will attend a review meeting with the City of the Conceptual Specification submittal. Consultant to generate minutes from the review meeting within 3 days.

1.18. Project Management

1.18.1. The Consultant and the City will hold bi-weekly check-in and progress meetings. These meetings will primarily be held remotely by phone or video conference. The Consultant will prepare minutes following the meetings within 3 days.

1.18.2. Update project schedule, on a monthly basis.

1.18.3. General Project Management: Prepare detailed monthly invoice and supporting documents, track monthly fee/budget, coordination with sub-consultants, and other general project coordination.

1.19. Project Meetings

In addition to the special meetings identified in the previous tasks, the following meetings are also anticipated:

1.19.1. Progress or review meetings will be scheduled during this phase as required. For budgeting purposes six (6) meetings are included. Consultant team members will attend in person or remotely as required for the specific meeting. The Consultant will prepare minutes following the meetings.

1.19.2. Consultant internal project meetings. Anticipated to be one per month.

1.20. Preliminary Work: Associated with concept development of site layout and suitability of proposed site, and preliminary suction and discharge pipe sizing and system connection locations. (Lump Sum Fee as noted in Exhibit B).

TASK 2 - FINAL DESIGN SERVICES:

This task consists of all services necessary to take project from Task 1 Preliminary Design Services through the Final Design Services and may include the following itemized services.

These services are based upon one construction contract.

2.1. Address City comments from the Task 1 City review(s) and finalize Preliminary Design Report. The Preliminary Design Report should be now titled "Final Project Design Report" and will be submitted at the conclusion of final design. A report submittal will not be included with the 60% submittal.

2.2. The Consultant will prepare technical memos, as need to address a specific item during the final design phase that requires a City decision. The tech memos will be included in the report appendix. Three (3) memos are included in the budget.

2.3. The Consultant's control system design team will complete the final controls design including:

2.3.1. Controls Abbreviation sheet

2.3.2. P&ID drawings

2.3.3. Floor plan sheets showing location of field devices, and control wire conduit runs.

2.3.4. Details

2.3.5. Operations Narrative, and technical specifications needed.

2.3.6. In -field Path Study / Antenna design (budget 1 trip) engineering and design services to determine a reliable radio path. On-site radio path study to include a two (2) service technician for two (2)-day to setup temporary radios and take data points to prove out the paper study for final determination that the radio path will work. Includes one-day services, travel time and all travel expenses. Consultant will provide any field equipment necessary to complete the path study.

2.3.7. FCC licensing and coordination for the frequency that is currently licensed with the City.

2.3.8. Prior to the project going to bid the Consultants subconsultant's will provide a firm cost for all equipment above the gutter; PLC panel, other hardware, software, programing, start-up, and commissioning. After review and acceptance by the City, this cost will be incorporated in the bid schedule. This equipment will be sold directly by the Consultants subconsultant's to the construction contractor for installation. The controls system integrator

scope will be included in an appendix to the specifications. These items and equipment are not a part of the Consultants contract with the City.

2.4. Incorporate design features as necessary to meet the requirements outlined in the Project Design Report.

2.5. Incorporate ADA compliance items, for example fillet, driveway and sidewalk improvements. All applicable ADA requirements shall be outlined in the Project Design Report.

2.6. Provide a stormwater pollution prevention plan which will include detailed erosion and sediment control measures and specifications. Provide a complete erosion and sediment control site plan which includes station and offset locations for each implemented measure. Include both temporary and permanent erosion and sediment control measures. Include an erosion and sediment control sequence of implementation and phasing schedule. It is anticipated erosion control will be bid as a lump sum item.

2.7. Provide detailed traffic control plans showing all devices required for a MUTCD compliant plan. Show all streets and alleys that may be impacted by this project. Show all existing signage, pavement markings, etc. All work zones, road closures, lane closures, and pavement marking removals shall be indicated on the plan. A detailed layout will be included for each phase of multi-phased projects. The traffic control sequence of implementation and phasing schedule shall coincide with erosion and sediment control sequence of implementation and phasing schedule. Anticipate the traffic control will be bid as a lump sum bid item. The City will provide an electronic version of an aerial photo for the consultant's use.

2.8. Provide a Project Sequence of implementation and phasing schedule which shall include such items as traffic control, erosion and sediment control, utility installations, paving, restoration, and construction milestones.

2.9. The Consultant shall create a detailed list of all potential utility conflicts caused by the project. City shall schedule the Private Utility Coordination Meeting. The Consultant shall prepare the meeting agenda and include the list of utility conflicts for discussion at the meeting. If a private utility intends to replace their infrastructure, the Consultant shall coordinate a location corridor for the utilities and show the proposed location on the drawings. Indicate if the private utilities intend to abandon or replace the infrastructure prior to or during this project's construction. Coordinate directly with utility companies' engineering divisions to ensure that all existing utilities are completely and accurately identified and located in the field; that pertinent information regarding depth, material, size, etc. are noted on the plans; and those conflicts requiring relocation of utilities or special construction techniques are fully specified in the contract documents. Prior to the meeting, preliminary plans shall be provided to the pertinent utilities for comment at the time they are complete. The consultant shall document the resolution of each utility conflict agreed upon by each utility company.

Provide the City a list of all private utility conflict resolutions. If private utilities will need to be relocated, assist City as necessary with formal notification. If desiring exceptions from City requirements or specifications, it is the Consultant's responsibility to request and secure exceptions. Failure by the City to comment on a nonconforming item during a review does not constitute the granting of an exception.

2.10. If desiring exceptions from City requirements or specifications, it is the Consultant's responsibility to request and secure exceptions. Failure by the City to comment on a non-conforming item during a review does not constitute the granting of an exception.

2.11. Provide detailed specifications supplementing the City of Rapid City Standard Specifications, as necessary. Typically, project drawing specific issues should be indicated as a General Note on the drawings. Material types and material specific items would be included as a detailed specification. In general, it is anticipated that City's standard specifications will apply to site design, and underground facilities. It is anticipated the Consultant will need to provide detailed specifications for above ground facilities.

2.12. Consultant shall obtain a design exception for Infrastructure Design Criteria manual requirements and Standard Specifications as needed. Exceptions to the Standard Specifications shall be documented on the General Notes sheet of the construction plans. The table shall include the following:

2.12.1. City Exception File Number
2.12.2. Specification Section
2.12.3. Description
2.12.4. Stipulations

2.13. Provide complete plans for a lump sum or unit price construction contract, as appropriate. Plan sheets shall be prepared utilizing the latest City of Rapid City Drafting Standards. Plan sheet sections will include plan views, sections and elevations, and details as needed to complete the project plans. City standard details will be used when appropriate. The Consultant will provide additional details. Sections will include:

2.13.1. General: Estimated to be 5 to 7 sheets.
2.13.2. Civil/Site/Underground/Landscape: Estimated to be 25 to 30 sheets.
2.13.3. Architectural: Estimated to be 4 to 8 sheets.
2.13.4. Structural/Concrete Retaining Wall: Estimated to be 10 to 12 sheets.
- Include bridge crane.

2.13.5. Process/Pumps/Above Floor Pipe and Valves: Estimated to be 13 to 16 sheets.
2.13.6. Mechanical/HVAC: Estimated to be 3 to 5 sheets.
2.13.7. Plumbing: Estimated to be 5 to 7 sheets.
2.13.8. Electrical: Estimated to be 5 to 7 sheets.
- Include generator design for the Shepherd Hills Booster Station.
- Will detail and/or specify location of conduit (i.e. buried or exposed).

- Will include conduit and wiring schedules to clearly indicate runs from device to panel.
- Will detail and/or specify conduit supports.

2.13.9. Instrumentation and Control: Estimated to be 4 to 6 sheets

- Will include P&ID drawings
- Will include a floor plan showing location of field devices. Floor plan to include conduit runs from field device to control panel or VFD.

2.14. Plan documents shall adhere to current City of Rapid City guidelines. No fee associated with this task. Completed under other tasks.

2.15. The Consultant will prepare the Division 1 technical specifications needed for the project. Project sequencing will be one item to be included.

2.16. Contract Front End Documents:

The Consultant will work with the City to prepare the front-end documents for the project. The starting documents will be provided by the City. The Consultant will focus primarily on:

2.16.1. Special Bid Conditions and Explanation of Bid Schedules
2.16.2. Prime Contractor Qualifications Statement
2.16.3. Subcontractor Qualifications Statement
2.16.4. Subcontractor Listing
2.16.5. Critical Equipment Listing
2.16.6. Bidder's Schedule
2.16.7. Section 7S Supplemental Conditions

2.17. Staking information shall include:

2.17.1. Station offsets and required grades for all items of work requiring field staking.

2.17.2. In tabular form on a plan sheet (schedule)

- Coordinates and description of inter-visible control points.
- Coordinates of all items of work requiring field staking.
- Benchmark information shall be provided on each sheet.

2.18. Assist the City with permanent and/or temporary construction easement acquisition, and obtain property owner contact information, prepare easement and/or ROW exhibits as necessary, provide copies of current deeds of properties where easements are needed, accompany the City to hold property owner meetings for easement and ROW acquisition, and document acquisition meetings as needed. The City will prepare necessary legal documents. The City will obtain easements.

2.19. Permits:

2.19.1. Prepare any and all permits with exhibits the City will need to execute for the project. Any permit fees required to be paid will be paid directly by the City.

2.19.2. Identify permits that will be required for the Contractor. Identify permit costs and indicate if any permit costs are paid for directly by the City or if it is a Contractor cost. Typically, all permit costs are the Contractor's obligation except as indicated in the City's contract front end documents.

2.19.3. Consultant shall obtain signatures and submit Notice of Intent to SDDANR for project coverage under the "General Permit for Stormwater Discharges Associated with Construction Activities". A fee is associated with this permit which shall be a reimbursable through consultant invoicing.

2.20. Prepare final "Consultant's Estimate" of probable construction cost for the project. Provide updates at the time of the Intermediate and Final submittals.

2.21. The City will submit plans and specifications to the Department of Agriculture and Natural Resources for approval, and the Consultant shall address any comments or corrections required.

2.22. Attend Public Works and Council meetings as necessary. One (1) meeting is included in the fee.

2.23. Major Design Submittals

2.23.1. Intermediate Submittal

2.23.1.1. Provide three (3) hard copies and a PDF version of the Intermediate Design Services submittal. The submittal shall consist of the complete plans, specifications, contract documents, and opinion of probable construction cost to the City for review. The Intermediate Design Services submittal will be made to the City when the consultant believes the plans, specifications, contract documents, and opinion of probable construction cost are 65% complete. This shall include but not be limited to process and mechanical layouts at 80% complete or more, civil/site, electrical, mechanical, and instrumentation and control diagram sheets.

2.23.1.2. Provide Technical Memorandums for design decisions, which will be included in the Appendix of the Final Design Report.

2.23.1.3. Provide the City the opinion of probable construction cost as a unit price cost estimate on CD in Microsoft Excel 2018 or newer version on the City "Consultant Estimate" form.

2.23.1.4. Print and distribute three (3) copies of plans/drawings to the City at 11" x 17" scale for distribution to City departments for review.

2.23.1.5. The Consultant will attend a review meeting with the City of the Conceptual Specification submittal. Consultant to generate minutes from the review meeting within 3 days.

2.23.2. Final Submittal

2.23.2.1. Provide three (3) hard copies and a PDF version of the Final Design Services submittal. The submittal shall consist of the Final Project Design Report, Technical Memos in appendix of report, complete plans, specifications, contract documents, and opinion of probable construction cost to the City's PM for review. The Final Design Services submittal will be made to the City when the consultant believes the plans, specifications, contract documents, and opinion of probable construction cost are 100% complete.

2.23.2.2. All submittals (drawings and specifications) believed by the Engineer of Record to be a final, shall contain a Certification Statement of Conformance with City Standards which shall read, "I (insert Engineer of Record's name) Certify that I have read and understand the provisions contained in the City of Rapid City Standard Specifications for Public Works Construction, current edition and the City of Rapid City's adopted Design Criteria Manuals. The drawings and specifications contained here within, to the best of my knowledge, were prepared in accordance with these documents or a properly executed exception to the Standard Specifications and/or Infrastructure Design Criteria Manual has been secured". This statement shall appear on the title sheet of the drawings and on the first page of specifications after the cover sheet. The "Certification Statement of Conformance with City Specifications" shall be signed and dated by the Engineer of Record.

2.23.2.3. Provide the City the opinion of probable construction cost as a lump sum and/or unit price cost estimate on CD in Microsoft Excel 2018 or newer version on the City "Consultant Estimate" form.

2.23.2.4. Print and distribute four (4) copies of plans/drawings to the City at 11" x 17" scale for distribution to City departments for review.

2.23.2.5. The Consultant will attend a review meeting with the City of the Conceptual Specification submittal. Consultant to generate minutes from the review meeting.

2.23.3. Bid Documents/Approved Submittal

2.23.3.1. Provide one (1) copy and a PDF version of bid documents including complete plans, specifications, and Consultant's Estimate of probable construction cost to the City for City distribution. Items shall be stamped and signed by a Professional Engineer.

2.23.3.2. Provide complete plans on CD compatible with AutoCAD Release 2018 or newer format.

2.23.3.3. Provide all topographic, control, and design points in the .dwg file and in tabular format, both on CD and on hard copy printout.

2.23.3.4. Provide the City complete specifications and contract documents on CD in Microsoft Word 2018 or newer versions.

2.23.3.5. Provide a unit price and lump sum cost estimate on CD in Microsoft Excel 2018 or newer version on the City of Rapid City "Consultant's Estimate" form.

2.23.3.6. Print and distribute three (3) copies of the approved and stamped Final Design Services Deliverable. The submittal shall consist of the Final Project Design Report, complete plans, specifications, contract documents, and opinion of probable construction cost to the City's PM.

2.23.3.7. Print and distribute three (3) copies of plans/drawings to the City at 11" x 17" scale for construction services personnel.

2.24. Project Management

2.24.1. The Consultant and the City will hold bi-weekly check-in and progress meetings. These meetings will primarily be held remotely by phone or video conference. The Consultant will prepare minutes following the meetings within 3 days.

2.24.2. Update project schedule on a monthly basis.

2.24.3. General Project Management: Prepare detailed monthly invoice and supporting documents, track monthly fee/budget, coordination with sub-consultants, and other general project coordination.

2.25. Project Meetings

In addition to the special meetings identified in the previous tasks, the following meetings are also anticipated.

2.25.1. Monthly progress meetings. The Consultants team will attend either in person, or remotely, as dictated by the meeting agenda. The Consultant will prepare minutes following the meetings within 3 days.

2.25.2. Consultant internal project meetings, anticipated to be one per month, and other internal discussions needed for design completion.

2.25.3. Intermediate Design Submittal Review Meeting. Consultant project team members will attend either in person, or remotely, as dictated by the meeting agenda. The Consultant will prepare minutes following the meetings within 3 days.

2.25.4. Final Design Submittal Review Meeting. Consultant project team members will attend either in person, or remotely, as dictated by the meeting agenda. The Consultant will prepare minutes following the meetings within 3 days.

2.25.5. Bid Documents Review Meeting. Consultant project team members will attend either in person, or remotely, as dictated by the meeting agenda. The Consultant will prepare minutes following the meetings within 3 days.

Services Not Included in Tasks 1 and 2

1. Any work required in relation to relocation or adjustment of the existing overhead power line along the southern portion of the proposed Shepherd Hills Booster Pump Station lot, or agreements to allow use of the easement for the project.
2. The site design does not include design of any suction and/or discharge piping crossing the adjacent streets.
3. Development of Request for Proposal or Procurement documents for pre-selection of key or long lead time equipment.

TASK 3 – BIDDING SERVICES:

This task consists of all services necessary for the administration of the Bidding Services of the project and may include the following itemized services.

3.1. Submit sufficient information to the City of Rapid City project manager for completion of City Advertising Authority form.

3.2. Consultant shall proof print quality at printers before full production of copies are made. Both full size (22x34) and half size (11x17) plan sets will be arranged.

3.3. Coordinate with the City to conduct a Pre-bid Conference, prepare an agenda and record attendance and minutes. The pre-bid meeting may be held virtually. Whether in person, or held virtually, the consultant shall prepare a presentation explaining the project limits and scope to be presented to potential bidders.

3.4. Respond to Bidder's questions during the bid process.

3.5. Prepare and issue addenda to the bid documents as required.

3.6. ~~Attend Public Works Committee and Council Meetings as required.~~ Not included in fee.

3.7. Consultant may attend bid opening in person or remotely, review Bidder's Proposals and review and sign the City Engineering Services prepared Bid Tab and prepare an award recommendation letter to the City.

3.8. Project Management

3.8.1. The Consultant and the City will hold check-in calls during the bidding process as needed. The Consultant will prepare minutes following the meetings.

3.8.2. General Project Management: Prepare detailed monthly invoice and supporting documents, track monthly fee/budget, coordination with sub-consultants, and other general project coordination.

3.9. Project Meetings

3.9.1. None planned.

City's Responsibilities during the Bid Phase:

- Advertise and distribute bid documents.
- Issue addenda prepared by the Consultant.
- Handle and oversee the bid opening.
- Prepare bid tabulation for review by Consultant.
- Prepare contract documents for execution by the successful bidder.

Services Not Included in Bidding Task

1. Attend Public Works Committee and/or Council Meetings.
2. Redesign or rebidding unless necessitated due to design errors.
3. Splitting the project up into more than one construction contract.
4. Issue RFP for pre-selection of key or long lead time equipment.

TASK 4 – BASIC CONSTRUCTION SERVICES:

This task consists of all services necessary for the administration of the Basic Construction Services of the project construction stage and may include the following itemized services.

4.1. Review construction contract documents and other submittals from the contractor and submit to the City of Rapid City project manager for distribution to City Attorney's for approval and signatures of the Mayor and Finance Officer.

4.2. Arrange and conduct a Pre-Construction Conference including agenda. Record minutes and distribute to all attendees. Distribute minutes within 3 days.

4.3. Respond to Requests for Information (RFIs) submitted by the Contractor. Provide written clarification regarding drawing and specifications as appropriate. The Consultant will prepare a response and provide to the City for review and approval before sending the response to the Contractor.

4.4. Develop Supplemental Instructions (SIs) and/or Request for Proposal (RFPs) to address changed or unknown conditions that may appear during construction. The Consultant will prepare a response and provide to the City for review and approval before sending it to the Contractor.

4.5. Review and take action on shop drawings, product submittals, test results, and other submittals. For equipment noted by the City, send planned response to the City for review and approval before sending the response to the Contractor. Submittal will be provided electronically, and not by hard copy. Anticipated level of effort is the initial submittal and one resubmittal for each required submittal. Work with Contractor to have three (3) sets of final submittals assembled by the contractor. Consultant shall review the assembled documents. Once acceptable arrange to have the documents delivered to the City.

4.6. Consultant will prepare a list of the following expected items from the Contractor:

4.6.1. List of equipment submittals which will be included in the contract documents.

4.6.2. List of warranty documents and special warranties (warranties beyond the City's standard 2-year warranty). Anticipated level of effort is the initial submittal and one resubmittal for each required submittal.

4.6.3. List of O&M manuals from equipment suppliers. Anticipated level of effort is the initial submittal and one resubmittal for each required submittal.

4.6.4. List of training to be provided by the equipment suppliers, review of planned training agenda by the supplier, and confirmation of completion. Anticipated level of effort is the initial submittal and one resubmittal for each required submittal.

4.7. Construction Close-Out Documents: Consultant will assemble, in electronic PDF format, construction close-out documentation and submit to the City on a CD or flash drive. Three (3) hard copies will also be produced and delivered. This documentation will include all the documents developed during the construction phase but does not include the equipment submittals. Thumbnail exhibits of the construction photos will be created with an associated date and provided in hardcopy to ease finding pictures in the future.

4.8. Prepare "Record Drawings" plans and specifications. A hard copy of "Record Drawings" plans and specifications shall be submitted to the City in the same size and format as construction plans. Additionally, the Consultant will provide PDF's and CAD files on a CD or DVD. The digital submittal must be compatible with AutoCAD Civil 3D 2018, or newer, and contain all files and data packaged in a format that will allow City personnel to seamlessly open "Record Drawings" drawings. "Record Drawings" plans and specifications shall be provided thirty (30) days following project acceptance. The Consultant will be paid for this work in advance, on the last invoice, but is required to

complete the work at a later date per the contract, even if the Consultant has billed 100% of the contract and the City has closed the contract.

4.9. All "Record Drawings" plans and specifications, believed by the Engineer of Record to be a final, shall contain a Certification Statement of Conformance, which shall read, "I (insert Engineer of Record's name) Certify that the "Record Drawings" drawings and specifications contained here within, to the best of my knowledge, represent the constructed project. This statement shall appear on the title sheet of the drawings and on the first page of specifications after the cover sheet. The "Certification Statement of Conformance" shall be signed and dated by the Engineer of Record.

4.10. Coordinate equipment training with manufacturers and Utility Maintenance personnel.

4.11. Prepare Operations and Maintenance Manual.

4.11.1. Consultant will prepare an Operations and Maintenance (O&M) Manual. The Contractor provided O&M Manual will be considered as supplementary to the O&M manual provided herein. Detailed operation information shall be included in the O&M Manual including Startup sequence (normal, emergency), Shutdown sequence (normal, emergency), Normal Operation, Troubleshooting. Operations description shall include a general narrative in addition to specific control discussion (e.g. local, on, off, auto, and remote). The selected consultant shall involve the integrator/instrumentation and control engineer in the development/review of the O&M Manual for development of the control language and to verify continuity between disciplines. The O&M manual will follow the format of the North Rapid BPS O&M manual.

4.11.2. The Draft O&M Manual should be now titled "Enter Name of Facility Operation and Maintenance Manual".

4.11.2.1. Submit three (3) paper copies and an electronic PDF version of the Draft O&M Manual to City for review and comment. PDF version to be bookmarked.

4.11.2.2. The Consultant will attend a review meeting with the City of the draft O&M Manual submittal. Consultant to generate minutes from the review meeting within 3 days.

4.11.2.3. Draft O&M Manual shall be available at the time of BPS startup.

4.11.3. Address City comments from the City review and finalize the O&M Manual. The document should be now titled "Final O&M Manual".

4.11.3.1. Submit three (3) paper copies and an electronic PDF version of the Final O&M Manual to City. PDF version to be bookmarked.

4.11.3.2. It is expected that the O&M Manual will be finalized within 60 days following construction final acceptance.

4.12. Consultant shall provide a Standard Operating Procedure (SOP) overview to City Operations. SOP overview to include the following: discussion of facility need and intended use, walk through from suction (water entrance) to discharge (water exit), description of each piece of equipment and its intended purpose and function. Submit a draft for review, attend review meeting, and create final document.

4.13. Consultant shall provide a 22x34 laminated copy of the Record P&ID drawings.

4.14. Construction Administration Major Submittals.

4.14.1. Record Plans and Specifications

4.14.2. Final Operation and Maintenance Manual

4.14.3. Project Close-Out Documents

4.15. Project Management

4.15.1. General Project Management: Prepare detailed monthly invoice and supporting documents, track monthly fee/budget, coordination with sub-consultants, and other general project coordination.

4.16. Project Meetings

In addition to the special meetings identified in the previous tasks, the following meetings are also anticipated:

4.16.1. Monthly progress meetings with the City. NONE INCLUDED.

4.16.2. Consultant internal project meetings as required during the course of project construction.

Services Not Included in Basic Construction Task

1. Splitting the project up into more than one construction contract.
2. Equipment re-submittals by the Contractor beyond the anticipated level of effort.
3. Warranty, lien waiver, spare parts, and training documentation re-submittal by the Contractor beyond the anticipated level of effort.

TASK 5 – EXPANDED CONSTRUCTION SERVICES:

This task consists of all services necessary for the administration of the Expanded Construction Services of the project construction stage and may include the following itemized services.

5.1. Arrange and conduct appropriate progress meetings. Record minutes and distribute to all attendees within 3 days.

5.1.1. Weekly progress meetings involving the contractor and Consultant.

5.1.2. Monthly progress meetings involving the Consultant's team members as needed, and Consultants field personal. Include periodic site visits by Consultant.

5.2. On-Site Observation

5.2.1. Provide daily on-site observation to assure that the methods and materials used by the contractor meet the intent of the plans and specifications. For buried installations such as for sewer and water mains, the Consultant shall be on site all of the time the Contractor is installing these buried installations.

5.2.2. Prepare daily reports. A daily record of activity will be maintained by the inspector including weather conditions, construction progress, deviations from the plans and specifications, work performed, quantities installed and any other pertinent information. Such information shall be neatly and concisely entered into the City of Rapid City Project Inspector's Diary and Inspection quantity book. Submit detachable copies to Engineering Services on a weekly basis. Consultant will work with the City to establish desired format for handwritten daily diaries, and typed daily, weekly, and monthly reports.

5.2.3. Document daily quantities of work progress. Quantities will be defined as a percentage complete for each lump sum schedule of values. Summarize quantities completed for each monthly pay request.

5.2.4. Witness Contractor assurance testing according to the Standard Specifications. All test results shall be submitted to the City of Rapid City within 30 days of project completion.

5.2.5. Perform stormwater inspections, prepare reports, and keep the erosion and sediment control plans current as required by the ordinance regulating construction site runoff control, Chapter 8.46, and the Stormwater Quality Manual.

5.2.6. Consultant will oversee and help coordinate soil compaction and concrete testing according to the Standard Specifications. All test results shall be submitted as received from the testing agency to the City of Rapid City. Cost for this testing will be incorporated into the General Contractor's scope of work.

5.3. Assist and help prepare and submit monthly pay request information. Prepare monthly pay request spreadsheet update. Review final pay request document prepared by the City, and sign.

5.4. Assist and help prepare change orders, and extra work orders for contractor on City of Rapid City forms and make recommendations for their approval or denial.

5.5. Consultant shall be on-site for critical start up and commissioning activities. Consultant will coordinate with the contractor to assure all needed parties are on-site at the required times.

5.6. Prepare and submit project completion punch list items to the Contractor and City and oversee its completion.

5.7. Prepare and submit City of Rapid City project "Construction Project Close-out Checklist" indicating compliance with Standard Specifications and acceptance of the various infrastructure components. The Consultant is responsible for coordinating completion of the checklist items with the Contractor. The checklist is enclosed as Attachment Four for your information.

5.8. Prepare letter of certification of project completion verifying compliance with plans and specifications and start of warranty period.

5.9. Assist the City in preparing a letter to SDDANR notifying them of project completion.

5.10. Ensure Contractor's two-year warranty surety is provided to the City of Rapid City either within the performance bond or as a separate bond.

5.11. Assist the City in addressing and communicating warranty items with the Contractor that may arises during the City's two-year warranty period.

5.12. Coordinate a 23-month warranty inspection and create a punch list of items for the Contractor to complete.

5.13. General Project Management: Prepare detailed monthly invoice and supporting documents, track monthly fee/budget, coordination with sub-consultants, and other general project coordination Project Meetings

5.14. Training by Consultant prior to initial BPS start up.

5.14.1. Using the draft O&M manual and draft SOP developed by the Consultant, the Consultant will hold a training session with the City on purpose and operation of the BPS. This training will include a combination of classroom and in-field training sessions.

5.14.2. Training to be competed in one trip, over the course of up to 8 hours of training time.

<u>Services Not Included in Basic Construction Task 4</u>

1. Prepare Public Service Announcements (P.S.A.'s).
2. Coordination or meetings with any adjacent landowners.
3. Completion by the Consultant of compaction, concrete, welding, paint, or any other field testing.
4. Startup activities in a time frame greater than noted in the fee estimate.
5. No Mechanical or Electrical engineer on-site for punch list walk through.

PROJECT TEAM, MEETINGS, AND SUBMITTALS SUMMARY

6.1 Project team members will include:

- The Consultant
- City Engineering Services staff
- Operations Division staff (list all appropriate entities)
  - Utility Maintenance Division (Service area and O&M related issues)
  - Street Division
  - Water Division

6.2 Meetings requiring the Consultant's participation will likely include, but may not be limited to the following, some meetings will be attended remotely via conference call:

- Kick-off meeting, Task 1
- Hydraulics Review meetings, Task 1
- Preliminary Design Report, Plans and Specifications submittal review meeting, Task 1
- Intermediate Design Report/Facility Plan, Plans, Specifications, and Cost Estimate Submittal review meeting, Task 2.
- Public meetings
- Developer Coordination meeting, Task 1Property owners meeting
- Private Utility coordination meeting, Tasks 1
- 100% Plans, Specifications, and Contract Documents review, Task 2 (This submittal is made when the consultant believes the plans, specifications, contract documents, and opinion of probable construction cost documents are complete).
- Prebid Conference, Task 3
- Bid Opening, Task 3
- Pre-construction Conference, Task 4
- Construction Progress Meetings, Task 5
- Committee and Council Meetings as required, All Tasks

6.3 Submittals include:

- All submittals shall include a title, date of submittal, name of person at the City the submittal is being delivered to, and name of firm and individual making the submittal. Submittals and drawings shall also clearly be labeled with one of the following statements:
  - "For Review Only"
  - "Issued For Bid"
  - "Issued For Construction"
  - "Record Drawing"
  - Other as maybe necessary to effectuate submittal purpose.
- Kick-off meeting, Task 1 meeting minutes
- Meetings during design minutes.

- Preliminary Design Report and Preliminary Review Submittal, Task 1 including meeting minutes
- Intermediate Design Report/Facility Plan, Plans, Specifications, and Cost Estimate Submittal, Task 2 including meeting minutes.
- Final Project Design Report, Task 2 including meeting minutes. Final design reports shall be bound utilizing a comb binder or equal. 3-ring binders are not permitted without project managers prior approval.
- 100% complete plans, specifications, contract documents, and opinion of probable construction cost Contract Documents Review, Task 2 including meeting minutes
- Public meeting minutes
- Property owners meeting minutes
- Open house comments/concerns and consultant's recommendations for inclusion or exclusion
- Final submittal of bid documents including complete plans, specifications, contract documents, and Consultant's Estimate of probable construction cost, Task 2
- Prebid conference meeting minutes, Task 3
- Bid Tab and award recommendation, Task 3
- Pre-Construction conference meeting minutes, Task 4
- Shop Drawing submittal reviews, Task 4
- "Record Drawing" plans and specifications, Task 4
- Construction Progress meeting minutes, Task 5
- Daily observation reports, Task 5
- Quantity Books (in City format)
- Erosion and Sediment Control plan inspection reports, Task 5
- Inspector diaries (in City format)
- Project completion "Punch List", Task 5
- "Construction Project Close-out Checklist", Task 5
- Project testing report documentation
- Letter of certification of project completion, Task 5
- Draft Operation and Maintenance Manual, Task 2.
- Final Operation and Maintenance Manual, Task 4.
- Standard Operating Procedures draft and final, Task 4.

The Consultant shall allow 15 working days for City review of the Project Design report and Conceptual Design submittal, and the 100% complete plans; specifications; geotechnical report; and opinion of probable construction cost submittal.

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS

Summary

Task	Amount
1 - Prelmin Desgn	$271,680
2 - Final Design	$238,654
3 - Bidding	$17,755
4 - Basic Constructoin	$198,149
5 - Expanded Construction	$229,407
Total	$955,645

Task 1 -3	$528,089
Task 4 - 5	$427,556

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS
Task 1- Preliminary Design

Date: 4/27/2022

TASK NUMBER	Classification Rate 2022		TASK SUBTOTAL	LINE SUBTOTAL
	TASK			
1.1	Kick-Off Conference		$3,365	$3,365
1.2	Review Background Info		$1,640	$1,640
1.3	Site Surveys		$11,786	$11,786
1.4	R-O-W, Easements, Land		$286	$286
1.5	Locating Services		$0	$0
	1.5.1 Existing Water Mains and Services			$0
	1.5.2 Existing Sanitary Sewer Pipes and Services			$0
1.6	Geotechnical Services		$3,050	$3,050
1.7	Inst, Controls, SCADA		$5,279	
	1.7.1 System Controls			$775
	1.7.2 Desk Top radio path study			$1,774
	1.7.3 Control diagrams, SCADA control, control narratives			$0
	1.7.4 Control equipment			$1,337
	1.7.5 Review Meeting			$1,393
1.8	ADA Compliance Review		$1,226	$1,226
1.9	Review Environmental Regs, Determine Mitigation		$286	$286
1.10	Public Works and Council Meetings		$0	$0
1.11	QA and QC		$5,896	$5,896
1.12	Public Meetings, Presentations (Prep and Attend)		$2,140	$2,140
1.13	Private Utilities Base Plan Vertification Meeting		$1,199	$1,199
	1.13.1	Electrical Easement Use Coordinatoin	$1,914	$1,914
1.14	Developer Coordination Meeting		$2,340	$2,340
1.15	Preliminary Design Submittal		$127,125	
	1.15.1 Preliminary Design Report			
	1.15.1.1	Title		$0
	1.15.1.2	Project Overview		$2,112
	1.15.1.3	Site Design & Retaining Wall		$4,603
	1.15.1.4	Building Design		$11,220
	1.15.1.5	Design Life		$1,525
	1.15.1.6	Pump Design		$2,772
	1.15.1.7	Pump Layout		$11,348
	1.15.1.8	Incorporate basket strainer(s)		$528
	1.15.1.9	Surge Analysis		$4,528
	1.15.1.10	Mechanical/HVAC		$2,577
	1.15.1.11	Plumbing		$1,066
	1.15.1.12	Electrical		$3,042
	1.15.1.13	Noise Generation		$592

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS
Task 1- Preliminary Design

Date: 4/27/2022

TASK NUMBER	Classification Rate 2022			TASK SUBTOTAL	LINE SUBTOTAL
	TASK				
		1.15.1.14	Hydraulic Modeling		$1,870
		1.15.1.15	Facility Operation		$12,478
		1.15.1.16	Design Assumptions and Decision Documentation		$1,720
		1.15.1.17	Geotechnical Design		$1,255
		1.15.1.18	Engineer's Estimate		$8,656
		1.15.1.19	Design explanation		$0
	1.15.2	Hydraulic Modeling			$33,944
	1.15.3	Design Report Submittal			$0
		1.15.3.1	Report Writing and Prep		$16,740
		1.15.3.2	Review Meeting		$4,549
1.16	Preliminary Drawings			$58,625	
	1.16.1	Develop Preliminary Drawings			
	1.16.2	Preliminary Drawing Sheets			
		1.16.2.1	General Sheets		$435
		1.16.2.2	Civil/Site/Underground/Landscape		$5,210
		1.16.2.3	Architectural		$6,483
		1.16.2.4	Structural & Retaining Wall		$8,954
		1.16.2.5	Process/Pumps/Above Floor Pipe and Valves		$11,360
		1.16.2.6	Mechanical/HVAC		$3,442
		1.16.2.7	Plumbing		$3,561
		1.16.2.8	Electrical		$6,502
		1.16.2.9	Instrumentation and Control		$9,316
		1.16.2.10	City Standard Details		$870
	1.16.3	Preliminary Plan Submittal			$1,914
		1.16.3.1	Preliminary Plans		$578
		1.16.3.2	Review Meeting		$0
		1.16.3.3	City Drafting Standards		$0
1.17	Preliminary Design Specs			$14,600	
	1.17.1	Table of Contents & Preliminary Specs			$1,319
	1.17.2	Front End Documents			$1,100
	1.17.3	Schedule of Bid Items			$1,358
	1.17.4	Prelim Design Phase Level Major Equipment Specs			$7,510
	1.17.5	Control and Instrumentation Specifications			$2,312
	1.17.6	Preliminary Spec Submittal			$1,001
		1.17.6.1	Preliminary Design Specs		$0
		1.17.6.2	Review Meeting		$0
1.18	Project Management			$10,922	

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS
Task 1- Preliminary Design

Date: 4/27/2022

TASK NUMBER	Classification Rate 2022		TASK SUBTOTAL	LINE SUBTOTAL
	TASK			
	1.18.1	Bi-Weekly PM Level Meeting and Minutes		$7,644
	1.18.2	Schedule Update, Monthly		$858
	1.18.3	General Project Management		$2,420
1.19	Project Meetings		$15,384	$0
	1.19.1	Progress and Minutes with City		$5,666
	1.19.2	Consultant Internal Meetings		$9,718
1.20	Preliminary Work (Lump Sum)		$4,617	$4,617
	Fee		$271,680	$271,680

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS
Task 2- Final Design

Date: 4/27/2022

TASK NUMBER	Classification Rate 2022		TASK SUBTOTAL	LINE SUBTOTAL
	TASK			
2.1	Address comments to Design Report		$13,302	$13,302
2.2	Technical Memos		$4,550	$4,550
2.3	Control System Design		$20,439	
	2.3.1	Controls Abbreviation Sheet		$682
	2.3.2	P&ID Drawings		$4,580
	2.3.3	Floor Plan Sheets		$3,074
	2.3.4	Details		$1,664
	2.3.5	Operations & Technical Specs		$2,916
	2.3.6	In-Field Path Study / Antenna Design		$3,180
	2.3.7	FCC Licensing and Coordination		$2,400
	2.3.8	Cost for equipment		$1,943
2.4	Incorporate Design Features		$10,346	$10,346
2.5	ADA Design		$1,151	$1,151
2.6	Provide SWPP		$1,469	$1,469
2.7	Traffic Control Plans		$840	$840
2.80	Project Sequencing and Schedule		$1,610	$1,610
2.90	Private Utility Coordination Meeting		$1,470	$1,470
2.10	Request Exceptions to City Standards		$2,724	$2,724
2.11	Provide Details Specifications		$31,525	$31,525
2.12	Obtain Design Exception as needed		$2,666	$2,666
2.13	Detailed Plans		$82,988	
	2.13.1	General		$1,398
	2.13.2	Civil/Site/Underground/Landscape		$9,892
	2.13.3	Architectural		$8,326
	2.13.4	Structural & Retaining Wall		$16,509
	2.13.5	Process/Pumps/Above Floor Pipe and Vales		$16,732
	2.13.6	Mechanical/HVAC		$6,638
	2.13.7	Plumbing		$4,751
	2.13.8	Electrical		$8,162
	2.13.9	Instrumentation/Controls		$10,580
2.14	City of Rapid City Guidelines		$0	$0
2.15	Prepare Division 1 Technical Specs and Project sequence		$2,786	$2,786
2.16	Contract Front End Documents		$2,500	$2,500
2.17	Staking Information		$1,912	$1,912
2.18	Assist with Easements and Property		$2,644	$2,644
2.19	Permits		$1,056	
	2.19.1	Prepare permit applications for City		$528

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS
Task 2- Final Design

Date: 4/27/2022

TASK NUMBER	Classification Rate 2022		TASK SUBTOTAL	LINE SUBTOTAL
	TASK			
	2.19.2	Identify Permits required for Contractor		$143
	2.19.3	Obtain Signature and NOI to SDDANR		$385
2.20	Final Cost Estimates		$13,643	
		Intermediate Submittal		$7,630
		Final Submittal		$6,013
2.21	SDDANR Submittal and Address Comments		$1,032	$1,032
2.22	Attend PW and Council Meetings		$1,084	$1,084
2.23	Major Design Submittals		$6,606	
	2.23.1	Intermediate Submittal (65%)		$2,202
	2.23.2	Final Submittal (100%)		$2,202
	2.23.3	Bid Docs/Approved Submittal		$2,202
2.24	Project Management		$8,950	
	2.24.1	Bi-Weekly PM Level Meetings and Minutes		$5,958
	2.24.2	Schedule Update, Monthly		$572
	2.24.3	General Project Management		$2,420
2.25	Project Meetings		$21,361	
	2.25.1	Monthly Progress and Minutes with City		$8,290
	2.25.2	Consultant Internal Meetings		$6,289
	2.25.3	Intermediate Design Review Meeting		$3,127
	2.25.4	Final Design Review Meeting		$3,127
	2.25.5	Bid Documents Review Meeting		$528
	Fee		$238,654	$238,654

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS
Task 3 - Bidding

Date: 4/27/2022

TASK NUMBER	Classification Rate 2023 - Estimated	TASK SUBTOTAL	LINE SUBTOTAL
	TASK		
3.1	Submit Info for Bid Advertisement	$297	$297
3.2	Provide Proof of Quality Printing	$255	$255
3.3	Pre-Bid Conference	$3,301	$3,301
3.4	Respond to Bidder Questions	$5,950	$5,950
3.5	Prepare Addenda	$5,046	$5,046
3.7	Bid Opening, Review Bids, Review Bid Tab, Recommendation Letter	$801	$801
3.8	Project Management	$2,105	$0
	3.8.1 Check in calls		$1,602
	3.8.2 General Project Management		$503
3.9	Project Meetings	$0	$0
	None		$0
	Fee	$17,755	$17,755

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS

Task 4 - Basic Construction Services

Date: 4/27/2022

TASK NUMBER	Classification Rate 2023 - Estimated	TASK SUBTOTAL	LINE SUBTOTAL
	TASK		
4.1	Review Construction Contract Docs from Contractor	$2,196	$2,196
4.2	Pre-Construction Conference	$3,639	$3,639
4.3	Respond to RFIs	$18,845	$18,845
4.4	Develop Supplemental Instructions and/or RFPs	$17,258	$17,258
4.5	Submittals and Shop Drawings	$35,096	$35,096
4.6	Prepare List of Items from Contractor	$5,042	
	4.6.1 Equipment Submittals		$2,160
	4.6.2 Warranty Documents		$776
	4.6.3 O&M Manuals		$776
	4.6.4 Training to be Provided		$1,330
4.7	Construction Close out Documents	$10,839	$10,839
4.8	Prepare Record Drawings	$36,217	$36,217
4.9	Finalize Record Drawings	$0	$0
4.10	Schedule & Coordinate Equipment Training	$2,791	$2,791
4.11	O&M Manual	$34,136	
	4.11.1 Prepare O&M Manual		$20,690
	4.11.2 Draft O&M for Review		$3,144
	4.11.2.2 City Review Meeting and Minutes		$2,571
	4.11.3 Address Comments from City		$7,731
4.12	Prepare Standard Operating Procedure	$13,437	$13,437
4.13	Provide Record P&ID drawings	$2,411	$2,411
4.14	Major Construction Administration Submittals	$0	
	4.14.1 Record Plans and Specifications		$0
	4.14.2 Final O&M Manual		$0
	4.14.3 Project Close Out Documents		$0
4.15	Project Management	$7,550	$0
	Bi-Weekly PM Level Meetings and Minutes		$0
	Schedule Update, Monthly		$0
	General Project Management		$7,550
4.16	Project Meetings	$8,692	$0
	4.16.1 Monthy Progress meeting with City		$0
	4.16.2 Consultant Internal Meeting		$8,692
	Fee	$198,149	$198,149

ENGINEERING FEE ESTIMATE

City of Rapid City, SD

Shepherd Hills BPS
Task 5 -Expanded Construction Services

Date: 4/27/2022

TASK NUMBER	Classification Rate 2023 - Estimated	TASK SUBTOTAL	LINE SUBTOTAL
	TASK		
5.1	Progress Meetings and Minutes	$55,691	
	5.1.1 Weekly Meetings		$47,736
	5.1.2 Monthly Meetings - Site Visits		$7,955
5.2	On-site Observation	$135,280	
	5.2.1 Daily On-site Observation		$135,280
	5.2.2 Daily, Weekly, Monthly Reports		$0
	5.2.3 Daily Quantities		$0
	5.2.4 Provide Assurance or Witness Contractor Testing		$0
	5.2.5 Stormwater Inspections, Reports, Erosion Control Plan		$0
	5.2.6 Coordinate Compaction Testing and Concrete		$0
5.3	Assist & Prepare Monthly Pay Requests	$7,107	$7,107
5.4	Assist & Prepare Change Orders	$3,691	$3,691
5.5	On-site for Critical Start-up and Commissioning Activities	$4,927	$4,927
5.6	Prepare Punch List	$5,316	$5,316
5.7	Prepare Close-Out Checklist	$1,780	$1,780
5.8	Prepare letter of Certifications of Project Completion	$549	$549
5.9	Letter to SDDANR of Completiong	$262	$262
5.10	Ensure 2 YR Warranty Surety is provided to City	$549	$549
5.11	Assist with Warranty follow ups (Over 2 yr Period)	$4,509	$4,509
5.12	Coordinate a 23-month warranty inspection	$4,111	$4,111
5.13	General Project Management	$2,013	$2,013
5.14	Training by Consultant	$3,620	$3,620
	Fee	$229,407	$229,407

EXHIBIT C

BARTLETT & WEST, INC.
2022 SCHEDULE OF HOURLY CHARGES
Effective January 1, 2022

Engineer Landscape Architect Architect Operations Consultant	XI	$242.00
	X	222.00
	IX	207.00
	VIII	195.00
	VII	181.00
	VI	167.00
	V	157.00
	IV	143.00
	III	133.00
	II	123.00
	I	109.00

Engineering Technician XI	$197.00
Engineering Technician X	163.00
Engineering Technician IX	146.00
Engineering Technician VIII	134.00
Engineering Technician VII	121.00
Engineering Technician VI	113.00
Engineering Technician V	105.00
Engineering Technician IV	98.00
Engineering Technician III	88.00
Engineering Technician II	78.00
Engineering Technician I	68.00

Surveyor X	$200.00
Surveyor IX	185.00
Surveyor VIII	167.00
Surveyor VII	149.00
Surveyor VI	137.00
Surveyor V	124.00
Surveyor IV	110.00
Surveyor III	100.00
Surveyor II	90.00
Surveyor I	80.00

Survey Technician VIII	$140.00
Survey Technician VII	125.00
Survey Technician VI	108.00
Survey Technician V	95.00
Survey Technician IV	84.00
Survey Technician III	75.00
Survey Technician II	68.00
Survey Technician I	62.00

Construction Eng. Tech IX	$175.00
Construction Eng. Tech VIII	155.00
Construction Eng. Tech VII	143.00
Construction Eng. Tech VI	133.00
Construction Eng. Tech V	121.00
Construction Eng. Tech IV	107.00
Construction Eng. Tech III	95.00
Construction Eng. Tech II	85.00
Construction Eng. Tech I	75.00

Right-of-Way Specialist IV	$208.00
Right-of-Way Specialist III	165.00
Right-of-Way Specialist II	143.00
Right-of-Way Specialist I	127.00

Right-of-Way Technician VI	$130.00
Right-of-Way Technician V	115.00
Right-of-Way Technician IV	103.00
Right-of-Way Technician III	93.00
Right-of-Way Technician II	82.00
Right-of-Way Technician I	72.00

GIS Coordinator IX	$232.00
GIS Coordinator VIII	217.00
GIS Coordinator VII	207.00
GIS Coordinator VI	192.00
GIS Coordinator V	182.00
GIS Coordinator IV	172.00
GIS Coordinator III	157.00
GIS Coordinator II	142.00
GIS Coordinator I	132.00

GIS Developer/DBA V	$185.00
GIS Developer/DBA IV	170.00
GIS Developer/DBA III	157.00
GIS Developer/DBA II	145.00
GIS Developer/DBA I	135.00

GIS Analyst V	$141.00
GIS Analyst IV	131.00
GIS Analyst III	121.00
GIS Analyst II	111.00
GIS Analyst I	101.00

GIS Technician IV	$102.00
GIS Technician III	92.00
GIS Technician II	81.00
GIS Technician I	71.00

Project Coordinator III	$131.00
Project Coordinator II	121.00
Project Coordinator I	108.00

Systems Analyst	$180.00
Systems Administrator	135.00
Systems Technician	90.00

Administrator VI	$140.00
Administrator V	125.00
Administrator IV	108.00
Administrator III	93.00
Administrator II	83.00
Administrator I	75.00

Administrative Technician V	$80.00
Administrative Technician IV	73.00
Administrative Technician III	65.00
Administrative Technician II	60.00
Administrative Technician I	52.00

Yearly increase will be a maximum of 4.0%

The listed rates are subject to annual adjustment January 1 of each year

EXHIBIT C

Shepherd Hills Water Booster Pump Station

Project Number 21-2682/ CIP 51338

BARTLETT & WEST, INC.
SCHEDULE OF REIMBURSABLE COSTS/CHARGES
EFFECTIVE JANUARY 1, 2022

REPRODUCTION		
Blackline Prints		
Bond, Full Size - 24x36	$1.00	Each
Bond, Half Size Reduction - 11x17	$0.70	Each
Photocopies		
Black & White - up to 11x17	$0.15	Each
Small Size Color Copies , 8.5x 11	$0.90	Each
Large Size Color Copies, > 8.5x 11	$1.50	Each
On-line Documents	$2.00	Each
Inkjet Plotters – 24x36	$1.50	
Bond (Black)	$1.50	Lin. Ft.
Bond (Color)	$2.50	Lin. Ft.
PER DIEM		
Meals	GSA Rate @ Occurance	Day
Lodging	GSA Rate @ Occurance	Day
VEHICLES		
Trucks, Cars, SUV's - all vehicles	$0.60	Mile
OTHER REIMBURSABLE EXPENSES		
Sub-Consultants	Actual Cost x 1.0	
Lodging (Non Per Diem)	Actual Cost x 1.0	
Meals (Non Per Diem)	Actual Cost x 1.0	
Air Travel	Actual Cost x 1.0	
Outside Printing	Actual Cost x 1.0	
All Other Outside Expenses	Actual Cost x 1.0	

Notes:

1. All items on the list may not be used for this project.
2. Rates are subject to change January 1 of each year.
3. Yearly increase will be a maximum of 4.0%