

# Contract for Professional Architectural and Engineering Services

Project W.O. 17-06 Midland Road Improvements

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In consideration of the mutual promises herein, City of Billings and HDR Engineering, Inc. agree as follows. This Contract consists of:

Part I, consisting of 15 Sections of Special Provisions;

Part II, consisting of 11 Sections of General Provisions;

Appendix A consisting of 10 pages (Basic Services of Contractor);

Appendix B consisting of 2 pages (Methods and Times of Payment);

Appendix C consisting of 1 page (Additional Services of Contractor);

Appendix D consisting of 1 page (Schedule of Professional Fees);

Appendix E consisting of 1 page (Project Schedule);

Appendix F consisting of 1 page (Certificate(s) of Insurance); and

## **PART I SPECIAL PROVISIONS**

### Section 1. Definitions.

In this Contract:

- A. "Administrator" means the City Engineer of the Engineering Division of the Public Works Department or his designee.
- B. "Billings" means the City of Billings.
- C. "Contractor" means HDR Engineering, Inc..

### Section 2. Scope of Services.

- A. The Contractor shall perform professional services in accordance with Appendix A, which is attached hereto and incorporated in this Section by reference.
- B. Billings shall pay the Contractor in accordance with Section 4.
- C. Billings shall not allow any claim for services other than those described in this Section. However, the Contractor may provide, at its own expense, any other services that are consistent with this Contract.

- D. The Contractor shall provide as-built drawings on hard copies and in digital format, as approved by the City of Billings, to the Administrator within 30 days after the project completion date. Final payment will be withheld until the as-built drawings are received by the City of Billings.
- ~~E. The Contractor shall provide certified construction payrolls to the Administrator stating in writing that the payrolls have been reviewed and are acceptable.~~

Section 3. Time for Performance.

- A. This Contract becomes effective when signed on behalf of Billings.
- B. The Contractor shall commence performance of the Work described in Section 2 on receipt of written Notice to Proceed and complete that performance in accordance with the schedule set forth in Appendix E.
- C. This Contract shall terminate at midnight on December 31, 2018.

Section 4. Compensation; Method of Payment.

- A. Subject to the Contractor's satisfactory performance, Billings shall pay the Contractor no more than Seven Hundred Six Thousand Nine Hundred Sixty One and no/100 dollars (\$706,961.00) in accordance with this Section and Appendix B.
- B. Each month, or at the conclusion of each phase of the Work for which payment is due, as negotiated on a per-task basis, the Contractor shall present a bill to the Administrator describing the Work for which it seeks payment and documenting expenses and fees to the satisfaction of the Administrator. If any payment is withheld because the Contractor's performance is unsatisfactory, the Administrator must, within ten (10) days of the payment denial, notify the Contractor of the payment denial and set forth, with reasonable specificity, what was unsatisfactory and why. Billings will pay Contractor within 30 days of receiving an acceptable invoice.
- C. The Contractor is not entitled to any compensation under this Contract, other than is expressly provided for in this Section.
- D. As a condition of payment, the Contractor shall have paid all City taxes currently due and owing by the Contractor.

Section 5. Termination of the Contractor's Services.

The Contractor's services under Section 2 of this Part may be terminated:

- A. By mutual consent of the parties.
- B. For the convenience of Billings, provided that Billings notifies the Contractor in writing of its intent to terminate under this paragraph at least 10 days prior to the effective date of the termination.
- C. For cause, by either party where the other party fails in any material way to perform its obligations under this Contract. Termination under this Subsection is subject to the condition that the terminating party notifies the other party of its intent to terminate, stating with reasonable specificity the grounds therefor, and the other party fails to cure the default within 30 days after receiving the notice.

## Section 6. Duties Upon Termination

- A. If Billings terminates the Contractor's services for convenience, Billings shall pay the Contractor for its actual costs reasonably incurred in performing before termination and Billings shall pay for services rendered prior to termination. Payment under this Subsection shall never exceed the total compensation allowable under Section 4 of this Part. All finished and unfinished documents and materials prepared by the Contractor shall become the property of Billings.
- B. If the Contractor's services are terminated for cause, Billings shall pay the Contractor the reasonable value of the services satisfactorily rendered prior to termination, less any damages suffered by Billings because of the Contractor's failure to perform satisfactorily. The reasonable value of the services rendered shall never exceed ninety percent (90%) of the total compensation allowable under Section 4 of this Part. Any finished or unfinished documents or materials prepared by the Contractor under this Contract shall become the property of Billings at its option.
- C. If the Contractor receives payments exceeding the amount to which it is entitled under Subsections A or B of this Section, he shall remit the excess to the Administrator within 30 days of receiving notice to do so.
- D. The Contractor shall not be entitled to any compensation under this Section until the Contractor has delivered to the Administrator all documents, records, Work product, materials and equipment owned by Billings and requested by the Administrator.
- E. If the Contractor's services are terminated for whatever reason the Contractor shall not claim any compensation under this Contract, other than that allowed under this Section.
- F. If a final audit has not been performed before the Contractor's services are terminated, Billings may recover any payments for costs disallowed as a result of the final audit.
- G. Except as provided in this Section, termination of the Contractor's services under Section 5 of this Part does not affect any other right or obligation of a party under this Contract.

## Section 7. Insurance.

- A. The Contractor shall maintain in good standing the insurance described in Subsection B of this Section. Before rendering any services under this Contract, the Contractor shall furnish the Administrator with proof of insurance in accordance with Subsection B of this Section.
- B. The Contractor shall provide the following insurance:
  - 1. Workers' compensation and employer's liability coverage as required by Montana law.
  - 2. Commercial general liability, including contractual and personal injury coverage's -- \$1,500,000 per occurrence.
  - 3. Commercial automobile liability -- \$1,500,000 per accident.
  - 4. Professional liability in the amount of \$1,500,000 per claim.

- C. Each policy of insurance required by this Section shall provide for no less than 30 days' advance notice to Billings prior to cancellation.
- D. Billings SHALL be listed as an additional insured on all policies except Professional Liability and Worker's Compensation Policies. In addition, all policies except Professional Liability and Worker's Compensation shall contain a waiver of subrogation against Billings.

Section 8. Assignments.

Unless otherwise allowed by this Contract or in writing by the Administrator, any assignment by the Contractor of its interest in any part of this Contract or any delegation of duties under this Contract shall be void, and an attempt by the Contractor to assign any part of its interest or delegate duties under this Contract shall give Billings the right immediately to terminate this Contract without any liability for Work performed.

Section 9. Ownership; Publication, Reproduction and Use of Material.

- A. Except as otherwise provided herein, all data, documents and materials produced by the Contractor under this Contract shall be the property of Billings, which shall retain the exclusive right to publish, disclose, distribute and otherwise use, in whole or in part, any such data, documents, or other materials. Exclusive rights shall not be attributed to portions of such materials presently in the public domain or which are not subject to copyright. Contractor shall retain rights to pre-existing proprietary property including but not limited to interactive models. The Contractor shall have the right to include photographic or artistic representations of the design and construction of the Project among the Contractor's promotional and professional materials. The Contractor's materials shall not include Billings' confidential or proprietary information regardless of whether Billings has previously advised the Contractor in writing of the specific information considered by Billings to be confidential and proprietary.
- B. Equipment purchased by the Contractor with Contract funds: See Appendix A, Section 3. Scope of Work.
- C. Should Billings elect to reuse Work products provided under this Contract for other than the original project and/or purpose, Billings will indemnify and hold harmless the Contractor from any and all claims, demands and causes of action of any kind or character arising as a result of reusing the documents developed under this contract. Additionally, any reuse of design drawings or specifications provided under this Contract must be limited to conceptual or preliminary use for adaptation, and the original Contractor's or subcontractor's signature, professional seals and dates removed. Such reuse of drawings and specifications, which require professional seals and dates removed, will be signed, sealed, and dated by the professional who is in direct supervisory control and responsible for adaptation.

Section 10. Notices.

Any notice required pertaining to the subject matter of this Contract shall be either sent via facsimile (FAX) or mailed by prepaid first class registered or certified mail, return receipt requested to the following addresses:

Billings: City Engineer (Debi Meling, PE)  
City of Billings  
Public Works/Engineering  
2224 Montana Avenue  
Billings, Montana 59101 FAX: (406) 237-6291

Contractor: Tim Erickson, PE  
HDR Engineering, Inc.  
970 S 29<sup>th</sup> St W  
Billings, MT 59102 FAX: (406) 652-2758

Notices are effective upon the earlier of receipt, proof of good transmission (facsimiles only), or 5 days after proof of proper posting.

#### Section 11. Contract Budget.

In connection with its performance under this Contract, the Contractor shall not make expenditures other than as provided in line items in the Contract budget.

#### Section 12. Force Majeure.

- A. Any failure to perform by either party due to force majeure shall not be deemed a violation or breach hereof.
- B. As used in this Contract, force majeure is an act or event of substantial magnitude, beyond the control of the delayed party, which delays the completion of this Contract, including without limitation:
  1. Any interruption, suspension or interference resulting solely from the act of Billings or neglect of Billings not otherwise governed by the terms of this Contract.
  2. Strikes or Work stoppages.
  3. Any interruption, suspension or interference with the project caused by acts of God, or acts of a public enemy, wars, blockades, insurrections, riots, arrests or restraints of governments and people, civil disturbances or similar occurrences.
  4. Order of court, administrative agencies or governmental officers other than Billings.

#### Section 13. Financial Management System.

The Contractor shall establish and maintain a financial management system that:

- A. Provides accurate, current, and complete disclosure of all financial transactions relating to the Contract;
- B. Maintains separate accounts by source of funds for all revenues and expenditures and identifies the source and application of funds for the Contractor's performance under this Contract, including information pertaining to subcontracts, obligations, unobligated balances, assets, liabilities, outlays and income;
- C. Effectively controls and accounts for all municipal funds and Contract property;

- D. Compares actual expenditures with budgeted amounts and relates financial information to performance or productivity data including unit cost information where applicable;
- E. Allocates administrative costs to direct service delivery units;
- F. Minimizes the time between receipt of funds from Billings and their disbursement by the Contractor;
- G. Provides accounting records supported by source documentation; and
- H. Provides a systematic method assuring the timely and appropriate resolution of audit findings and recommendations.

Section 14. Funding Requirements.

In the event that any funding source for this Contract should impose additional requirements upon Billings for the use of those funds, the Contractor agrees to abide by those additional requirements immediately upon receipt of written notice thereof from Billings.

Section 15. Subcontracts.

The Contractor may enter into subcontracts for the purchase of goods and services necessary for the performance of this Contract, provided:

- A. Every subcontract shall be reduced to writing and contain a precise description of the services or goods to be provided and the nature of the consideration paid therefor.
- B. Every subcontract under which the Contractor delegates the provision of services shall be subject to review and approval by the Administrator before it is executed by the Contractor.
- C. Every subcontract in an amount exceeding \$1,000 shall require reasonable access to business records of the subcontractor relating to the purchase of goods or services pursuant to the subcontract.

**PART II**  
**GENERAL CONTRACT PROVISIONS**

Section 1. Relationship of Parties.

The Contractor shall perform its obligations hereunder as an independent Contractor of Billings. Billings may administer the Contract and monitor the Contractor's compliance with its obligations hereunder. Billings shall not supervise or direct the Contractor other than as provided in this Section.

Section 2. Nondiscrimination.

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, ancestry, age, sex, or marital status or who is a "qualified individual with a disability" (as that phrase is defined in the Americans With Disabilities Act of 1990). The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, or mental or physical impairment/disability. Such action shall include, without limitation, employment, upgrading, demotion or transfer, recruitment or recruiting advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor agrees to post, in conspicuous places available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.
- B. The Contractor shall state, in all solicitations or advertisements for employees to Work on Contract jobs, that all qualified applicants will receive equal consideration for employment without regard to race, color, religion, national origin, ancestry, age, sex or marital status, or mental or physical impairment/disability.
- C. The Contractor shall comply with any and all reporting requirements that may apply to it which the City of Billings may establish by regulation.
- D. The Contractor shall include the provisions of Subsections A through C of this Section in every subcontract or purchase order under this Contract, so as to be binding upon every such subcontractor or vendor of the Contractor under this Contract.
- E. The Contractor shall comply with all applicable federal, state, and city laws concerning the prohibition of discrimination.
- F. The Contractor and subcontractor shall abide by the requirements of 41 CFR 60-300.5(a) and 41 CFR 60-741.5(a), which prohibit discrimination against qualified protected veterans and/or qualified individuals on the basis of disability, and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans and individuals with disabilities.

Section 3. Permits, Laws, and Taxes.

The Contractor shall acquire and maintain in good standing all permits, licenses and other entitlements necessary to its performance under this Contract. All actions taken by the

Contractor under this Contract shall comply with all applicable statutes, ordinances, rules and regulations. The Contractor shall pay all taxes pertaining to its performance under this Contract.

Section 4. Nonwaiver.

The failure of either party at any time to enforce a provision of this Contract shall in no way constitute a waiver of the provision, nor in any way affect the validity of this Contract or any part hereof, or the right of such party thereafter to enforce each and every provision hereof.

Section 5. Amendment.

- A. This Contract shall only be amended, modified or changed by a writing, executed by authorized representatives of the parties, with the same formality as this Contract was executed.
- B. For the purposes of any amendment modification or change to the terms and conditions of this Contract, the only authorized representatives of the parties are:

Contractor: Tim Erickson, Amanda McInnis, or Authorized Signatory

Billings: City Council or Authorized Designee

- C. Any attempt to amend, modify, or change this Contract by either an unauthorized representative or unauthorized means shall be void.

Section 6. Jurisdiction; Choice of Law.

Any civil action rising from this Contract shall be brought in the District Court for the Thirteenth Judicial District of the State of Montana, Billings. The law of the State of Montana shall govern the rights and obligations of the parties under this Contract.

Section 7. Severability.

Any provision of this Contract decreed invalid by a court of competent jurisdiction shall not invalidate the remaining provisions of the Contract.

Section 8. Integration.

This instrument and all appendices and amendments hereto embody the entire agreement of the parties. There are no promises, terms, conditions or obligations other than those contained herein; and this Contract shall supersede all previous communications, representations or agreements, either oral or written, between the parties hereto.

Section 9. Liability.

The Contractor shall indemnify, defend, save, and hold Billings harmless from any and all claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and

expenses including reasonable attorneys' fees and costs, arising from any wrongful or negligent act, error or omission of the Contractor or any agent, employee or subcontractor as a result of the Contractor's or any subcontractor's performance pursuant to this Contract.

- A. The Contractor shall not indemnify, defend, save and hold Billings harmless from claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and expenses or attorneys' fees and costs arising from wrongful or negligent acts, error or omission solely of Billings occurring during the course of or as a result of the performance of the Contract.
- B. Where claims, lawsuits or liability, including attorneys' fees and costs arise from wrongful or negligent act of both Billings and the Contractor, the Contractor shall indemnify, defend, save, and hold Billings harmless from only that portion of claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and expenses including attorneys' fees and costs, which result from the Contractor's or any subcontractor's wrongful or negligent acts occurring as a result from the Contractor's performance pursuant to this Contract.

#### Section 10. Inspection and Retention of Records.

The Contractor shall, at any time during normal business hours and as often as Billings may deem necessary, make available to Billings, for examination, all of its records with respect to all matters covered by this Contract for a period ending three years after the date the Contractor is to complete performance in accordance with Section 2 of the Special Provisions. Upon request, and within a reasonable time, the Contractor shall submit such other information and reports relating to its activities under this Contract, to Billings, in such form and at such times as Billings may reasonably require. The Contractor shall permit Billings to audit, examine and make copies of such records, and to make audits of all invoices, materials, payrolls, records of personnel, and other data relating to all matters covered by this Contract. Billings may, at its option, permit the Contractor to submit its records to Billings in lieu of the retention requirements of this Section.

#### Section 11. Availability of Funds.

Payments under this Contract may require funds from future appropriations. If sufficient funds are not appropriated for payments required under this Contract, this Contract shall terminate without penalty to Billings; and Billings shall not be obligated to make payments under this Contract beyond those which have previously been appropriated.

IN WITNESS WHEREOF, the parties have executed this Contract on the date and at the place shown below.

City of Billings

Contractor

\_\_\_\_\_  
City Council or Designee

\_\_\_\_\_

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

ATTEST:

IRS Tax ID # \_\_\_\_\_

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

Date: \_\_\_\_\_

By \_\_\_\_\_

BRENT BROOKS, City Attorney

STATE OF MONTANA            )  
  :ss.  
COUNTY OF YELLOWSTONE    )

On this \_\_\_\_ day of \_\_\_\_\_, 2016, before me, the undersigned, a Notary Public for the State of Montana, personally appeared \_\_\_\_\_, known to me to be the \_\_\_\_\_ of \_\_\_\_\_, and acknowledged to me that they executed the foregoing instrument on behalf of said corporation having first been authorized to do so.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year first above written.

\_\_\_\_\_  
Notary Public for the State of Montana  
Residing at Billings, Montana  
My Commission Expires: \_\_\_\_\_

**Note: Final contract documents will require the Contractor's signature to be notarized.**

## Appendix A

### Basic Services of Engineer

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#### Section 1. Engineer's Rights and Duties.

- A. To furnish all labor, materials, equipment, supplies, and incidentals necessary to conduct and complete the Engineer's portion of the project as defined in the scope of work and to prepare and deliver to Billings all plans, specifications, bid documents, and other material as designated herein.
- B. Ascertain such information as may have a bearing on the work from local units of government, utility companies, and private organizations and shall be authorized to procure information from other authorities besides Billings, but shall keep Billings advised as to the extent of these contacts and the results thereof.
- C. Prepare and present such information as may be pertinent and necessary in order for Billings to pass critical judgment on the features of the work. The Engineer shall make changes, amendments or revisions in the detail of the work as may be required by Billings. When alternates are being considered, Billings shall have the right of selection.
- D. Engineer's work shall be in accordance with the standards of sound engineering and present City, State, and National standards and policies currently in use.
- E. Conform to the requirements of the Montana Code Annotated Title 18 "Public Contracts" and more particularly Sections 18-2-121 and 18-2-122, and all other codes of the State of Montana applicable to providing professional services including codes and standards nationally recognized.
- F. The Engineer shall certify with the submission of final plans that the plans are in conformance with applicable sections of Title 69, Chapter 4, Part 5, of the Montana Code Annotated as pertaining to existing utilities.
- G. To perform professional services in connection with the project and will serve as Billings' representative in those phases of the project to which this agreement applies.
- H. Where Federal funds are involved, the necessary provisions to meet all requirements will be complied with and documents secured and placed in the bidding documents.
- I. Submit an estimated progress schedule as to time and costs at the beginning of the work, and monthly progress reports thereafter until complete. The reports will include any problems, potential problems, and delays as foreseen by the Engineer. Reports will be submitted in a timely manner to permit prompt resolution of problems.
- J. Contract administration duties will include review of contractor certified payrolls for wage rate compliance. Discrepancies in certified payrolls will be resolved with the

Contractor. A signed Engineer's Payroll Check Sheet (included in the Standard Modifications to MPWSS) will be submitted as proof of this review with one copy of each payroll.

- K. Name a Task Director who shall be the liaison between Billings and the Engineer. For this project the Task Director designated for the Engineer is Tim Erickson, PE working under the Principal-in-Charge, Amanda McInnis, PE.

## Section 2. Billings Rights and Duties.

- A. To furnish all labor, materials, equipment, supplies, and incidentals necessary to conduct and complete Billings' portion of the project as designated in the scope of work.
- B. Name a Task Director who shall be the liaison between the Engineer and Billings. For this project, the Task Director designated is Ken Ard, PE.

## Section 3. Scope of Work.

The City of Billings proposes to design a three-lane roadway for Midland Road from Mallowney Lane to South Billings Boulevard. Midland Road is classified by the City as a Minor Arterial and is currently comprised of a single lane in each direction with gravel shoulders, with no curb, gutter or sidewalk. The proposed project will include curb, gutter, sidewalk, multi-use trail, storm drain improvements, street lighting and intersection improvements at Mallowney Lane.

HDR has teamed with Territorial Landworks, Inc. and SK Geotechnical to perform professional services, as shown below, in connection with the WO 17-06 project.

- HDR
  - Overall project management and coordination
  - Public Involvement
  - Traffic analysis
  - Roadway lighting
  - Storm drain design
  - Sanitary sewer design
  - Private utility coordination
  - Roadway design
  - Plan preparation
  - Assistance during bidding
  - Construction Administration
  - As-Built Plans
- Territorial Landworks, Inc.
  - Engineering survey
  - Cadastral survey
  - Construction staking
  - Construction inspection
- SK Geotechnical
  - Subsurface investigations
  - Subgrade improvement
  - Pavement design
  - Infiltration testing
  - Materials testing during construction

## Project Assumptions

The following are assumptions associated with the scope of services for this project:

- Project will be bid in early 2018. Construction planned for summer 2018.
- Intersection improvements are not included at South Billings Boulevard.
- Offsite runoff from adjacent businesses will be evaluated with the storm drain design.
- Drainage design improvements for private businesses adjacent to the roadway are not included.
- Public involvement includes a presentation to City Council and coordination with adjacent business owners. This scope of work does not include general public meetings.
- Project limits are from Mullooney Lane to South Billings Boulevard. Project limits extend approximately 1000 feet along Mullooney Lane south of Midland Road to accommodate additional traffic lanes.
- Street lighting will include galvanized light poles with LED luminaires.
- No right-of-way acquisition is assumed for this project. Development of plats or right-of-way acquisition is not included in this scope of services.
- Drainage infrastructure improvements will meet the City of Billings Stormwater Management Manual, and the local MS4 requirements, as feasible. HDR will document any improvements that do not meet these requirements with the City of Billings throughout design.
- Utility potholes will be provided by TruPipe, as necessary, and ten hours of equipment rates are included in the fee estimate.
- Consultant will assist City with the development of an SID, including maps, quantities of construction and will also document and track SID improvements made during construction.

## TASK SERIES 100

### **101 – Project Management**

As part of this task, the Project Manager will lead coordination of the design team with the City as well as supervise the design team and subconsultants. Project Manager and Accountant will monitor project status, maintain project schedule and prepare monthly invoices with progress reports.

#### Deliverables

- Monthly invoices and progress reports

### **102 – Project Meetings**

HDR will attend the following meetings:

- City and consultant project team kickoff meeting
- 30% Plan Review meeting
- 60% Plan Review meeting
- 90% Plan Review meeting

#### Assumptions

- Two team members will attend each meeting

#### Deliverables

- Meeting minutes

### **103 – Public Outreach and Business Coordination**

HDR will coordinate with business owners adjacent to the roadway regarding project improvements such as approaches and storm drain improvements. HDR will also coordinate with Steve Zeier for TIF District funding and impacts for each business.

Public outreach and business coordination will include the following meetings:

- Presentation to City Council – 30% design
- Single meeting with project team, TIF Board and business owners adjacent to the project to discuss proposed project – prior to construction.
- Single meeting with project team, TIF Board, contractor and adjacent business owners – construction kick-off meeting
- One on one meetings with each business adjacent to the project to discuss existing issues/constraints and project improvements.

#### Assumptions

- This scope of services does not include a general open public meeting.
- City representatives and a representative of the TIF board will be present at the meetings.

#### Deliverables

- Meeting minutes

## **TASK SERIES 200**

### **201 – Survey – Engineering and Cadastral**

Provide survey services for design including engineering topographical survey and cadastral survey to identify existing right-of-way.

#### Assumptions:

- Survey project limits are from Mallowney Lane to South Billings Boulevard, ten feet beyond existing property line, and extend approximately 1000 feet along Mallowney Lane south of Midland Road.
- Partial retracement of adjacent R/W for +/- 34 individual parcels along Midland Road and Mallowney Lane.
- A Certificate of Survey (COS) is not needed for retracing the R/W.

### **202 – Geotechnical Investigations**

Provide geotechnical investigations by SK Geotechnical including:

- Borehole staking
- A total of 11 borings will be performed; 10 along Midland Road, and one boring along Mallowney Lane.
- Pavement and utility geotechnical work – All 11 borings will be used to evaluate subgrade strength and suitability to support the proposed pavement. A geotechnical engineering report will be prepared. Due to inherently poorly drained conditions along the existing roadway, soft soils are anticipated so the report will also address possible digouts or stabilization with geosynthetics.
- Infiltration tests – Six of the borings will be used for borehole infiltration tests extended down to the gravel alluvium and two surface infiltration tests performed in the upper alluvial clays.
  - Borehole infiltration test will be performed by drilling a 6-1/4 inch hollow-stem auger into the gravel alluvium and about 1-2 feet below groundwater. A 4-inch PVC pipe will then be set inside the auger and run the infiltration

- test using the constant-head method described in the “Borehole Injection Test” method of the Billings Stormwater Management Manual.
- Constant-head infiltration rates will generally be evaluated with the water level inside the pipe at a depth of about 9-10 feet and then at about 5 feet below the existing ground surface.
- After the infiltration rates have been tested, the 4-inch PVC pipe will be removed and the boring extended to a depth of about 20 feet so a monitoring well can be constructed. Then 10 feet of 2- inch PVC screen with riser to the ground surface is proposed to be installed. Sand backfill will be used around the screen to 2 feet above the screen, then a 2-foot bentonite crumble seal provided followed by cuttings to about 2 feet below the ground surface. Sackrete will then be used as backfill to set a flush-mounted manhole cover over the top of the monitoring well.
- Surface infiltration tests will be included to evaluate infiltration rates in the upper alluvial clays. Double-ring infiltrometer tests will be used in accordance with ASTM D 3385 test method.
- Limited Geologic and Hydrogeologic Evaluation as it relates to stormwater infiltration for proposed hydraulic design features.

Assumptions:

- Gravel alluvium is typically anticipated at a depth of 10-12 feet along Midland Road, and groundwater is anticipated 1-2 feet below the top of the gravel.
- 12 trips are included to obtain groundwater measurements and report the results.
- Rental of a backhoe from a nearby rental company to excavate shallow test holes to set the double-ring infiltrometer is required for the surface infiltration tests.
- Each surface infiltration test will take approximately one day to complete, each.

## **TASK SERIES 300 – PRELIMINARY DESIGN**

### **301 – Traffic Study**

Develop a traffic study report of the proposed roadway to include existing traffic counts and projected traffic for the design year 2038. Traffic study to include traffic projections for the intersection with Mallowney Lane.

Assumptions:

- City of Billings to provide HDR current traffic counts along Midland Road as well as intersection counts, including turning movements, for Mallowney Lane intersection.

Deliverables:

- Traffic Study Report

### **302 – Intersection Analysis**

Develop preliminary intersection improvement alternatives at Mallowney Lane based on the traffic study and coordination with City staff.

Assumptions:

- Up to three intersection improvement options will be developed during this task.
- Improvements will be limited to geometric and lane use improvements. Analysis does not include a roundabout, new signal, or completely re-configured intersection.
- LOS C is desired, and will be considered for the analysis of the intersection.

Deliverables:

- Exhibits of intersection improvement alternatives to be included in the Traffic Study Report as part of Task 301.

### **303 – Drainage Study and Report**

HDR will prepare a Preliminary Drainage Report documenting the existing and proposed drainage patterns within the project limits and summarize the analyses.

#### 303.1 Project Site Visit

Two (2) staff members from HDR will visit the project site to photo-document existing conditions and to become familiar with the drainage patterns within the project area. Field notes will be completed for the project file and provided to the City.

#### 303.2 Existing Drainage Patterns Analysis

HDR will review the existing topography mapping, culverts, off-site drainage facilities, and storm drain facilities within the project area. The existing drainage patterns and facilities will be described in the drainage report accompanied by an existing conditions basin map.

#### 303.3 Existing Hydrologic Analysis

HDR will calculate the existing 10-year and 100-year peak flows for the drainage basins within the project area. The Rational Method will be used assuming the drainage basins are smaller than 200 acres. The peak flows will be documented in the Drainage Report.

#### 303.4 Proposed Drainage Patterns Analysis & Preliminary Design

HDR will design a drainage system with roadside drainage facilities that treat the first 0.5 inches of runoff for the water quality event per Section 4.5 in the City of Billings Stormwater Management Manual. Peak flow rates and volumes will be designed to enter roadside swales be metered and ultimately stored within a detention facility (either within the ground via a subsurface infiltration structure, roadway right-of-way or a City owned property). HDR will prepare a preliminary design for curb cuts/openings storm drain system to capture roadway runoff and evaluate gutter spread for the 10-year and 100-year storm events. The Rational Method will be used to calculate peak flows for gutter spread and storm drain hydraulic analyses.

HDR will design an extension of the existing 48-inch storm drain from west of Maggie Lane to Mallowney Lane (Approximately 4300 feet). Based on storm drain plans from 2003, the existing pipe is installed at a grade of 0.0008 ft/ft. It is anticipated that this grade will be perpetuated for the length of the extension.

The proposed drainage patterns and facilities will be described in the preliminary drainage report accompanied by a proposed conditions basin map based on the preliminary drainage design.

#### Assumptions

- The design will be in conformance with the City of Billings Stormwater Management Manual
- The existing subsurface soils will accommodate an infiltration system that will accept the 10-year and 100-year peak flows and volumes generated from the project area
- The 48-inch storm drain in Midland Road will be extended to Mallowney Lane using the existing pipe size and downstream pipe slope.
- Detention pond design is not included with this scope of services

- The Bentley StormCAD or Bentley InRoads Storm & Sanitary model will be created to evaluate gutter spread and storm sewer pipe hydraulics
- Bentley CivilStorm model, HEC-HMS, or spreadsheets will be used to evaluate and design the infiltration system detention system
- Data input and results will be documented and included as part of the Drainage Report.

### 303.5 Preliminary Drainage Report

HDR will prepare a Preliminary Drainage Report for submittal to the City. The report will include a summary of approach and results for:

- Hydrology calculations (PDF)
- Hydraulic calculations (PDF)

#### Deliverables

- Preliminary Drainage Report for review and comment (PDF)

### 303.6 Preliminary Drainage Report Quality Control Review

HDR will have an independent technical review performed for the Preliminary Drainage Report. The reviewer will check the basin delineations, hydrologic, and hydraulic calculations, the report narrative, and figures.

## **304 – Roadway Lighting Analysis**

Analyze street lighting levels and determine light pole spacing based on analysis of LED luminaires to meet current design standards.

#### Assumptions:

- Light poles will be galvanized. 40-ft tall poles, with 15-ft arms will be used to analyze the street lighting with LED luminaires.

#### Deliverables:

- Memo of lighting analysis, including total number of poles, spacing and wattage to assist the City in setting up a SLIMD or include the lighting as part of the TIF District assessment.

## **305 – 30% Design Plans**

Prepare preliminary design plans for the proposed roadway. Prepare preliminary construction cost estimate. Included with the design development are quantity breakout and maps for SID development.

Include the following in the plans:

- Horizontal and vertical alignment of proposed roadway
- Roadway typical sections including the proposed pavement design
- Proposed approaches for business access
- Preferred intersection improvements at Mullowney Lane
- Roadside Swale improvements (9 plan and profile, 4 drainage details)
- Storm Drain plan and profile sheets (6 plan and profile, 1 storm drain summary)
- Street lighting pole layout including electrical detail sheets, one-lines, wiring connection details, detail drawings, conduit schedule, pole schedule, and electrical quantities.
- Sanitary Sewer improvements on the west end of the project
- Preliminary street light layout
- Curb, Gutter, Sidewalk and Multi-Use Path layout

- Existing right-of-way limits

Assumptions:

- No water main or service improvements are included in this project.
- Utility relocations will be handled by others.
- Profiles for approaches will not be developed for 30% design.
- Cross sections will not be developed at 30%
- Construction cost estimate will be based on preliminary quantities and will include a 20% contingency.
- Project specifications will not be developed for 30% design.

Deliverables:

- Preliminary design plans and construction cost estimate.

### **306 – 60% Design Plans**

Incorporate comments and design revisions from 30% design to develop 60% design plans, specs and estimate.

Assumptions:

- No water main or service improvements are included in this project.
- Utility relocations will be handled by others.
- Construction cost estimate will be based on preliminary quantities and will include a 15% contingency.

Deliverables:

- 60% design plans, specs and construction cost estimate.

## **TASK SERIES 400 – FINAL DESIGN**

### **401 – Drainage Design Updates**

Update drainage design to incorporate comments/changes from 60% design, as well as from continued coordination with adjacent business owners. Prepare final drainage report.

Deliverables:

- Final Drainage Report

### **402 – 90% Design Plans**

Incorporate comments and design revisions from 60% design to develop 90% design plans, specs and estimate. Included with the design development are quantity breakout and maps for SID development.

Assumptions:

- No water main or service improvements are included in this project.
- Utility relocations will be handled by others.
- Construction cost estimate will be based on preliminary quantities and will include a 10% contingency.
- Recent bid tabs will be provided by the City to establish unit costs.

Deliverables:

- 90% design plans, specs and construction cost estimate.

### **403 – 100% Design Plans**

Incorporate comments and design revisions from 90% design to develop 100% design plans, specs and estimate.

Assumptions:

- No water main or service improvements are included in this project.
- Utility relocations will be handled by others.
- Construction cost estimate will be based on preliminary quantities and will include a 5% contingency.
- Recent bid tabs will be provided by the City to establish unit costs.

Deliverables:

- 100% design plans, specs and construction cost estimate.

## **TASK SERIES 500 – BID PHASE**

### **501 – Bidding Administrative Assistance**

Prepare bid documents and distribute to prospective bidders. Answer bidder questions and prepare addendum as needed. Schedule and conduct pre-bid meeting.

Assumptions:

- Two team members will attend pre-bid meeting.

Deliverables:

- Pre-bid Meeting Minutes.

### **502 – Post-Bid Administrative Assistance**

Attend bid opening. Receive, evaluate and tabulate bids. Assess completeness of bid. Make recommendations to the City on award of contract. Issue Notice of Award.

Assumptions:

- Two team members will attend bid opening.

Deliverables:

- Notice of Award.

## **TASK SERIES 600 – CONSTRUCTION ADMINISTRATION**

### **601 – Construction Initiation Services**

After award of the construction contract, the Consultant will prepare Contracts and Conformed Documents and conduct a preconstruction conference and prepare minutes summarizing the conference. The consultant will provide the contractor up to ten hard copies of the plans and electronic/CADD files for construction, if requested.

### **602 – Office Assistance and Administration**

During the construction phase of the project, the Consultant will provide office assistance to the City on the administration of the project. This effort will include review and preparation of change orders, interpretation of drawings and specifications including answering requests for information (RFI), monitoring of compliance with procedure requirements on the project, coordinating with the contractor, evaluation of pay estimates, review for compliance of certified pay-rolls, and conducting weekly (or as needed) construction meetings.

### **603 – Field Services**

The Consultant will provide full-time on-site construction administration/inspection services and construction staking.

The consultant will provide weekly inspection reports and provide immediate notifications if issues arise during construction.

The consultant will provide material testing to complete City of Billings Quality Assurance testing. All material and density testing will be in conformance with City of Billings testing specifications and Standard Mods for street and storm utility construction and in conformance with the approved plans and specifications. Inspections will be documented and included in final close-out documents for project. Pavement subgrade observations will be made, especially in those areas where soft subgrades are encountered. This work includes 23 trips for compaction testing, 13 trips for concrete testing and six trips for asphalt testing and associated laboratory testing.

Full-time on-site construction administration assumes a 150 calendar day construction schedule. Services include project documentation including daily diaries and photographs in conformance with City of Billings and industry standards; coordinate and manage materials testing firm; Check that materials are documented and meet project specifications; Identify non-compliant work in a timely manner for correction; Document and track project quantities, including SID documentation; Verify quality and content of work complies with contract documents; Review project documents to be accurate and current; Document and report field conditions to the City; Coordinate daily with City; Establish progress report schedule.

### **604 – Construction Wrap-Up and Acceptance**

Upon completion of the construction of the improvements, the Consultant will schedule and hold a final project walk-through and assist the City in the final wrap-up of the project, preparation of a punch list, preparation of Certificate of Substantial Completion, information review and recommendation of final acceptance.

### **605 – As-Built Plans**

Develop As-Built plans based on mark-ups from field services.

As-builts to be submitted includes:

- 2 – Half size (to scale) hard copy plan sets
- 2 – Electronic (CD or USB)
  - Full size PDF (to scale)
  - Half size PDF (to scale)
  - CADD files (AutoCAD format)

## Appendix B

### Methods and Times of Payment

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#### Section 1. Payments for Basic Services.

Billings shall authorize payment to the Engineer for services performed under Appendix A of this Agreement. Partial payment shall be due the Engineer upon receipt of the Engineer's pay estimate, said estimate being proportioned to the work completed by the Engineer.

Partial payment shall be made to the Engineer upon receipt of the Engineer's pay estimate, said estimate being proportioned to the work completed by the Engineer. Billings shall deduct five percent (5%) from each monthly pay estimate to be held until the completion of the final scope of work. The final payment shall be made only after acceptance of final documents by Billings, and determination that the scope of work has been satisfactorily completed.

A. For services rendered prior to construction, Appendix A, the Engineer shall be paid based upon actual time accrued, but not to exceed the following amounts:

1. Project Management, Project Meetings and Public Outreach	\$45,864
2. Survey and Geotechnical Investigation	\$94,056
3. Preliminary Design	\$120,398
4. Final Design	\$81,309
5. Bid Phase	\$9,200
6. Construction Administration	\$356,134

B. Final payment shall be the above stated basic fee less all previous payments.

#### Section 2. Payments for Extra Services when Authorized by Billings.

Requests made or conditions identified by interested groups at the agency or public meetings, which are beyond the scope and intent of this study shall be paid for based on a negotiated fee.

#### Section 3. Corrections.

Costs of Billings work that is required for corrections to the Engineer's work which requires redoing by Billings shall be deducted from any payments due the Engineer, if the Engineer fails to make the required corrections.

#### Section 4. Fee Increases

For contracts and services that are expected to require more than one (1) year to complete, the above stated basic services payments may be reviewed and adjusted

annually by mutual agreement of the parties, based upon documented evidence that the Engineer's costs have increased for all comparable clients.

## **Appendix C**

### **Additional Services of Engineer**

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Extra Services of the Engineer will be paid only with written prior authorization by Billings.

- A. Requests made or conditions identified which are beyond the scope and intent of the services identified under Appendix A.

## **Appendix D**

### **Schedule of Professional Fees**

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Not used on this Contract.

## **Appendix E**

### **Project Schedule**

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Based on a notice to proceed by Billings date no later than January 3, 2017, the completion date for the Engineer's work through final design shall be:

- A. Design
  - 1. 30% Design and Design Reports Complete – June 2017
  - 2. 60% Design Complete – September 2017
  - 3. 90% Design Complete – November 2017
  - 4. Final Design Complete – December 2017
- B. Bid – January 2018
- C. Award – February 2018
- D. Construction Substantial Completion – September 2018

Delays affecting the completion of the work within the time specified of more than ninety (90) days, not attributable to or caused by the Parties hereto, may be considered as cause for the renegotiation or termination of this Contract.

If the Engineer is behind on this Contract due to no fault of Billings, then the Engineer hereby acknowledges the right of Billings to withhold future Contracts to the Engineer in addition to any other remedy until this Contract is brought back on schedule or otherwise resolved.

## **Appendix F**

### **Certificate(s) of Insurance**

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(Attach Certificate(s) of Insurance)