

# Contract for Professional Engineering Services

## Project Work Order 17-07, Hilltop Road Storm Drain Extension

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In consideration of the mutual promises herein, City of Billings and Kadrmas, Lee & Jackson, Inc. agree as follows. This Contract consists of:

Part I, consisting of 6 Sections of Special Provisions;

Part II, consisting of 4 Sections of General Provisions;

Appendix A consisting of 14 pages (Basic Services of Engineer);

Appendix B consisting of 1 pages (Methods and Times of Payment);

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

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" and/or "Engineer" means Kadrmas, Lee & Jackson, 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 the Schedule of Professional Fees attached as Appendix D and incorporated herein by reference for services actually performed under this Contract.
- 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.

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. 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.
- B. The Contractor is not entitled to any compensation under this Contract, other than is expressly provided for in this Section.
- C. 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 occurrence.
- 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 mailed by prepaid first class registered or certified mail, return receipt requested to the following addresses:

Billings:           City Engineer (Debi Meling)  
                          City of Billings  
                          Public Works - Engineering  
                          2224 Montana Avenue  
                          Billings, Montana 59101

Contractor: Carl Jackson  
Kadrmass, Lee & Jackson Inc.  
2611 Gabel Road  
Billings, MT 59102

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.

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: Director or Authorized Designee

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 \_\_\_\_\_, 20\_\_\_\_, 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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#### 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. 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 Carl Jackson, PE.

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 Tyler Westrope, P.E.

Scope of Work.

**I. DESCRIPTION**

Hilltop Road Storm Drain Extension (project) will extend new storm drain facilities in Hilltop Road from Shamrock Lane to (or part way to) Bazaar Exchange and in Aronson Avenue from Nutter Boulevard to (or part way to) Stewart Court. In summary, Engineer's services will include survey, geotechnical investigation, public involvement, preliminary design, final design, bidding services and construction administration.

The following list summarizes the general objective of this scope of work.

- The project will include storm drain extensions with new storm drain manholes and inlets necessary to reduce current flooding in the project area. For this scope, it is assumed that all pipe installation will be by standard open trench installation practices. However trenchless technologies as discussed in the scope will be evaluated for feasibility. If a trenchless technology proves to be more cost effective, a supplemental scope and fee estimate for additional related services will be provided for Billings' consideration.
- It is assumed that all improvements will be within public right-of-ways (ROW). Securing easements or permission to work outside of right-of-ways is not included in Engineer's scope. There may be some minor exceptions to limiting the survey to the right-of-way, where new storm drain stub-outs are provided into adjacent developments strictly for the benefit of the properties that are impacted by construction of the stub-outs.
- No road reconstruction or utility rehabilitation is included in the project scope other than that which is necessary for and a part of the new storm drain extensions.

**II. SERVICES TO BE PERFORMED**

**100 PROJECT MANAGEMENT**

Engineer will provide all project management necessary to complete Engineer's services. This includes developing a project work plan, leading the project team, assuring coherence with project objectives, specifying tasks and resources, tracking budgets and timelines and communicating with Billings. The project manager will handle day to day activities and coordination for all actions throughout the duration of the project. The project manager will also assure quality control procedures are on-going throughout the project.

The project manager will be the liaison between external parties and the Engineer team. The project manager will notify the client of any issues, problems, or concerns regarding the project.

If any items arise during the duration of the project that are outside this scope of work, the project manager will address them with Billings. Ultimately, the project manager is accountable for delivering a successful project.

The Engineer will provide the following project management tasks:

**101 Work Plan**

Prepare a work plan to establish communication protocol, means to control scope of work, track schedules and budget, assign engineering team roles, assure quality and manage project production.

**102 Kick-off Meeting and Project Schedule**

Conduct an internal kick-off meeting to review work tasks and establish schedule milestones. At the kick-off meeting the approach for completing work, schedule and team responsibilities will be refined. Following the kick-off meeting, the schedule will be modified to include milestone dates for the major work items. The schedule will be reviewed and adjusted as necessary to incorporate changes in the work concept and progress to-date.

**103 Project Coordination**

Project coordination will include communication with City staff, Engineer project staff, utility owners, and other stakeholders.

**104 Schedule and Budget Monitoring / Progress Reports**

Manage the timeline and budget, and prepare invoices and progress reports according to City requirements.

**105 Unscheduled Meetings**

Attend periodic unscheduled meetings with Billings or other stakeholders. Provide meeting documentation. Six (6) unscheduled meetings are included in Engineer's fee.

**106 Milestone Field Reviews**

Conduct two (2) milestone field reviews with representatives from Billings. Tentatively, the first meeting will be following completion of 50% design; the second, following completion of 90% design and prior to bidding. Minutes will be provided for both meetings.

**200 PUBLIC INVOLVEMENT**

Billings will coordinate with news media as needed, develop a landowner mailing list, arrange and facilitate all public meetings, coordinate with City Council and provide all inter department coordination as needed.

**201 Landowner Coordination Meetings**

The Engineer will field calls from property owners. Upon request by Billings, Engineer will meet with individual landowners to discuss any proposed improvements that could impact adjacent properties or require property owner coordination. Engineer will provide exhibits

and preliminary drawings to assist with the discussion as needed. A record of conversation will be completed for each meeting. Four (4) individual landowner meetings are included in Engineer's fee.

### **202 Neighborhood Meetings**

Billings will administer and Engineer will attend and assist in two (2) neighborhood meetings. Meetings will primarily be informative to the public. Engineer will provide exhibits for meetings. Exhibits will show general project scope and will be on display boards or PowerPoint according to the City's discretion. Preparation of 3-D renderings or similar artistic graphical displays is not included. Billings will send neighborhood notifications for meeting.

## **300 PRELIMINARY ENGINEERING (10%)**

Preliminary engineering tasks are focused on investigation and analysis necessary to secure input from Billings' engineering staff and concurrence on the project direction prior to investing a large effort on design tasks that could be influenced by initial decisions. This will include the following tasks:

### **301 Gathering Background Information**

Collect and evaluate all record information relative to the project from public records. Information will include record drawings from previous projects in the area, construction documentation relating to rock depths and excavation, any existing geotechnical reports in the area, record utility drawings, right-of-way maps and/or record plats, previous design reports and studies.

### **302 Preliminary Geotechnical Review**

Assess Terracon's existing GIS data for previous soil borings and studies completed in the project area. Review previous geophysical investigations related to depth and rip-ability of the bedrock in the area. Assess the existing data for feasibility of alternative methods of construction, including open trench excavation, micro tunneling and directional boring. Identify where additional information is needed to make final determinations related to these alternative construction approaches.

### **303 Evaluating Previous Drainage Studies**

Evaluate and confirm conclusions from previous drainage studies. This includes confirmation of watershed delineations, hydrology and hydraulic analysis, recommended pipe sizing and pipe routes.

### **304 Prepare a Preliminary Opinion of Cost**

Prepare a preliminary opinion of cost. This will be cursory in nature, based on broad assumptions related to bedrock, utility conflicts and other factors that will not be confirmed until design. The opinion of cost will be based on the assumption that the project will be constructed via typical open trench pipe installation methods. The feasibility and potential to save costs using trenchless pipe installation methods will be explored more during

design. The opinion of cost will be used to determine if an alternative project approach or construction phasing is necessary to keep the project within budget.

### **305 Technical Memorandum**

Prepare a technical memorandum to the City summarizing findings and recommendations from preliminary engineering tasks. Memorandum will summarize the assessment of past studies and preliminary assessment of rock from Terracon's GIS system. Memorandum will be accompanied by a preliminary map showing locations of proposed pipe alignments to be surveyed, proposed locations for additional soil borings and proposed connection locations for extending storm drain service to neighboring lots/developments.

### **306 Private Utility Coordination**

Submit notifications to utility companies regarding project and initiate discussions about utilities that may be in conflict with proposed improvements.

## **400 ENVIRONMENTAL DOCUMENTATION AND PERMITTING**

Environmental documentation and permitting is not anticipated, and related services are not included in this scope of work. If required, these services would be considered extra work and would be negotiated at a later date.

## **500 DESIGN ENGINEERING (50%)**

Fifty-percent Design Engineering includes topographic surveying, geotechnical investigation and preparation of construction drawings to a level of completeness that allows for verification of assumptions and recommendations from the Preliminary Engineering phase. The intent of this milestone is to finalize unanswered questions and identify significant changes required by Billings prior to proceeding with 90% design tasks that could substantially change as a result of 50% design review.

Project decisions identified during Preliminary Design that require written direction from Billings will be finalized prior to commencing with the related tasks below. If Billings subsequent direction requires services that Engineer determines is beyond the scope of work defined below, a contract supplement will be negotiated and approved before proceeding.

### **501 Topographic Survey**

Complete preliminary ground survey within project limits to include site contours, existing surface features, aboveground utilities and horizontal location of underground utilities as located by utility companies. Topographic survey will generally be bound within the public right-of-way along the pipe routes and extents determined from Preliminary Design. The survey will also include the intersection of Governors Boulevard and Aronson Avenue, Bazaar Exchange from Nubias Place to Hilltop Road and the short cul-de-sac road off of Hilltop between Bazaar and Aronson.

The topographic survey will be completed by conventional survey methods. Primary control points will be established as Montana NAD83 (2002) OPUS corrected State

Plane Coordinates or City of Billings Coordinates Datum if available. Prior to beginning topographic data collection, a level network will be run through all control points and tied to the published City of Billings Vertical Datum. An ongoing QC-QA process during the survey will assure all data and pertinent features are included on the topographic base map.

ROW limits shown on the topographic survey will be based on record plats and Certificate of Surveys in the area. These will be oriented to the survey from ties to existing survey monuments within the project limits. The ROW will be surveyed to an accuracy necessary for establishing construction limits. This does not include a record boundary level survey and will not tie all survey monuments along the project right-of-way lines.

After preparation of preliminary plan and profiles for the new storm drain pipes, potential conflicts with existing utilities will be identified. Pothole verification of utility elevations will be conducted at locations of potential conflicts that are believed to be critical to the design, project cost or construction schedule. A total of 40 pothole verifications is provided in this scope and fee. The assumed average pothole dimension is 2-feet square by 4-feet deep. Potholes will be backfilled with compacted material and pavement will be patched with cold mix. Final pavement patching with hot mix asphalt will be part of the construction contractor's responsibility. It is assumed that all potholing will be completed in one mobilization of the Engineer's subcontractor. Additional mobilizations or additional time and materials required due to pothole dimensions exceeding these assumptions will be considered as Additional Services.

## **502 Geotechnical Analysis**

Complete geotechnical field investigation and analysis including the following general items:

- Soil borings and profiles along the proposed pipe alignments to the target depths listed below or 5 feet beyond auger refusal from a truck mounted drill rig, whichever comes first:
  - 10 borings to a depth of 10 feet
  - 4 borings to a depth of 20 feet
  - 1 boring to a depth of 30 feet.
- Collect and analyze boring samples and provide visual classification, to classify soils throughout borings per the Unified Soil Classification System.
- Provide two CBR tests and one standard proctor test on a composite bulk sample.
- Provide a corrosion potential test on a select composite sample.

Provide a Geotechnical Engineering Report including the following general items:

- Boring logs with field and laboratory tests data
- Soil/rock stratification based on visual classification
- Groundwater observations during drilling
- Description of subsurface conditions
- Subgrade preparation/earthwork recommendations, including the suitability of excavations within bedrock materials;

- General assessment of the rippability of in-situ bedrock based on unconfined compression tests and visual classification.
- General discussion of the suitability of construction methods, including open trench, horizontal directional drilling (HDD), and micro tunneling;
- Trench construction recommendations;
- Lateral earth pressure recommendations for open trench construction;
- Corrosion potential of buried metals;
- Potential for degradation of buried concrete; and
- Recommended pavement options and design parameters.

### **503 Evaluation of Construction Methods**

The cost and benefits of open trench pipe installation vs. trenchless installation such as HDD or micro tunneling will be evaluated from a cost/benefit perspective. Factors to consider will include the cost of alternate methods, the schedules of specialized contractors that are capable of the trenchless technologies being considered, and uncertainties associated with alternative construction methods. Engineer will also evaluate alternative methods of tying into existing deep manhole at Hilltop and Shamrock. A memorandum summarizing probable costs, schedules and recommendations will be provided to Billings for consideration.

### **504 Preliminary Plan and Profile**

Preliminary plan and profile drawings will be prepared for the storm drain pipe extensions along the routes and extents determined from the Preliminary Engineering phase. Pipe sizes will be based on Billings' acceptance of Preliminary Engineering recommendations and Engineer's evaluation of previous drainage studies. Profiles will be designed to minimize construction cost by balancing construction methods with bedrock conditions, impacts to utilities and surface restoration costs. Geotechnical borings and bedrock depths will be shown in the plan and profiles and will be linked to the Geotechnical Report for reference.

### **505 Hydraulic Design**

Hydraulic analysis and design will only be provided to investigate street flow depths, spread width, inlet spacing/sizing and sizing of pipe laterals. If needed to satisfy inlet capture requirements, alternatives to Billings' standard inlet sizes/designs will be evaluated. The main stormwater trunk main sizing will be based on recommendation and confirmation from past drainage studies as provided in the Preliminary Engineering phase. A brief stormwater report will be prepared summarizing this analysis.

### **506 Preliminary Opinion of Cost**

The preliminary opinion of cost will be updated to reflect the 50% design documents.

### **507 Preliminary Design Submittal**

Submit 50% design documents to Billings for review, including preliminary plan and profile drawings, updated opinion of cost, geotechnical report, survey base drawing and a hydraulics design report. The submittal will also be accompanied with recommendations if needed for alternative solutions to keep project construction within budget.

## **600 DESIGN ENGINEERING (90%)**

It is anticipated that most of the 90% design tasks will not commence until the 50% field review meeting is complete, and Billings concurs with the project direction from the 50% review. However, there are some parts of the project manual and construction drawings that are not anticipated to be significantly influenced by major design decisions. Work on those portions of the 90% design engineering documents may commence at any time during the project to keep the project on schedule.

### **601 Private Utility Coordination**

Based on 50% design engineering documents, Engineer will coordinate private utility relocations with utility owners, and provide drawings and exhibits as necessary to show location of proposed improvements. This task includes facilitating one (1) utility coordination meeting to provide technical data and project requirements to utility companies.

### **602 Detail Drawings**

Modify the plan and profiles if needed based on 50% review comments from Billings and create a full complete set of detailed construction drawings.

### **603 Project Manual**

Prepare a draft project manual for bidding and construction purposes, containing all technical specifications needed for the project and all bidding and construction contract documents.

### **604 Construction Traffic Control**

General contract requirements for construction traffic control will be specified in the special provisions of the project manual. This will include allowable detour routes, closure allowances, notification requirements and other administrative requirements. A detailed construction traffic control plan will be required of the construction contractor and is not part of this scope.

### **605 Quantities and Opinion of Cost**

Update quantity take-offs and opinion of probable construction cost.

### **606 Quality Assurance Review**

Conduct internal quality assurance review according to Engineer quality assurance and quality control procedures.

### **607 Construction Documents Submittal (90% Completion)**

Submit construction drawings, project manual, and opinion of probable cost to Billings for review and comment.

## **700 100% DESIGN AND BIDDING**

### **701 Final Drawings, Specifications, and Project Manual Revisions**

Address comments from Billings review of 90% design engineering documents. Prepare and seal final bid documents.

### **702 Final Quantities and Opinion of Construction Cost**

Prior to bidding, update the opinion of probable construction cost to reflect any modifications from Billings final review.

### **703 Bid Administration**

Assemble 20 sets of bid documents for distribution and coordinate with Billings and other entities required for advertisement and bidding. Respond to potential bidder questions, maintain a plan holders list, and assemble and distribute addenda as appropriate to clarify the contract documents. Prepare an agenda, facilitate the pre-bid meeting and respond to questions as needed. Attend the bid opening to be conducted by Billings. Review the bids received, prepare a bid tabulation, and prepare a Notice of Award recommendation to Billings.

### **704 Execution of Contract Documents**

Upon dissemination of the Notice of Award assemble, distribute, and coordinate execution of the contract documents.

### **705 Issue Conformed Drawings and Project Manual**

Produce the appropriate number of conformed drawings and project manual copies requested by the City and construction contractor.

## **800 RIGHT-OF-WAY**

Right-of-way acquisition services are not included in this scope of work. This includes all survey, title work, appraisals, exhibits, legal descriptions and other acquisition services. If required, these services would be considered extra work and would be negotiated at a later date.

## **900 CONSTRUCTION PHASE SERVICES**

### **901 Preconstruction Conference**

Schedule and facilitate a preconstruction conference to coordinate and schedule with the construction contractor and answer project questions. Prepare meeting minutes.

### **902 Notice to Proceed**

Prepare and process Notice to Proceed. Issuance will be upon Billings' approval.

### **903 Construction Survey**

Provide construction staking outlined below, the scope of which is based on several assumptions about the final project design. If it is determined following design that more

staking services will be required than those specified below, a supplemental estimate will be prepared for additional staking services.

- Horizontal and vertical control – verify and reestablish horizontal and vertical coordinates of control required for construction staking. Set new control at a frequency suitable for construction.
- Water and sanitary sewer relocations – one stake at each crossing where a water service, water main or sewer service is to be raised or lowered (fee assumes a total of 40 relocations)
- Storm drain manholes, inlets and storm drain pipes at 50-foot intervals for pipes longer than 200-feet (assume 60 new storm-drain structures and 6,000 lineal feet of new storm-drain pipe)
- Curb and gutter replacements and valley gutters – No stakes are provided for replacement of curb along straight runs. Stakes will be provided to re-construct intersection curb returns removed for storm drain pipe and inlet installation (assume up to 30 new curb returns), as well as new valley gutters.
- No staking is included in this scope for the following:
  - Private utility relocation
  - Pavement re-striping
  - Demolition limits
  - Asphalt patching or blue topping
  - Any other item not specified in this scope

The total number of Engineer's survey crew project site mobilizations included in the tasks above is twenty-five (25). Construction stakes for each item, including establishing horizontal and vertical control, will be provided one time. The Engineer will provide Billings with a periodic status report, and will not exceed the specified number of trips without prior approval by Billings.

Engineer-provided staking services will be identified in the project bidding documents. The construction contractor will be responsible for preserving all stakes throughout construction in accordance with the General Conditions. All other surveys required for construction of the project shall be the responsibility of the construction contractor. Re-staking or additional trips required will be provided as Additional Services. Any re-staking costs will be paid by Billings to the Engineer and then subsequently deducted from the construction contractor's payment.

#### **904 Submittal Review**

Review of product submittals and shop drawings for compliance with plans and specifications. A total of two reviews is provided in the scope for each product. Additional reviews due to construction contractor's failure to add review comments or due

to alternate products submitted following initial submittal will be provided as Additional Services.

**905 Construction Administration**

Provide coordination and administration of project construction activities. Prepare project correspondence, and monthly construction pay estimate forms. Respond to requests for information (RFIs). Evaluate change order requests and provide recommendations to Billings. Facilitate negotiations on change orders if any from either Billings or the construction contractor, and prepare change orders.

**906 Review Progress Schedules**

Review construction progress schedule to identify conformance with project schedule.

**907 Progress Meetings**

Schedule and conduct meetings to discuss project with Billings and construction contractor. Schedule meetings and/or conference calls twice a month or as needed during construction operations. Scope includes up to eight (8) meetings.

**908 Quality Assurance (QA) Testing**

The QA testing frequencies outlined in the City of Billings Standard Modifications to the Montana Public Works Standard Specifications will be modified in the contract documents to be the construction contractor's responsibility under Quality Control (QC) testing requirements. Engineer will collect and evaluate said tests from the construction contractor to monitor progress and compliance with applicable specifications throughout the duration of construction.

Engineer will provide discretionary QA testing to verify construction contractor's QC testing; this scope and associated fee includes up to a maximum of the following QA testing:

- Proctor tests 3 each
- Field density testing 44 hours
- Concrete field tests 20 hours
- Concrete cylinder tests 40 each
- Asphalt properties 2 each
- Asphalt cores 3 each
- Asphalt nuclear densities 4 hours

### **909 Construction Observation**

Provide construction observations as necessary to ensure the construction contractor complies with plans and specifications. This includes full time construction observation for:

- Underground utility work, including lowering of water mains and services, or sewer mains and services
- Installation of new storm drain pipe and storm drain structures
- Placement of concrete or asphalt for surface restoration

Part time observation will be provided during:

- Demolition work
- Forming for concrete work
- Re-placement, grading and compaction of road base
- Clean-up and the other minor construction tasks

Construction observation includes maintaining a diary of construction activities, observations, and material quantities, taking construction photographs, communicating project issues with the construction contractor and project manager and assisting the construction contractor by providing clarifications to design and construction requirements as needed.

It is expected 740 hours of resident project representative (RPR) time will be sufficient to provide necessary construction observation through substantial completion. RPR hours beyond this estimate are Additional Services and would require written authorization prior to proceeding. Construction observation time resulting from construction contractor working outside of normal work hours, as will be defined in the construction contract documents will be paid by Billings to the Engineer and then deducted from the construction contractor's payment.

### **910 Substantial Completion Walkthrough**

Schedule and facilitate a walkthrough with the construction contractor and Billings to review all project components. Prepare a punch list of incomplete or unsatisfactory items to be resolved before final project closeout. Create and issue Certificate of Substantial Completion.

### **911 Final Walkthrough and Project Closeout**

Schedule and facilitate a final walkthrough with the construction contractor and Billings to review the punch list developed during the substantial completion walkthrough to ensure punch list items satisfactorily completed.

### **912 Record Drawings**

Prepare record drawings for the project. Supply Billings with three (3) paper copies (1 full-size, 2 half-size) and 2 CDs with PDF files of the record drawings.

### **913 1-Year Warranty Inspection**

Approximately 11 months after substantial completion, schedule with all parties and be present at a 1-year warranty walkthrough of all project components. Coordinate warranty repairs with the construction contractor.

## **III. DELIVERABLES**

The following deliverables will ultimately be provided by Engineer.

- Meeting minutes and other appropriate documentation
- Meeting display materials
- Preliminary Opinion of Cost at each phase of the design and a final Opinion of Cost prior to bidding
- Technical Memorandum at 10% design
- Geotechnical Report
- Construction Drawings
- Project Manual
- Stormwater Report
- Bidding Phase Addenda
- Bid tabulation and draft Notice of Award with recommendations
- Conformed drawings and specifications
- Staking notes upon request, including cut/fill sheets
- Record drawings
- QC and QA test results
- Copies of construction diaries
- Copies of shop drawings and submittals
- Notice to Proceed
- Change Orders
- Field Orders
- Certificate of Substantial Completion
- Punch lists
- Record Drawings

## **IV. EXCLUSIONS**

This scope of work contains specific information regarding tasks, number of iterations, and deliverables included in the Agreement. Additional services beyond this scope of work are extra and will be addressed as a contract supplement. In addition to those specifically identified in the above tasks, the following list, which is not intended to be exclusive, summarizes services not included in Engineer's scope of work.

- Permit applications

- 3-D/Artistic renderings
- Subsurface Utility Engineering
- Design of stormwater detention or treatment facilities
- Analysis of or designing upgrades for off-site stormwater facilities
- Water and Sanitary sewer system design, other than lowerings that may be incidental to storm drain design
- Archaeology/Cultural/Historic/etc. impacts research, field work, reporting, and mitigation plans
- Preparation of environmental document, including Categorical Exclusion, Environmental Assessment, or Environmental Impact Statement
- Review of construction contractor payrolls

## 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 Basic Services of Engineer as described in Appendix A, Engineer shall be paid based upon actual time accrued, but not to exceed the following amount:

- All services except for those described below           \$318,305
- Subcontractor for potholing utilities (estimate only)   \$20,000
- Total   \$338,305

The subcontractor estimate for potholing services is an estimate only based on assumptions specified in the contract scope. Engineer will be entitled to equitable increase in fee if subcontractor's fee exceeds said estimate.

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 on an hourly basis at the applicable fees in Appendix D.

#### 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 and hourly rates have increased for all comparable clients.



## Appendix C

### Additional Services of Engineer

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

1. Preparation of easement or right-of-way acquisition documents.
2. Boundary surveying or resetting lost or destroyed survey monuments after construction.
3. Staking for re-location of private utilities.
4. Design of facilities beyond the project extents described in Basic Services.
5. Design or construction related services associated with trenchless pipe installation such as horizontal directional drilling or micro tunneling.
6. Hydrology analysis or stormwater planning above that required for the master plan verification described in Basic Services.
7. Construction related services after expiration of the construction contract completion time.
8. Preparation of change orders, which require additional engineering design or construction review.
9. Requests made or conditions identified by interested groups, which are in excess of basic services.
10. Revisions or additions when such revisions or additions are inconsistent with written approvals or instructions previously given by Billings, required by enactment or revisions of codes, laws, or regulations, or are due to other causes not solely within control of the Engineer.
11. As may be requested by Billings, additional design services not included in the original scope of work as outlined in Appendix A.
12. Additional time and/or services resulting from additional requirements imposed by any funding source for use of those funds, as outlined in Part I, Section 14 of this Contract.
13. Preparing to serve or serving as a consultant or witness for Billings in any litigation, arbitration, or other dispute resolution process related to the Project.

## Appendix D

### Schedule of Professional Fees

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Agreements for professional services stipulate that standard hourly rates are subject to review and adjustment annually as of January 1. Anticipated typical hourly rates for services effective January 1, 2016 are below.

CADD Tech I.....	\$85.00
CADD Tech II.....	\$100.00
CADD Tech III.....	\$110.00
Engineer I.....	\$100.00
Engineer II.....	\$110.00
Engineer III.....	\$140.00
Engineer IV.....	\$170.00
Engineering Tech I.....	\$ 95.00
Engineering Tech II.....	\$110.00
Engineering Tech III.....	\$125.00
Environmental Planner I.....	\$90.00
Environmental Planner II.....	\$110.00
Environmental Planner III.....	\$130.00
GIS Analyst I.....	\$80.00
GIS Analyst II.....	\$100.00
GIS Analyst III.....	\$130.00
GIS Analyst IV.....	\$145.00
Government Relations Specialist I.....	\$90.00
Government Relations Specialist II.....	\$120.00
Landscape Architect I.....	\$100.00
Landscape Architect II.....	\$110.00
Landscape Architect III.....	\$130.00
Planner I.....	\$100.00
Planner II.....	\$120.00
Planner III.....	\$140.00
Project Assistant I.....	\$70.00
Project Assistant II.....	\$75.00
Right-of-Way Agent I.....	\$80.00
Right-of-Way Agent II.....	\$115.00
Right-of-Way Agent III.....	\$130.00
Surveyor I.....	\$95.00
Surveyor II.....	\$110.00
Surveyor III.....	\$130.00
Surveyor IV.....	\$165.00

## Appendix E

### Project Schedule

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Based on a written notice to proceed by no later than November 30, 2016, the completion date, including agency reviews, for the Engineer's work through final design shall be:

1. 10% Design Submittal – January 2017
2. 50% Design Submittal – March 2017
3. 90% Design Submittal – April 2017
4. Advertise for Bids – May 2017
5. Award – July 2017
6. Construction – July 2017 – October 2017 (Anticipated)

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**  
**Certificates of Insurance**

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See attached Certificates of Insurance.