

July 21, 2021

Andy Schultz, PE Sent via Email
Utility Project Manager
City of Missoula
1345 West Broadway St
Missoula, MT 59802

Re: East Central Ave and East Sussex Ave Water System Improvements Project

Dear Andy,

As the City of Missoula works towards its goal of replacing aging water mains to achieve increase system reliability, Morrison-Maierle is pleased to assist in the implementation in the process from start to finish for the community in which we live, work and play. We are pleased to present you with this proposal for the university area neighborhoods of East Central Ave. and East Sussex Ave. Water System Improvements Project. It is our understanding that the water system improvement project will connect to an existing 24-inch ductile iron main and will extend east to the 8-inch water main running north-south in Maurice Ave. At this time, we have also assumed that surface restoration will be limited to asphalt trench patch back and reconstruction of sidewalk and landscaping where service line connections occur.

Our scope of services included complete pre-design survey, preliminary design, final design, bidding and construction administration services. For construction services we have anticipated a 75-calendar day project and applied a 4 hour per day commitment for RPR services. The 75-calendar day construction period is based on a water main production rate of +/- 120 linear feet per day, +/- 30 water service line replacements and 4 water main connections.

Please find the attached scope of work, schedule, project vicinity map and fee estimate for your consideration. Upon your review, please feel free to contact us directly at 406.542.4844 or amcconkey@m-m.net or thansen@m-m.net with any questions. We look forward to getting going on this project.

Sincerely,



Aaron McConkey, PE
Project Manager



Trent Hansen, PE
Assistant Project Manager

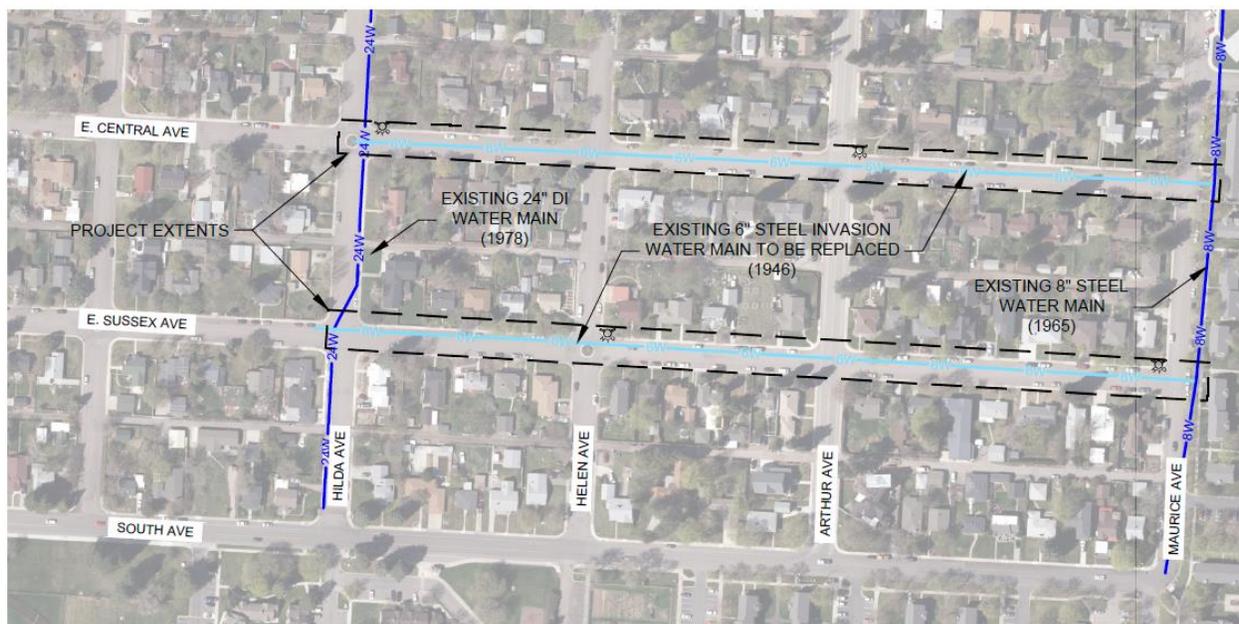
Encl: Scope of Services
 Schedule
 Fee Estimate
 Fig 1: Project Limits

We create solutions that build better communities

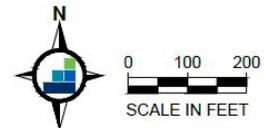
Scope of Services for Central and Sussex Water Main Replacements City of Missoula, MT

MMI # 1657.059.01

Background: The City of Missoula is in the process of providing water system improvements to aging water mains. The existing water main is 6-inch Invasion Steel from 1946. Due to the water main age and potential of additional water main breaks the City of Missoula (OWNER) is seeking engineering services for the preliminary design, final design, bid administration and construction administration of water system improvements that would replace existing water main, fire hydrants and service connections within the below referenced project corridor.



EXISTING FIRE HYDRANT 



Scope: City of Missoula intends to replace the existing 6-inch invasion steel water mains within East Central Ave and East Sussex Ave as shown above. New fire hydrants will be replaced in addition to new service lines from the main to a new curb stop located behind existing sidewalks. The ENGINEER shall perform work as outlined within this Exhibit A that includes the completion of survey, design, bidding and construction phase services for the project. ENGINEER shall assist the OWNER in final sizing of the new water main, points of connection and location of new water main to provide adequate setbacks from existing utilities.

ENGINEER will coordinate work efforts with other related or unrelated improvement projects expected to be completed concurrently in the project area. Design and construction work for the East Central and Sussex Water System Improvement Project has been based on +/- 2,900 lf of new ductile iron water main. The proposed water main is extending on Sussex Ave from the existing 24-inch ductile iron main in the Sussex/Hilda intersection, eastward to tee into the

existing 8-inch line located on the east side of Maurice Ave. For Central Ave, the proposed water main will tie into existing 24-inch ductile iron in the Central/Hilda intersection and extend eastward to tee into the existing 8-inch line located on the east side of Maurice Ave.

Assumptions and Clarifications

- The new water main will be 8-inches in diameter. Final sizing will be determined in final design with hydraulic assistance from the OWNER.
- Connection to the existing 24-inch water main on Hilda Ave will be in the traffic lanes of Hilda Ave. It is anticipated that a new 24-inch by 8-inch tee or cross will be installed as a point of connection.
- Connection to the existing 8-inch water main within Maurice Ave will include new tees to accommodate the new 8-inch water main.
- New fire hydrants will be placed in accordance to City of Missoula Engineering Design Standards and reviewed by City of Missoula Fire Chief. Existing fire hydrants will be removed.
- Water service replacements will include a new service tap, corp stop, service line piping, curb stop and service line connection made behind existing sidewalk. Service line reconnections will be made at existing service line locations. Existing services located in areas of sidewalk will require sidewalk replacement to the nearest concrete control joints.
- The design survey will be completed anticipating a trench patch back paving for surface restoration and sidewalk curb ramp replacement as necessary to meet ADA and US Department of Justice requirements.
- Final construction documents (plans and specifications) for contractors use during bidding will consist of electronic format files (PDFs). No hard copies of the plans or specifications will be provided by Morrison-Maierle to contractors during bidding.
- Surface restoration will consist of hot mix asphalt and base material consistent in depth with the existing road profile or as to meet City of Missoula Engineering Design Standards. Asphalt core testing services will be provided by Morrison-Maierle or subconsultants as part of this contract.
- The City of Missoula will complete pothole excavations at water main connection points that do not include accurate as-constructed document. Excavations shall be coordinated with survey crew to collect accurate top of pipe elevations.

Owner Provided Information

To the extent that it is available, OWNER will provide existing, pertinent information needed for the development of the design sheets for the water main replacement. The information will include, but is not limited to the following, if available:

- Electronic files of the City's GIS or AutoCAD water atlas maps showing water main, valve and fire hydrant locations
- Records of repairs completed on water main in this area
- Records of existing water service material
- Records of location of existing water services
- Construction project record drawings
- Records of any modifications made that are not part of existing project record drawings
- Records of known complaints and/or problems
- Pothole hydro excavation to support design of connection points
- Utility locates of water, sewer and storm water infrastructure

Basic Services

The Basic Services as include in the maximum not to exceed fee of the ENGEINEER in conjunction with this project will include the following:

Task 1: Project Initiation and Project Management

- 1.1 Project Management. The ENGINEER's project manager and technical leader will actively manage the project team, including sub-consultants. The project manager will keep in regular contact with City staff via written and verbal communications. E-mail and telephone will be utilized whenever practical. On a monthly basis, project invoices will be prepared along with a written report (cover letter) of project progress and budget tracking.
- 1.2 Conduct Project Initiation Meeting. The ENGINEER will conduct a project kick-off meeting to review the project goals, obtain OWNER's staff input, exchange information and discuss overall project administration. Meeting minutes will be prepared by the ENGINEER and distributed to the attendees.
- 1.3 Agency and Utility Coordination. The ENGINEER will coordinate with DEQ and any other agencies which may be affected or have comments regarding the OWNER's planning. The purpose of the coordination will be to review the OWNER's preliminary ideas regarding current and future facilities and gather comments the agencies or utilities may have. It is anticipated that utility coordination will involve the identification and potential relocation of private utilities including, but not limited to, overhead and underground power, cable TV, underground telephone and communications, petroleum oil, and natural gas. A total of two (2) meetings have been included in the budget for this task. ENGINEER will summarize all findings in a communication with Missoula Water.
- 1.4 Public Coordination. This task includes public meetings, virtual or door to door as customer contacts feasible, and preparation of informational materials. This task includes one (1) public mailing or notice intended to educate the public about the project and receive input on issues and concerns. Information for mailings will be provided to the City for distribution as follows:

- Notice No. 1 – At beginning of construction (content: construction schedule, project purpose, discuss meter box installation services, name and contact information for construction)

The public meeting will be coordinated with the City and held at City offices or onsite early in the project. The ENGINEER will assist the City with distribution of information pertaining to project and the installation of a meter pit for a flat rate along the project. We will attempt to gather contact information for residences at this meeting to help in the distribution of project updates during construction.

During construction we will provide regular public information updates to keep the public informed about construction activities and progress, and respond to questions. The methods used to communicate with the public will be based on residents' stated preferences. With City concurrence, we will provide the engineer's and Resident Project Representative's phone numbers to call with questions or concerns.

Task 2: Design Development

- 2.1 Field Survey. The ENGINEER will gather existing utility and surface information within the project limits and extending appropriate match lines. Data collection shall include establishment of permanent horizontal and vertical control; existing water main features (valves, fire hydrants and water services) and existing property pins. We will survey at a maximum of 25-foot intervals at the Center line of roadway, flowline of gutter, and edge of sidewalks and at geometric changes. This assumes that the City will locate and mark the curb stops which are currently not all visible on the surface. Any buried underground utilities such as gas, electric, fiber optic or sewer shall be located using the Montana One-Call system and surveyed. No provisions are included for retaining services of a private locator. Measure downs will be completed at existing water valve boxes at the ends of the project extent.

Research will be performed to verify existing right-of-way locations utilizing platted information, ownership records and found property pins. Engineer will provide appropriate temporary traffic control measures for all data collection completed in traffic areas. Field survey data will be utilized by the ENGINEER to develop preliminary project base mapping. Completion of the task will be finalization of an Existing Site Plan, for inclusion in the design drawings, that depicts relative locations of all features discussed above.

It is assumed that Missoula Water personnel will assist in the location of existing water mains, sewer mains, and service lines and curb boxes. If utility conflicts are found to be of concern during preliminary design, the OWNER will provide pothole services to determine elevations critical utility crossings.

- 2.2 Preliminary Plans (30% Design). The ENGINEER shall confirm appropriate utility sizing within the project limits and complete the preliminary design for the replacement of the water main. Two (2) 11"x17" copies of 30% plans will be provided to the City for review.
- 2.3 Prepare Basis of Design Report. Following compilation of the data and other pertinent water system information, the ENGINEER will draft a brief basis of design report that will be utilized during the Montana Department of Environmental Quality Checklist submittal process in Task 3.

- 2.4 Construction Cost Estimate. The ENGINEER will prepare a project construction quantity take offs and complete an engineer's opinion of probable construction cost based on the 30% and 90% design plans and specifications and provide it to the City for review.
- 2.5 Preliminary Plans and Specifications (90% Design) The ENGINEER will prepare a 90% design package that will incorporate Missoula Water's comments pertaining to the preliminary Basis of Design Report and the 30% preliminary plans. Updated roadway plan and profile sheets will be presented, where applicable, as well as further development of the water main, and other recommended improvements. Two (2) 11"x17" copies of 90% plans and two (2) project specifications will be provided to Missoula Water for review. ENGINEER will send 60% design plans to private utilities affected by the project for review and comment, and hold a subsequent coordination meeting with the private utilities to assemble and evaluate comments, if necessary. The ENGINEER will also submit the plans to the City Engineer's office per Stage 3 of the Project Development Toolbox.
- 2.6 Design Review Meeting. The ENGINEER will attend one (1) design review meeting to discuss the comments on the 90% preliminary plans by Missoula Water.

Task 3: Final Design

- 3.1 Final Plans and Specifications (100% Design). The 100% design package will incorporate comments received from Missoula Water, after the 90% design package submittal and periodic design review meetings are complete. The plan package will include design of the plan and profile utilities drawings, related traffic control measures, water main, and other recommended improvements. Final plans and specifications will be prepared in accordance with the Montana Public Works Standard Specifications, Sixth Edition, April 2010 and the most current edition of the Missoula Water specifications, if applicable.
- 3.1 Construction Cost Estimate. The ENGINEER will update the project construction quantities and an engineer's opinion of probable construction cost based on the final plans and specifications and provide it to the City for review.
- 3.2 MDEQ/SRF Submittal. ENGINEER will submit three (3) copies of the project specifications, three (3) half-size plan sets, contract-bidding documents, basis of design report and certified water main checklist to Montana Department of Environmental Quality for approval. Missoula Water will reimburse the permit and licensing fees paid by the ENGINEER necessary to construct the project. Upon approval by MDEQ, the ENGINEER will submit the plans to the City Engineer's office per Stage 4 of the Project Development Toolbox.

Task 4: Bidding Services

- 4.1 Bidding. ENGINEER will prepare and supply electronic project plans and specifications and bidding documents necessary for bidding and construction. Morrison-Maierle will utilize on-line bidding through QuestCDN unless otherwise directed by the City of Missoula. Bid advertisement text will be provided to the City of Missoula for publication in the locations of their choosing. Costs for publication will be paid by the City.

ENGINEER will host a virtual pre-bid conference or attend a pre-bid conference at the OWNER's office. A pre-bid meeting agenda and minutes will be prepared and distributed to bidders.

ENGINEER will prepare any necessary addenda during the bidding process based on comments or questions received from Contractors. Engineer will attend the bid opening, analyze bids, submit a bid tabulation, and make a construction contract award recommendation to the City. Upon completion of the bidding phase, Morrison-Maierle will prepare digital executable contract documents for the selected Contractor.

Field construction documents will be limited to 5 sets of executed construction drawings and specifications for selected Contractor and Owner.

Task 5: Construction Services

- 5.1 Construction Layout and Control. ENGINEER will provide personnel, equipment, and supplies for construction layout and control. Construction layout shall include, but not be limited to, measurements, lines, locations, and grades necessary for construction of the water main, valves, fire hydrants and connections to the existing water main. The ENGINEER will reference and preserve all existing survey monuments and benchmarks. All monuments required within the project shall be marked and elevations shown on as-built drawings. Construction staking shall be provided at 50 lineal foot intervals and offsets to pertinent fittings.

Upon completion of field survey, current intersection monuments will be located. Any intersection monuments that are required to be disturbed during construction will be included in the Contract Documents for the CONTRACTOR to reset by a professional land surveyor.

- 5.2 Resident Project Representative (RPR) Services. The ENGINEER will coordinate appropriate testing of materials intended for incorporation into the project and require documentation of testing results. In addition, the ENGINEER will provide review of construction to check the Contractor's work for compliance with the drawings, specifications, and other applicable documents, codes or standards. A review of the work shall be made on a part-time basis while any major item of work is in progress (max. 4 hours per day). Major items of work shall be water utilities; subgrade preparation; gravel base course preparation; concrete pouring and finishing; paving; signalization, and striping. The ENGINEER shall provide a minimum of 48 hours notice for Missoula Water personnel when specific inspections or testing require their presence on the project. Each daily review shall be documented in permanent reproducible form and kept in consecutive order with the project file. Copies of the daily review reports shall be furnished to Missoula Water as requested during construction. ENGINEER will notify Missoula Water immediately of contract problems or deviation from approved plans.

The ENGINEER will prepare a simple ESRI Survey123 custom survey to be shared with the CONTRACTOR and OWNER to document fittings, valves, services and connections. The custom Survey123 application will georeference whiteboard photos. The CONTRACTOR will remain responsible for the ultimate collection of whiteboard photos. Documentation will be available on shareable online map and digital image format, final deliverable will be presented in Task 6.

The planned resident project representative budget for this work is based on a construction duration of 54 working days (75 calendar days) to complete water main installation and testing and surface restoration. Also included is a 10% contingency allowance.

RPR Construction Budget
216 hours of base time
22 hours of 10% Contingency

- 5.3 Testing Services. ENGINEER will provide the services of a qualified materials engineering technician who will observe construction and provide representatives tests. ENGINEER will provide direct coordination of laboratory, field quality assurance testing, and geotechnical engineering between the project engineer, RPR and project construction materials engineer.
- 5.4 Submittal Review. The ENGINEER will review the construction sequence and the traffic controls for construction prior to the start of work. ENGINEER shall ascertain that the Contractor has all needed permits to accomplish his work during construction. ENGINEER will review shop drawings, samples, equipment, asphaltic concrete mix design, concrete mix design, aggregate, and other data submitted by the Contractor for compliance with drawings and specifications.
- 5.5 Construction Administration. The ENGINEER will review Contractor submitted monthly pay estimates and final pay estimates for construction and prepare contract administration forms on a monthly basis. These will be submitted in Missoula Water's approved format. ENGINEER will complete a pre-construction conference meeting. ENGINEER will issue notice to the Contractor to suspend work in whole or part when, in the opinion of the ENGINEER, and when directed by the Owner, work is not being, or cannot be performed in accordance with the contract documents and specifications. ENGINEER will contact Missoula Water for any proposed plan or specification changes when required due to initial design and engineering deficiencies in order to complete the project in its original concept. Plan and specification changes shall be prepared by the ENGINEER. ENGINEER will prepare and recommend work change directives and change orders when necessary due to conditions encountered during construction. The Engineer is not authorized to order additional work without the approval of Missoula Water. Any work resulting in contract overage will be processed by approved change orders using Missoula's standard format.

Task 6 – Project Closeout

- 6.1 Record Drawings and Photographs. The ENGINEER shall record the location of all underground utilities (including, but not limited to, conduit for all street lighting, signalization, or flasher assemblies) installed under and on the surface within the public right-of-way and show these facilities, together with a representation of the general corridors in which other underground utilities are located, on the record drawings. ENGINEER will prepare record drawings and furnish Missoula Water with one (1) paper set for review and comments. Following receipt of comments from Missoula Water, ENGINEER will make necessary changes and furnish Missoula Water with one (1) Portable Document Format (PDF) of 22"x34" size and one (1) electronic set in AutoCAD (*.dwg) format.

- 6.2 Warranty Period. ENGINEER will schedule and make final inspection with Missoula Water and confirm all project items were constructed according to plans and specifications and are acceptable to the ENGINEER and Missoula Water. ENGINEER will schedule and make an inspection with Missoula Water prior to the expiration of construction warranty period and provide a certification of final acceptance. If any problems are found, ENGINEER will send a list of deficiencies to Missoula Water and Contractor and continue coordination until acceptable.
- 6.3 Project Closeout. The ENGINEER will submit project closeout information to the City Engineer's office in accordance with Stage 6 of the City's Project Development Toolbox.

Task 7 – Additional Services

Additional Services. Morrison-Maierle is available to provide additional services that may arise as part of the Work. If the City identifies additional or unknown tasks as necessary for project completion, these services would be completed on a time and materials basis with prior authorization for the City project manager. Possible work tasks that may be necessary include additional construction inspection, or other unknown conditions that may develop during bidding or construction. Additional services budget shall be set at 5% of the total design, bidding and construction administration budgets.

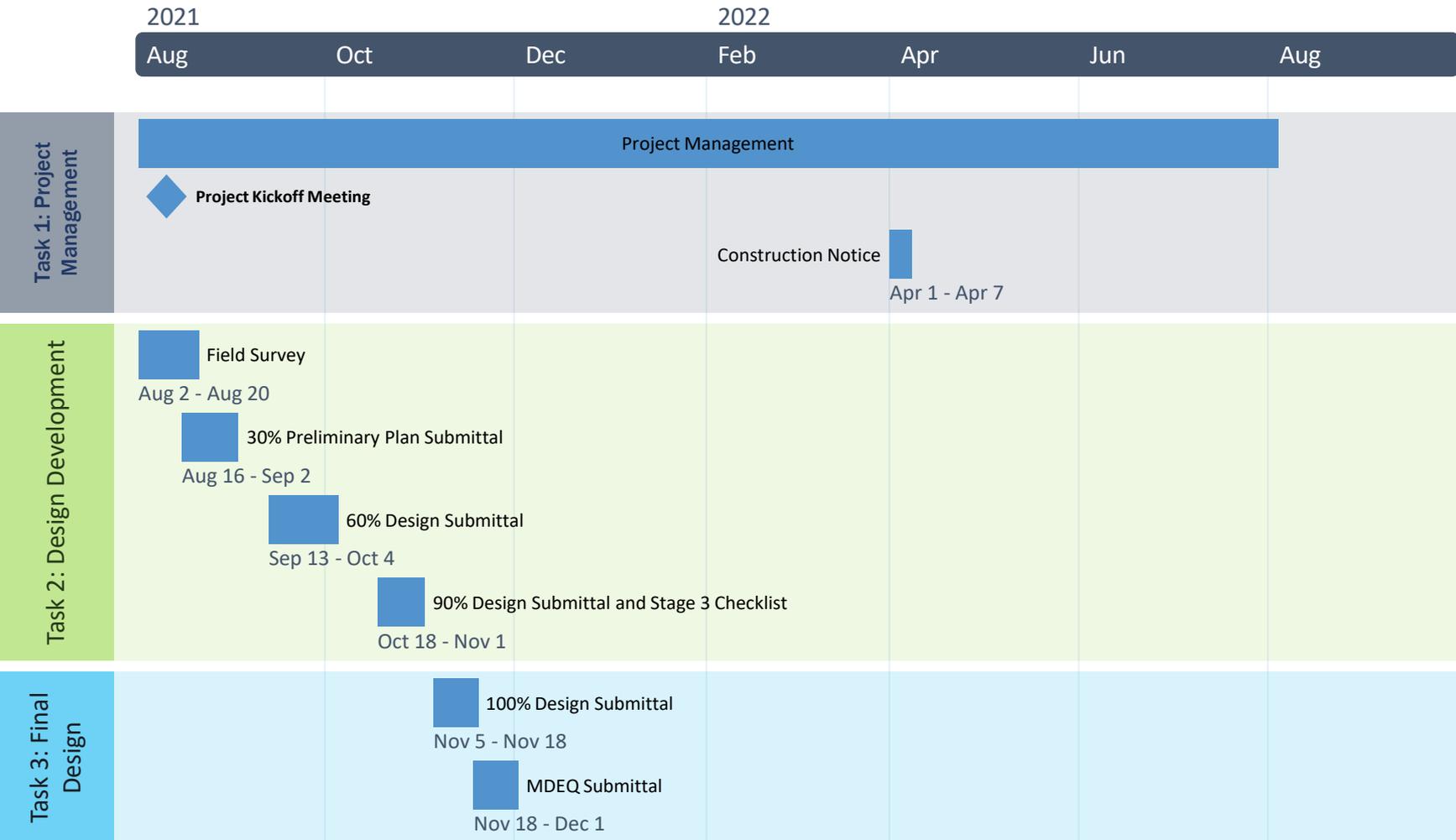
Project Deliverables:

- Monthly Progress Reports and Invoices
- Basis of Design Report for MDEQ Submittal
- 30% Preliminary Design Drawings and Specifications – 2 copies
- 90% Preliminary Design Drawings and Specifications – 2 copies
 - Stage 3 Checklist Submittal
- 100% Final Design Drawings and Specifications – 1 electronic copy
 - Stage 4 Checklist Submittal
- MDEQ Certified Check List Submittal
- Recommendation for Award
- Construction Contract Drawings – 6 sets
- Record Drawings and Photographs
 - Stage 5 Checklist Submittal
 - Stage 6 Checklist Submittal

Schedule

East Central Ave. and East Sussex Ave. Water System Improvement Project

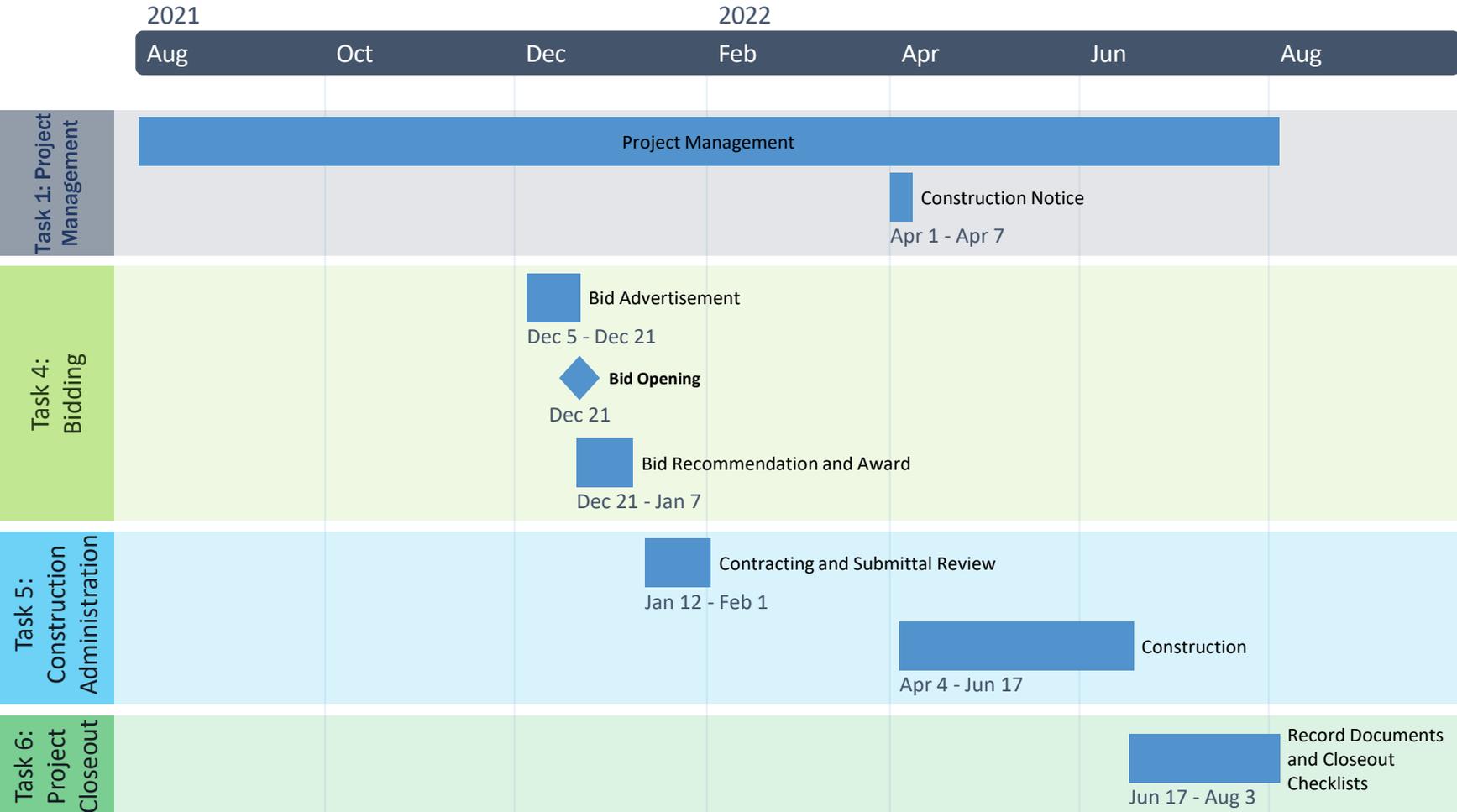
City of Missoula



Schedule

East Central Ave. and East Sussex Ave. Water System Improvement Project

City of Missoula

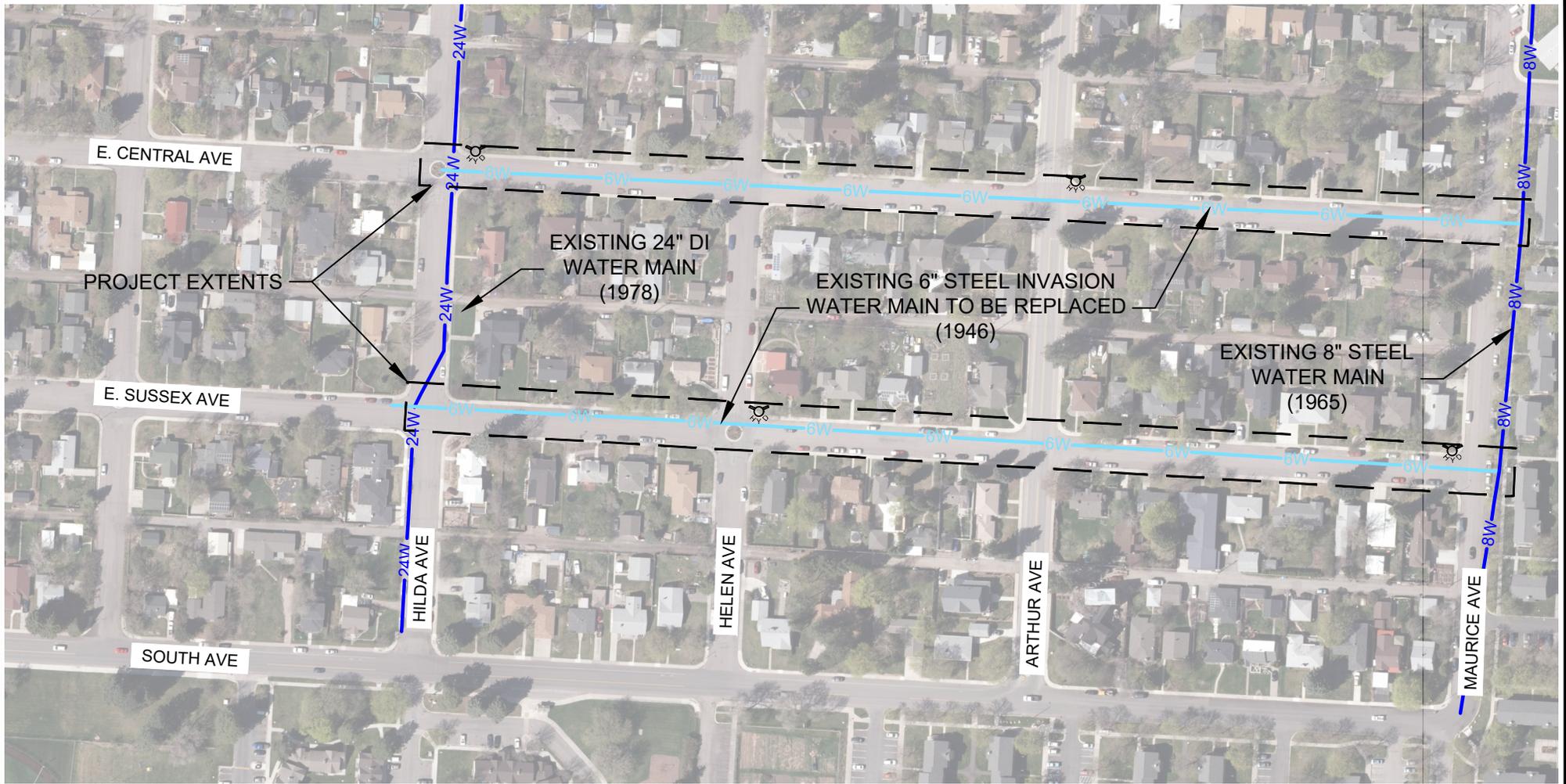


MORRISON - MAIERLE, INC.
EX-C: SUMMARY OF ESTIMATED COSTS

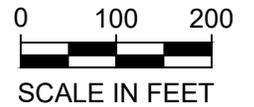
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East Central Ave and East Sussex Ave Water Systems Improvement Project
Replacement of Existing 6-inch invasion steel Water Main

	SUPER ENGINEER	SENIOR ENGINEER	DESIGN ENG II	DESIGN ENG I	ENG INTERN II	LAND SURVEYOR	SURVEY CREW	SURVEY TECH	CAD TECH	ADMIN STAFF	VEHICLE MILEAGE	SUPPLIES LS	SURVEY EQUIP DAY	LABOR HOURS HR	TOTAL LABOR \$	TOTAL EXPENSE \$	TOTAL COST \$
Project Management														34			\$4,827
Project Management			12											12	\$1,836		\$1,836
Project Kickoff Meeting			2	4							10			6	\$878	\$7	\$885
Project Coordination Preliminary Design Meeting			2	4					2					8	\$1,082		\$1,082
Project Coordination Construction Notice				4	2				2					8	\$1,024		\$1,024
Existing Site Plan														71			\$13,049
Field Survey							32				12		4	32	\$6,816	\$968	\$7,784
Utility/Right of Way Research		2		8										10	\$1,470		\$1,470
Existing Site Plan		1		16				12						29	\$3,795		\$3,795
Design Development														201			\$24,769
30% Plans			2	4	4			42						52	\$6,078		\$6,078
Cost Estimate				2	4									6	\$782		\$782
Basis of Design Report				2	8									10	\$1,278		\$1,278
60% Plans			2	4	8			40						54	\$6,350		\$6,350
60% Specifications			1	2	8									11	\$1,431		\$1,431
90% Plans			1	4	6			24						35	\$4,157		\$4,157
90% Project Manual and Specifications			1	4	10									15	\$1,965		\$1,965
Stage 3 Checklist					4									4	\$496		\$496
Design Review Meetings			4	4							100			8	\$1,184	\$70	\$1,254
QA Review		6												6	\$978		\$978
Final Design														32			\$5,166
100% Plans				2	4			8						14	\$1,678		\$1,678
100% Project Manual				1	3									4	\$515		\$515
Cost Estimate Update				1										1	\$143		\$143
MDEQ Submittal				2	2							1,005		4	\$534	\$1,005	\$1,539
Stage 4 Checklist				1	4									5	\$639		\$639
QA Review		4												4	\$652		\$652
Bidding														36			\$4,878
Bid Posting/Gen Admin			1	4	4				4		10			13	\$1,629	\$7	\$1,636
Pre-Bid Meeting				2	4	2								8	\$1,126		\$1,126
Bid Opening				1	2						10			3	\$439	\$7	\$446
Bid Award		1	1	6	4									12	\$1,670		\$1,670
Construction Administration (75 Calendar Days)														337			\$66,445
Contract Preparation			1	2	4			4	8			500		19	\$2,199	\$500	\$2,699
Submittal Review				4	8									12	\$1,564		\$1,564
Pre-Construction Meeting			2	2	4						10			8	\$1,088	\$7	\$1,095
Bac-T Testing												400			\$400		\$400
Construction Testing				4	2							18,202		6	\$820	\$18,202	\$19,022
RPR Inspection (4 hours per day 120 lf /day + 10% Contingency)				14	238						209			252	\$31,514	\$146	\$31,660
Construction Staking				4			18	4			22	100	1.5	26	\$4,830	\$475	\$5,305
Construction Meetings (Weekly)			4	20										24	\$3,472		\$3,472
Punchlist Walkthrough			1	4	4						10			9	\$1,221	\$7	\$1,228
Post Construction														34			\$4,212
Record Drawings/Closeout Reports			1	2	6				20			50		29	\$3,423	\$50	\$3,473
Warranty Reviews			1	4							20			5	\$725	\$14	\$739
Additional Services As Approved by Owner																	\$6,167
5% Additional Service																	\$6,167.32
TOTAL		14	42	145	343		50	4	150	16	413	20,257	5.5	1,509	\$101,481	\$21,865	\$129,514



EXISTING FIRE HYDRANT 



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Missoula, MT 59801
406.542.8880
www.m-m.net

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DRAWN BY: TMH
DSGN. BY: TMH
APPR. BY: AJM
DATE: 06/2021

MISSOULA

CENTRAL AND SUSSEX WATER MAIN RELACEMENT

MONTANA

PROJECT NO.
TBD

PROJECT LIMITS MAP

FIGURE NUMBER

FIG-1



Proposal for Construction Materials Testing Services

Table 1. Hourly rates, unit prices, and trip charges

Scope: Earthwork and asphalt testing and associated laboratory testing as directed by client or their on-site representative.

Proposal: 721-054T
 Date: July 7, 2021
 Description: Sussex & Central Avenue Water Main Replacement
 Client: Morrison-Maierle

Fieldwork

Compaction Testing - per trip

Technician	2 hr. @	\$70.00 / hr.	\$	140.00
Nuclear Densometer (daily charge)	1 ea. @	\$30.00 / ea.	\$	30.00
Vehicle Mileage	5 mi. @	\$0.70 / mi.	\$	3.50
Reports-PM (technical review)	0.25 hr. @	\$95.00 / hr.	\$	23.75
Reports-SPA (review + distribution)	0.25 hr. @	\$60.00 / hr.	\$	15.00
Subtotal				\$ 212.25

(Includes mob/demob, nuclear density gauge, 1 to 1.25-hour(s) on-site to perform 2 to 3 tests, reports)

Concrete Testing - per trip

Technician	2.75 hr. @	\$70.00 / hr.	\$	192.50
Compressive Strength Concrete Cylinder	5 ea. @	\$25.00 / ea.	\$	125.00
Vehicle Mileage	5 mi. @	\$0.70 / mi.	\$	3.50
Reports-PM (technical review)	0.25 hr. @	\$95.00 / hr.	\$	23.75
Reports-SPA (review + distribution)	0.25 hr. @	\$60.00 / hr.	\$	15.00
Subtotal				\$ 359.75

(includes mob/demob, 1 to 1.5 hour(s) on-site to test one truck for slump, air, unit wt., temps., cast & test 4 cylinders, 1 spare, includes reports)

Asphalt Testing - per trip*

Technician	10 hr. @	\$70.00 / hr.	\$	700.00
Vehicle Mileage	20 mi. @	\$0.70 / mi.	\$	14.00
Asphalt Extraction Gradation, NCAT	3 ea. @	\$250.00 / ea.	\$	750.00
Marshall Biscuit Densities (3 specimens)	3 ea. @	\$200.00 / ea.	\$	600.00
Marshall Stability, Flow (3 specimens)	3 ea. @	\$75.00 / ea.	\$	225.00
Rice Specific Gravity	3 ea. @	\$100.00 / ea.	\$	300.00
Core Thickness & Density	7 ea. @	\$25.00 / ea.	\$	175.00
Core Machine Rental	1 ea. @	\$125.00 / ea.	\$	125.00
Generator	1 ea. @	\$50.00 / ea.	\$	50.00
Reports-PM (technical review)	1 hr. @	\$95.00 / hr.	\$	95.00
Reports-SPA (review + distribution)	1 hr. @	\$60.00 / hr.	\$	60.00
Subtotal				\$ 3,094.00

(Includes obtaining asphalt sample to perform lab tests, obtaining core samples for thickness/density testing & reports)

*Assumes City of Missoula modified MPWSS specifications of Marshall tests per 1000 linear feet of paved roadway/trench restoration and core density & thickness every 400 linear feet of paved roadway/trench restoration.

Sample Pickup - per trip (soils or concrete)

Technician	1.25 hr. @	\$70.00 / hr.	\$	87.50
Vehicle Mileage	5 mi. @	\$0.70 / mi.	\$	3.50
Reports-PM (technical review)	0.25 hr. @	\$95.00 / hr.	\$	23.75
Reports-SPA (review + distribution)	0.25 hr. @	\$60.00 / hr.	\$	15.00
(Includes mob/demob/laboratory processing of sample, report)		Subtotal	\$	129.75

Laboratory Testing - per trip

Proctor (AASHTO T-99)	3 ea. @	\$230.00 / ea.	\$	690.00
Sieve Analysis (T27/T11 Procedure A, entire sample)				
1 1/2" through No. 200	3 ea. @	\$110.00 / ea.	\$	330.00
Atterberg Limits (AASHTO T89/T90)	1 ea. @	\$100.00 / ea.	\$	100.00
		Subtotal	\$	1,120.00

Overtime rates: (1.5 times the standard labor rate) apply after 8 hours, before 8:00 a.m., after 5:00 p.m., and all day Saturday.

Overtime time rates: (2.0 times the standard labor rate) apply on Sundays and holidays. Required laboratory tests with less than 24-hours notice, a rush charge of 50% will be applied.

Table 2: Total Estimated Project Cost

Compaction Testing					
Roadway Subgrade	5	tr.	@	\$212.25 / tr.	\$ 1,061.25
Roadway Subbase Gravel	5	tr.	@	\$212.25 / tr.	\$ 1,061.25
Roadway Base Course Gravel	5	tr.	@	\$212.25 / tr.	\$ 1,061.25
Utilities-Water					
Main	14	tr.	@	\$212.25 / tr.	\$ 2,971.50
Services	22	tr.	@	\$212.25 / tr.	\$ 4,669.50
Hydrants	4	tr.	@	\$212.25 / tr.	\$ 849.00
Sample pickup	2	tr.	@	\$129.75 / tr.	\$ 259.50
				Subtotal	\$ 11,933.25
Concrete Testing ^A					
Curb & Gutter	0	tr.	@	\$359.75 / tr.	\$ -
Cove Gutters	0	tr.	@	\$359.75 / tr.	\$ -
Drive Approaches	0	tr.	@	\$359.75 / tr.	\$ -
Sidewalk	0	tr.	@	\$359.75 / tr.	\$ -
Miscellaneous Site work	0	tr.	@	\$359.75 / tr.	\$ -
Sample pickup	0	tr.	@	\$129.75 / tr.	\$ -
				Subtotal	\$ -
Asphalt Concrete Paving Testing	1	tr.	@	\$3,094.00 / tr.	\$ 3,094.00
Laboratory Testing (soils)	1	ea.	@	\$1,120.00 / ea.	\$ 1,120.00
Project Contingency, set up, supervision (Project Manager \$95 per/hr., Engineer \$135 per/hr. Project Assistant \$55 per/hr.)	1	ea.	@	\$400.00 / ea.	\$ 400.00
				TOTAL	\$ 16,547.25

Notes: The above estimate is based on the following conditions:

Compaction Testing: Testing frequency per MPWSS modified by City of Missoula. Assume 2,800 linear feet of water main, 4 hydrants. Sub base & Base Course Proctors will be provided by gravel supplier. Tests on some of the utility services may be combined in same trips on main line i.e., service installation that may be occurring at same time of main line installation. We have assumed testing approximately 30% of services. Client to coordinate so we may get tests at same time. Samples of pipe bedding, sub base, and base course gravels to be obtained from on-site stockpiles while performing other services on site.

^A**Concrete Testing:** Assumed any concrete for the project is a restoration or patch and that concrete testing will not be required.

Asphalt Testing: Assume 2,800 linear feet of paving for street restoration from utility installation. Asphalt compaction control during paving will be provided by paving contractor. One Marshall laboratory test per 1000 linear feet (total of 3) of paving to check mix properties per MPWSS. Total of 7 for all of paving. Marshall samples will be obtained from a Missoula, Montana asphalt batch plant.

General: We have not included costs for on-site safety meetings, security clearances and/or special site access protocols. Our personnel will have LEVEL D personal protective equipment. We wish to point out that the above testing program is only an estimate based on available information with regard to the construction. The final cost will depend on the construction schedule and the actual services performed. We also wish to note that the above testing program does not include consulting or retesting. These or other services can be furnished in accordance with our current schedule of charges.