



October 22, 2020

Logan McInnis
 Ross Mollenhauer
 City of Missoula
 PO Box 5388
 Missoula, MT 59806-5388

via e-mail

Re: Scope of Work to Change the Existing Water Rights Associated with Statements of Claim 76M 40161-00 and 76M 40162-00 (Pattee Creek Wells)

Dear Logan & Ross:

Water & Environmental Technologies (WET) is pleased to submit this proposal to prepare and submit an Application to Change an Existing Non-Irrigation Water Right for two of the City of Missoula's historical groundwater water rights (76M 40161-00 and 76M 40162-00). The purpose of the change application is to change the point of diversion associated with the two Pattee Creek Wells (Well #23 and #24) to the Stephens Well (#25). Water right 76M 40163-00 currently authorizes pumping from the Stephens Well. Ultimately, the City intends for the Stephens Well (#25) to be the point of diversion for all three water rights identified above.

Changing the points of diversion at the Pattee Creek Wells to the Stephens Well will require the City to file an Application to Change an Existing Non-Irrigation Water Right with the DNRC. Filing of a Replacement Well Notice is not a viable option, as it is only allowed when the proposed point of diversion (Stephens Well) is pumped at the same capacity or less than the existing point of diversion (Pattee Creek Wells). The Stephens Well will have a greater capacity than either of the Pattee Creek Wells and under the proposed plan, the capacity will increase.

Table 1 provides a summary of each of the municipal groundwater claims associated with the proposed project. A detailed discussion of each water right is provided in the following sections. A map illustrating the locations of each well is provided as **Figure 1**.

Table 1 - Municipal Statements of Claim Associated with the Proposed Change Application							
Water Right	Priority Date	Version Type	Source	Diversion Means	Well ID / GWIC	Flow Rate (gpm)	Volume (AF)
76M 40161 00	7/31/1948	Change Authorization	Groundwater	Well	#23 / 132025	305	486.67
76M 40162 00	6/30/1955	Change Authorization	Groundwater	Well	#24 / 69412	450	725.78
76M 40163 00	11/18/1970	Change Authorization	Groundwater	Well	#25 / 132861	1,000	1,611.23

Statement of Claim 76M 40161 00

Statement of Claim 76M 40161 00 was filed for municipal use of Well #23 and has a priority date of July 31, 1948. The well is located near the intersection of Pattee Creek Drive and Park Street. Well #23 was drilled in 1945 to a depth of 116 feet. Statement of Claim 76M 40161 00 allows for diversion of groundwater from Well #23 at a rate of up to 305 gpm and volume of 486.67 acre-feet per year; this volume equates to year-round diversion at 305 gpm. The well is in the NWNESE of Section 33, Township 13 North, Range 19 West. The point of diversion associated with this claim is illustrated in **Figure 1**.

Statement of Claim 76M 40162 00

Statement of Claim 76M 40162 00 allows for municipal use of Well #24 and has a priority date of June 30, 1955. Well #24 is located near the intersection of Pattee Creek Drive and Park Street and was drilled in 1948 to a depth of 120 feet. A Declaration of Vested Groundwater Rights was filed in December of 1970. Statement of Claim 76M 40162 00 allows for diversion of groundwater from Well #24 at a rate of up to 450 gpm and volume of 725.78 acre-feet per year; this volume equates to year-round diversion at 450 gpm. The well is in the NWNESE of Section 33, Township 13 North, Range 19 West. The point of diversion associated with this claim is illustrated in **Figure 1**.

Statement of Claim 76M 40163 00

Statement of Claim 76M 40163 00 was filed for municipal use of Well #25 with a priority date of November 18, 1970. Well #25 is located near the intersection of Stephens Avenue and 34th Street and was drilled in 1966 to a depth of 146 feet. A Notice of Completion of Groundwater Appropriation by Means of Well was filed in December of 1970. Statement of Claim 76M 40163 00 allows for diversion of groundwater from Well #25 at a rate of up to 1,000 gpm and volume of 1,611.23 acre-feet per year; this volume equates to year-round diversion at 1,000 gpm. The well is in the NWSESW of Section 33, Township 13 North, Range 19 West. The point of diversion associated with this claim is illustrated in **Figure 1**.

The following scope of work (SOW) summarizes WET's tasks.

SCOPE OF WORK

PHASE 1 – RECORD REVIEW AND PLANNING

Task 1. Review Water Right Files and City Documents

Description

- WET will perform an initial evaluation of the City's water rights filed with the DNRC. The review will include both a search of the DNRC and City records. There are several advantages to changing existing water rights, including the ability to divert water and maintain a senior priority date. However, there are some uncertainties that exist when maneuvering the water right change application process, most notably the documentation of historical water use. The DNRC cannot authorize the expansion of a water right through the change application process. As part of the change application process, an applicant's water right is limited to the flow rate and volume of water that has been historically diverted under the water right.

Deliverables

- Upon completion of the file review, WET will prepare a Technical Memorandum documenting the historical water use associated with Statements of Claim 76M 40161-00 and 76M 40162-00). This Technical Memorandum will be used as a guide for development of a water right change application to be filed with the DNRC with the goal of changing the point of diversion associated with Statements of Claim 76M 40161-00 and 76M 40162-00. The historical use documentation shall be adequate to address the requirements of ARM 36.12.1902 Change Application – Historic Use. Further, the memorandum will allow the City to evaluate the merits and potential pitfalls of progressing through the DNRC change application process.

Task 2. Meeting with City Staff

Description

- WET will meet with City Staff to discuss the documentation required to obtain a water right change authorization, DNRC application requirements and DNRC's standard of review. An assessment of historical water use and the merits and potential pitfalls of moving forward with a water right change application will be discussed in detail. Historical documentation obtained and potential deficiencies in the records of historical water use documentation will be discussed. Strategies for addressing the DNRC change authorization criteria will be conferred and additional documentation/data requested.

Deliverables

- WET will prepare the requisite maps, figures, calculation, and documentation to support the City in assessing the advantages and potential disadvantages in moving forward with a change application.

Task 3. Pre-Application Meeting with DNRC

Description

- The DNRC encourages a pre-application meeting prior to submission of any water right application. At the pre-application meeting, information regarding the historical use of water and the proposed use of water, including the required flow rate, volume, and equipment necessary to put the water to use is conferred in detail. At this time, the DNRC may request additional information they feel is needed to prove the criteria requirements.

Deliverables

- WET will prepare the requisite maps, figures, and documentation and attend the pre-application meeting on behalf of the City.

PHASE 2 – DEQ PUBLIC WATER SUPPLY APPROVALS

Task 4. Yield-Drawdown Testing of Stephens Well

Description

- DEQ requires yield-drawdown pumping tests be performed on each PWS well prior to installation of a new permanent pump. To demonstrate adequacy of the diversion, the well must be pumped at 1.0-times the design capacity for 72-hours or 1.5-times the design capacity for 24-hours. This pumping test data is utilized to document the capabilities of the well to meet the design requirements.

Task 4A. Prepare and Submit Deviation to DEQ-1 Standard 3.2.4.1

- Site constraints at the Stephens Well site are believed to prohibit completion of a 72-hour pumping test wherein water is being discharged to the ground surface, sewer, or stormwater

ditches. As such, a “deviation” to the aquifer testing requirements in Circular DEQ-1 will be requested to allow for an 8-hour pumping test to be performed.

Deliverables

- WET will work with the City to develop an aquifer testing plan and prepare the requisite deviation and supporting documents to DEQ.

Task 4B. Conduct 8-hour Aquifer Pumping Test (if Authorized)

- Assuming a variance to the aquifer testing requirements can be obtained from DEQ, an eight-hour yield-drawdown test will be conducted on the Stephens Well. Water will be discharged to the stormwater ditches and or sewer, as required to dispose of water during the aquifer test. Water levels will be measured using a pressure transducer coupled to a data logger and confirmed with a water level meter. The steps required to conduct an 8-hour pumping test are outlined below:

1. One step-drawdown pumping test (WET recommendation not required by DEQ).
2. One 8-hour constant-rate drawdown pumping test.
3. One 24-hour water-level recovery test.

For the 8-hour constant rate test, it will be necessary to measure water level changes in the pumping well. WET recommends monitoring water level changes in other nearby wells if they are deemed suitable for monitoring. Water levels will be monitored using pressure transducers coupled to a data logger and confirmation monitoring using a water level meter.

Deliverables

- WET will prepare a short Engineering Report to be submitted to DEQ. The Engineering Report will document the results of the yield-drawdown testing, stabilized drawdown for pump selection, and specification of the new permanent pump.

PHASE 3 – PREPARE AND SUBMIT WATER RIGHT CHANGE APPLICATION

Task 5. Document Current and Proposed Distribution System

Description

- WET will perform a desktop review of the existing water system. Information will be obtained through interviews with the City’s Engineers and Operators as well as a review of recent reports documenting the water system and operational strategy. WET will document the various components and controls currently installed.

Deliverables

- This information will be summarized in a Technical Memorandum documenting the adequacy of the existing water system. This memorandum will form the basis for meeting the requirements of ARM 36.12.1904 Change Application Criteria – Adequate Diversion Means and Operation.

Task 6. Documentation of Associated Water Rights

Description

- WET will perform a desktop review and evaluation of the other municipal water rights currently held by the City of Missoula, but not proposed to be included in the change application. The review will include an assessment of how the various water rights are operated within the water system.

Deliverables

- WET will prepare a Technical Memorandum explaining the details of the associated water rights, including an explanation of how the water rights are utilized within the City's water system. This memorandum will be utilized to address Section NIR.1.G of the change application.

Task 7. Prepare Water Right Change Application

Description

- WET will prepare a water right change application with supporting documentation as required to support the DNRC criteria for issuance. The primary criteria to address through the change application are historical water use, adequacy of diversion, and adverse effect to existing users.

Deliverables

- WET will submit an Application to Change an Existing Non-Irrigation Water Right (Form 606 NIR) to the Montana DNRC. The application will contain appropriate figures and historical documentation to support criteria and issuance of a change authorization.

Project Schedule

- The project schedule will be mutually agreed upon by both parties at a later date, with the assumption that the work will be completed in the fall/early winter.

Assumptions

- Pumping tests will be performed in combination with City of Missoula personnel and, if necessary, a private pump contractor. WET will coordinate with the City and any pump contractors to complete the required objectives. Estimated costs include coordination and oversight of the pumping tests, but do not include physically performing the tests.

Fees

- This proposal does not include the DEQ and DNRC application fees. The total fees for public water supply approval of the replacement pump is estimated at \$1,400 and the DNRC water right application fee shall be \$700. If we process this fee through our company, there is a 10% markup.

Estimated Cost

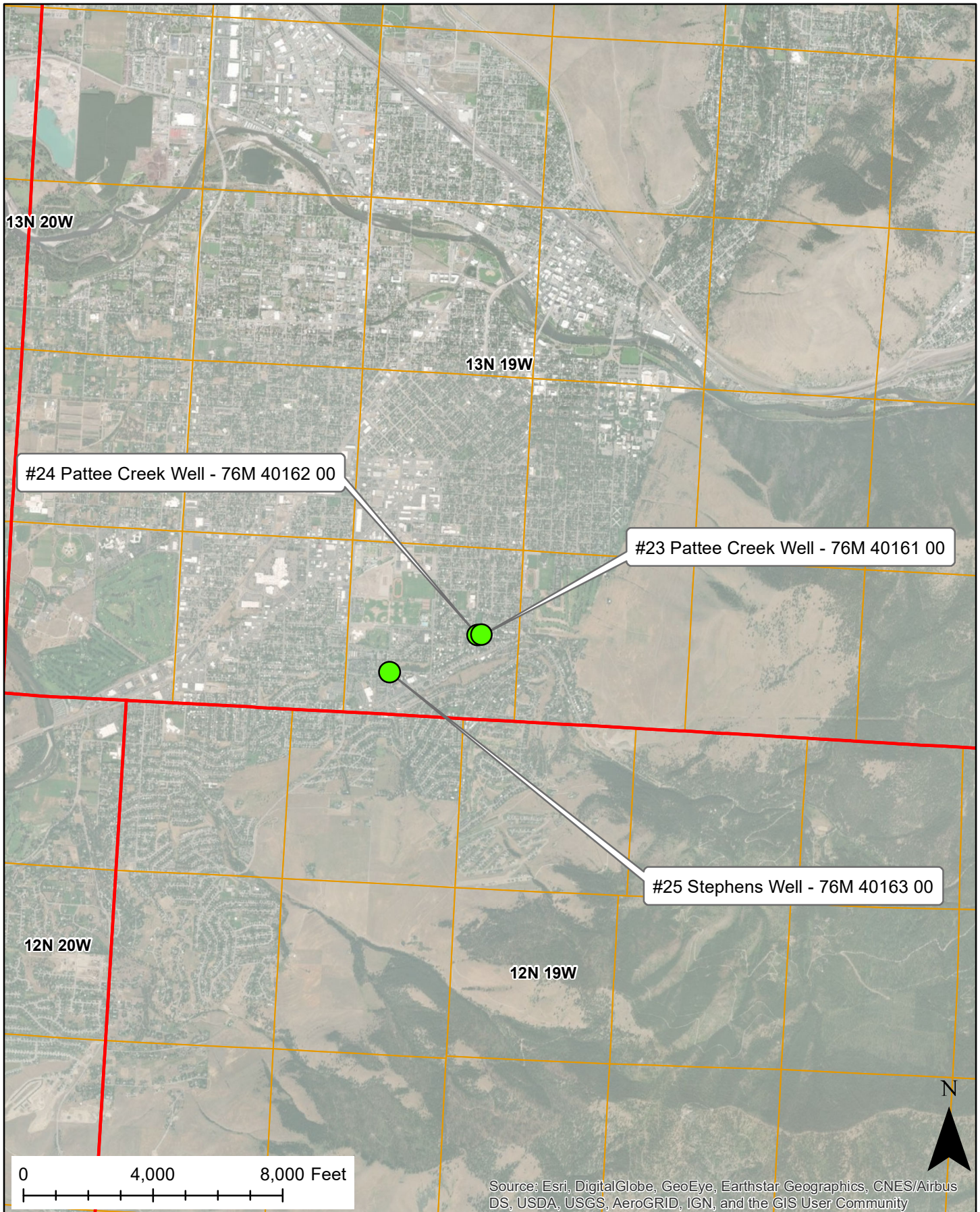
The total estimated cost to complete this scope of work is \$33,774. A detailed cost estimate is included as **Attachment A**.

Attached is a copy of our standard consulting service order. If this proposal is acceptable to you, please sign and return a copy of the agreement as authorization to proceed. If you have any questions regarding the proposed scope of work or budget estimate, please do not hesitate to contact me at 406-309-6083 or bbennett@waterenvtech.com.

Sincerely,

Brad Bennett

Brad Bennett, PG
Senior Hydrogeologist



PROJ NO:
 LOCATION: MISSOULA, MT
 SCALE: 1"=4,000'
 FILE NAME: PC WELLS

DRAWN: B.BENNETT
 PROJ MGR: B.BENNETT
 CHECKED:
 DATE:10/14/2020

MISSOULA WATER
 PATTEE CREEK WATER RIGHT CHANGE

FIGURE
 1



Pattee Creek Well Water Right Change
 PROJECT COST ESTIMATE - 10/22/2020
 WATER & ENVIRONMENTAL TECHNOLOGIES
 City of Missoula, Montana

TASK DESCRIPTION	RATE	UNIT	QTY	PRICE
Task 1. Review Water Right Files and City Documents				
Senior Hydrogeologist	\$120.00	HOUR	20	\$2,400.00
Staff Hydrogeologist	\$90.00	HOUR	32	\$2,880.00
TASK SUBTOTAL:				\$5,280.00
Task 2. Meeting with City Staff				
Senior Hydrogeologist	\$120.00	HOUR	8	\$960.00
Staff Hydrogeologist/GIS Specialist	\$90.00	HOUR	2	\$180.00
Mileage	\$0.85	MILES	260	\$221.00
TASK SUBTOTAL:				\$1,361.00
Task 3. Pre-Application Meeting with DNRC				
Senior Hydrogeologist	\$120.00	HOUR	12	\$1,440.00
Staff Hydrogeologist/GIS Specialist	\$90.00	HOUR	2	\$180.00
Mileage	\$0.85	MILES	260	\$221.00
TASK SUBTOTAL:				\$1,841.00
Task 4. Yield-Drawdown Testing of Stephens Well				
Senior Hydrogeologist	\$120.00	HOUR	40	\$4,800.00
Staff Hydrogeologist	\$90.00	HOUR	24	\$2,160.00
Mileage	\$0.85	MILES	520	\$442.00
Hotel/Per Diem	\$150.00	Per Diem	2	\$300.00
TASK SUBTOTAL:				\$7,702.00
Task 5. Document Current and Proposed Distribution System				
Senior Hydrogeologist	\$120.00	HOUR	24	\$2,880.00
Staff Hydrogeologist/GIS Specialist	\$90.00	HOUR	8	\$720.00
TASK SUBTOTAL:				\$3,600.00
Task 6. Documentation of Associated Water Rights				
Senior Hydrogeologist	\$120.00	HOUR	32	\$3,840.00
Staff Hydrogeologist/GIS Specialist	\$90.00	HOUR	4	\$360.00
TASK SUBTOTAL:				\$4,200.00
Task 7. Prepare Water Right Change Application				
Senior Hydrogeologist	\$120.00	HOUR	16	\$1,920.00
Staff Hydrogeologist	\$90.00	HOUR	24	\$2,160.00
TASK SUBTOTAL:				\$4,080.00
Project Management				
Senior Hydrogeologist	\$120.00	HOUR	16	\$1,920.00
Staff Hydrogeologist	\$90.00	HOUR	8	\$720.00
TASK SUBTOTAL:				\$2,640.00
Ancillary Work Items (10%)				
TASK SUBTOTAL:				\$3,070.00
ESTIMATED COST:				\$33,774.00