AMENDMENT NO. 1

TO

CONTRACT FOR PROFESSIONAL ARCHITECTURAL AND ENGINEERING SERVICES

CITY OF BILLINGS WORK ORDER 20-37,

STORMWATER UTILITY DEVELOPMENT PLAN

THIS AGREEMENT, made and entered into on _____, 2021, by and between the following:

CITY OF BILLINGS, a Municipal Corporation,
Billings, Montana 59103,
Hereinafter designated the City

and

FCS GROUP
7525 166th Avenue NE, Suite D-215
Redmond, Washington 98052
Hereinafter designated the Contractor

WITNESSETH:

WHEREAS, the City and Contractor have entered into a contract dated May 11, 2020, for Contractor to provide preliminary design professional services to the City for Work Order 20-37, and;

WHEREAS, the City has need for additional professional services, and;

WHEREAS, the City has authority to contract for professional services, and;

WHEREAS, the Contractor represents that he is qualified to perform such services, is in compliance with Montana Statutes relating to the registration of professional engineers and is willing to furnish such services to the City;

NOW, THEREFORE, in consideration of the terms, conditions, covenants and performance contained herein, or attached and incorporated herein, the Parties hereto agree as follows:

Exhibit A is amended to include the following design services:

SEE ATTACHED

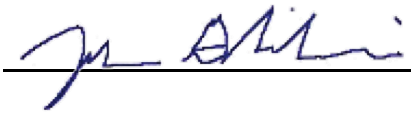
TOTAL INCREASE THIS AMENDMENT:

Contract Amendment #1	**$397,095**
Original Contract Amount	$159,619
Total W.O. 20-37 Contract	$556,714

All other terms and conditions of the contract, as amended, to which this amendment applies, shall remain in full effect.

CONSULTANT

NAME: FCS GROUP

BY: 

TITLE: President

DATE: June 17, 2021

CITY OF BILLINGS, MONTANA

BY: _____

TITLE: _____

DATE: _____

FCS GROUP
Solutions-Oriented Consulting

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CITY OF BILLINGS

STORMWATER UTILITY DEVELOPMENT – PHASE II

Assuming the Council directs us to continue, Phase II would include further development of the stormwater utility program, the compilation of customer information needed for rate calculation and billing, a detailed financial plan for several possible service levels, the calculation of rates, and City Council check-in meetings. This phase would also include broad public outreach, Council adoption of a preferred approach, study documentation, and implementation assistance.

TASK PLAN

Task 1 | Project Initiation & Administration

This task initiates the Phase II study and provides for data collection and project administration. This task includes the following elements:

1.1 Data collection. A data needs list will be provided, and data received will be reviewed, analyzed, and validated for inclusion in the study process. Note: It is assumed that aerial imagery and 1-ft contour interval topographic mapping from Quantum Spatial will be available across the City to facilitate the Phase II work.

1.2 Onsite kickoff meeting. A meeting will be scheduled to establish the goals and objectives of the overall project phase and focus the efforts of the project team. The items covered at the meeting include a review of the scope of work, identify project objectives, expectations and deliverables, outline the project schedule and key milestone review points.

1.3 Regular check-in meetings. Brief check-in meetings will be held twice per month throughout the study and will be used to discuss progress, objectives, and schedule. The budget assumes a twelve-month study period with 24, thirty-minute remote meetings.

1.4 Project management. Perform routine project administration tasks such as invoicing and monthly status reports.

Task 2 | Refine Program Development

Task 2 includes further evaluation of program needs and costs. Many of the subtasks are scalable, and it is understood that subtask levels of effort and associated subtask budgets may be subject to reallocation within the task 2 total – likely to target less defined program elements such as water quality, replacement of boulder pits, and pond, ditch and drain maintenance.

2.1 Operation and Maintenance

2.1.1 Project annual increase in operation and maintenance personal and equipment costs based on continued expansion of stormwater infrastructure. DOWL will coordinate with FCS on the

methodology to be used for these projections. It is assumed that this growth rate will be consistent with the City population growth projections.

2.2 Deferred Maintenance and Replacement

2.2.1 DOWL will coordinate with City staff to refine initial assumptions of the percentage distribution for the various physical conditions used in Phase I and will update the cost estimates accordingly.

2.2.2 Refine the Phase I methodology for establishing deferred maintenance cleaning costs for storm drains.

- DOWL will inspect four (4) large storm drain segments of at least 300 feet across the City. These large pipe segments will include major storm drain components including the City County Drain, the downtown system, one major system in the heights, and the Bannister Drain.
  - » DOWL will collect photo documentation, pipe size measurements, sediment depth, and identify any structural deficiencies.
  - » DOWL will work with a local construction contractor to determine required methods and associated costs that represent a variety of cleaning and/or rehabilitation needs.
- Review 50 videos already assessed by City Street and Traffic to validate sediment rating methodology. Use this review to make refinements to the Phase I methodology which utilizes the City's current assessment rating.
- Update the deferred maintenance costs associated with cleaning storm drains.

2.2.3 Refine the Phase I methodology for establishing deferred rehabilitation and replacement cost estimates for storm drains.

- DOWL has assumed that the City Street and Traffic will provide all additional storm drain assessment data. The Phase I data set will be updated to include information for these newly assessed storm drains. It is assumed that only one update cycle will be completed using the available data at the time of the processing.
- Expand the storm drain material types to include the costly reinforced concrete box (RCB) culverts. Investigate pipe segments, with "unknown" material type in the GIS, that are known to be RCB and incorporate size and material type into the storm drain database.
- Test the Phase I assessment methodology by reviewing 150 videos that haven't yet been reviewed to compare the assumed maintenance need with the actual maintenance need. DOWL will select videos based on regional representation developed in Phase I. Initial Condition Assessment guidelines will be updated and refined based on review of these videos. Screen captures will be used to provide clear guidance and consistency for future Asset Management Condition Assessments.
- Review the same 50 videos as in **Task 2.2.2** for validation of the City Street and Traffic rating system of structural condition. Use this review to make refinements to the Phase I methodology which utilizes the City's current assessment rating.
- Update the storm drain data set of known information. Remove storm drain features identified for capital replacements to avoid double accounting. Update the assumed percentages of the "unknown" pipe sizes, material types, and structural condition.

- Update the deferred maintenance costs associated with rehabilitation and replacement of storm drains.

2.2.4 Update the deferred maintenance costs for the open drain facilities.

- Review the 89 miles of open drain ditches assumed in Phase I with the City to establish which are under the City's control and responsibility.
- Perform inspection for a representative sampling of the open drains to determine shape, size, vegetation encroachment, sediment accumulation, and erosion issues and develop remediation cost estimates.
- Use the results from this sampling to extrapolate the cost estimates for ditch cleaning, reshaping, and rehabilitation of erosion or bank instability issues for all open drains under the City's authority.

2.2.5 Update the deferred maintenance costs for the stormwater detention/retention ponds.

- Coordinate with City Engineering, Street & Traffic, and Environmental staff to determine the actual number of stormwater ponds that fall under the control and responsibility of the City of Billings.
- Perform inspections for a representative sampling of the detention/retention ponds to assess deferred maintenance needs by collecting qualitative and quantitative information, including vegetation encroachment, sediment accumulation, presence of groundwater, capacity, infrastructure conditions, and maintenance access.
- Prepare a budget-level estimate of deferred maintenance and retrofit needs and associated costs.
- Use the results from this sampling to extrapolate the cost estimates for deferred maintenance and retrofits for all City stormwater detention/retention ponds.

2.2.6 Update the deferred maintenance and replacement costs for the outfalls.

- Complete condition assessment for all of the primary outfalls and develop cost estimates for needed maintenance, rehabilitation, or full replacement.
- Complete condition assessments for a sampling (15) of the 165 secondary outfalls identified in the GIS. Use the results from this sampling to extrapolate the costs of needed maintenance, rehabilitation, or replacement for the remaining secondary outfalls.

2.2.7 Update the deferred maintenance, rehabilitation and replacement costs for culverts.

- Perform a review of aerial imagery and mapping of open drain features to check the completeness of culverts identified in the City GIS.
- Complete condition assessments for a representative sampling (40) culverts distributed across the City by collecting information on size, material type, sediment accumulation, culvert condition, inlet and outlet erosion, and storage potential upstream.
- Work with a local construction contractor to establish the methods and cost estimates for cleaning, rehabilitation and replacement for the various culvert sizes, including large SSPP and RCB crossings.
- Estimate the cost of deferred maintenance, rehabilitation, and replacement for the sample set.
- Use the results from the sampling to extrapolate the cost estimates for deferred maintenance, rehabilitation, and replacement of the remainder of the culverts across the City.

2.3: Capital Improvements

2.3.1 Provide recommendations for an Asset Priority Ranking system. It is envisioned that the Asset Priority Ranking system will include the following considerations:

- Size of contributing drainage area. It is envisioned that basins will be divided into classes, similar to HUC classifications, reflective of the relative size of the contributing area (i.e. 1 being the largest and 5 the smallest).
- Zoning of the service area (residential, industrial, high-value downtown commercial, etc…)
- Importance of the storm drainage feature (inlet, lateral, trunkline, manhole, outfall, detention pond, etc…) based on the risk of failure (i.e. plugging of a single inlet versus the outfall into the Yellowstone River washing out).
- Establish weighting systems for overall priority ranking.
- Apply the asset priority assignment to the current GIS data. This will be helpful in prioritizing future inspections to define unknown material, size, and conditions of high priority storm drain assets. This will also be helpful in prioritizing capital improvement projects.

2.3.2 Identify Capital Replacement needs for the mid-town drainage system (City-County Drain contributing area).

- Model the core storm drain system (trunklines and manholes only) throughout the study area. Focal areas with known flooding/poor drainage issues, as identified by the City of Billings, will the modeled at the individual inlet/lateral level of detail.
- Review and request as-built construction drawings from the City for facilities within the focal areas to assist in model development.
- Survey rim elevations and complete measure downs at key manholes within the study area. Where easily accessible, DOWL will collect photos of the trunklines to help assess pipe condition and maintenance needs through the mid-town area.
- The information collected will be incorporated into stormwater models of the study area to identify and prioritize drainage issues.
- Develop recommendation drainage solutions for inclusion in Capital Replacement project list.
- DOWL will coordinate with the City to balance the number of model areas and level of detail for this task against the available budget for this work.

2.3.3 Identify Capital Replacement needs for other fully developed areas across the City, beyond mid-town.

- Utilize the drainage basin delineations used for Asset Priority ranking to identify potentially undersized storm drain segments.
- DOWL will develop a drainage area map showing subbasins contributing to each key trunkline segment.
- Determine the ratio of contributing drainage area to stormwater conveyance pipe size for each key storm drain segment.
- Identify upstream detention storage.
- The drainage area to size ratios will be used to identify potentially undersized storm drain segments.

- Coordinate with the City on performance history and collect as-built construction drawings to validate the findings.
- Develop recommended drainage solutions, including replacement and enlargement of select storm drain segments and potential detention storage.
- Develop Capital Replacement project list.
- DOWL will coordinate with the City to balance the extent and level of detail for this task against the available budget for this work.

2.3.4 Remodel the existing capital improvement projects for future growth areas identified on Page 25 of the Phase I report (19 locations).

- Utilize information from the Master Plan reports to develop a model of the recommended drainage solutions.
  - » Delineate drainage basins and define drainage basin characteristics using topographic mapping data provided by Quantum Spatial.
- Evaluate the proposed system utilizing the synthetic 24-hour design storm as well as actual storm in the 10-year class to review and update the proposed design.
- Coordinate with the City to update the recommended drainage solutions from the Master Plan reports to better reflect current development and drainage strategies, such as in the Southwest Billings area. DOWL will coordinate with the City to balance the level of effort for this expanded modeling against the available budget for this work.
- DOWL will develop cost estimates for the updated CIP projects based on 2021 unit costs (rather than through cost indexing) consistent with the level of detail of the Billings West End cost estimates already completed.
- The Billings West End stormwater model will be updated to be reflective of the current vision and strategy for stormwater management:
  - » Runoff from the area north of the High Ditch will be conveyed down 54th Street to a new detention pond west of Cottonwood Park. Storm drain will be extended south down 54th Street, along Grand Avenue, south down 52nd Street, into the Big Ditch, and ultimately into the Snow Ditch.
  - » Sizing of the storm drain down 48th Street will be updated reflective of these changes and the cost estimate will be updated accordingly.
  - » Cost estimates for needed improvements to the Open Drain system will also be developed.

2.3.5 Prioritize the identified Capital Improvement project needs using the priority asset rankings developed in **Task 2.3.1**.

2.4: Regulatory Water Quality Compliance

2.4.1 Utilizing the drainage basins developed for the asset priority rankings, DOWL will develop a map showing the contributing drainage areas to the existing water quality treatment facilities. DOWL will coordinate with City's Engineering and Environmental Affairs to identify gaps in water quality treatment and highlight potential water quality capital improvement projects.

- Develop a map showing existing and proposed stormwater treatment facilities and the areas they serve.

- Develop 2021 cost estimates for the recommended new water quality treatment facilities.

2.4.2 Further coordination with City Engineering and Environmental Affairs staff to provide additional detail to support potential expansion of the level of service for the Environmental Affairs Division. This includes additional staffing and equipment needs to support:

- increased inspection of post construction BMP facilities,
- expanded public outreach and education,
- increased water quality sampling, and
- increased inspection and performance monitoring of treatment devices.

This additional level of detail will be used to refine the budget projections.

2.5: Flood Protection and Risk Assessment

2.5.1 Review and update cost estimates for West End flood mitigation capital improvement projects.

- Update budget estimate using DOWL's current conceptual flood mitigation pond layouts for Little Cove Creek and Cove Creek.
- Include costs associated with acquiring the land for these facilities.

2.5.2 Review locations of irrigation ditch unloaders (wasteways) identified in the Integrated Water Plan for Stormwater completed by the City to identify strategic locations for wasteways to protect the City against flooding caused by stormwater inflows or canal breaches.

- Develop a map to show the location of existing and proposed flood mitigation Canal Wasteways.
- Develop cost estimates for needed improvements.

2.6: Reporting & Presentation

2.6.1 Review and update Stormwater Program Report

- Update methodology for determine deferred maintenance costs and capital improvement costs.

2.6.2 Presentation preparation & presenting to City Council

- Develop figures, tables, and draft PowerPoint presentation slides.
- Collaboration with the team on presentations.
- Present to the City Council.

Deliverables for Task 2 likely to include the following (subject to change with any Task 2 re-allocation):

- Updated Storm Drain Condition Assessment Tool (Access database) to facilitate Asset Management
- Illustrated Guidelines for Condition Assessment of Storm Drains
- Contributing Drainage Area Map for Storm Drain Asset Priority Ranking
- Contributing Area / Storm Drain Size Ratios for Trunklines
- Capital Improvement Project List
- Map of Existing and Proposed Water Quality Treatment Facilities
- Map of Existing and Proposed Irrigation Canal Flood Mitigation Wasteways

- Final Stormwater Program Report – Phase II Stormwater Utility Development

Task 3 | Financial and Rate Analysis

Task 3 determines the stormwater rates that are needed to fund each level-of-service option defined in **Task 2**. This task will enable us to present the City Council with a clear set of rate options and a clear understanding of the services that can be expected for each level of rates and resulting funding. An example level of service matrix (**Exhibit 1**) illustrates how service level options and rates can be effectively presented to decision makers.

Exhibit 1: Example Level of Service Matrix

Levels of Service	Deferred Maintenance & Replacement	Operation & Maintenance	Capital Improvements	Flood Protection & Risk Assmt.	Regulatory Water Quality Compliance	Program Management & Administration
Status Quo	$ + description…					
Bronze						
Silver						
Gold						

This task includes the following elements:

3.1 Cost forecast. Develop multi-year cost projections for both operations and capital, for each option defined in Task 2.

3.2 Customer data compilation. Compile customer information into equivalent service units (ESUs) to be used in the rate calculation and ultimately, for billing.

3.3 Rate calculation. Calculate multi-year stormwater rates for each service level option defined in Task 2.

3.4 Staff review meetings. Meet with City staff up to six times (3 remote; 3 on-site) to review and revise the analysis as needed.

Task 4 | Communication

By involving community leaders, key stakeholders, media, and the general public in the project, we will work to establish project advocates to help relay information further than the reach of our team alone. The FCS GROUP team understands best practices for implementing stormwater utility projects. DOWL's local presence and network of relevant contacts will allow for a custom approach to address the unique needs of the Billings community. This task involves the following elements:

4.1 City Council meetings. Throughout the study, meet with the City Council up to four (4) times to discuss study methodology, findings, and recommendations. These meetings assume on-site meetings and include the budget for presentation materials.

4.2 Coordinate with the City to finalize the outreach plan.

4.3 Conduct stakeholder outreach. We will work with the City to identify key stakeholder groups (large commercial customers, developers, City maintenance team, etc.) whose input and concerns will be integral to acceptance of the utility programs and resulting rate. We will customize our approach – whether it's one-on-one conversations, group work sessions, or presentations – based on the stakeholder group.

4.4 Local coordination. Coordinate with local media representatives to provide thorough and comprehensive information to the public. Messaging will focus on the care that went into plan development, benefits to individual property owners, and the long-term civic benefits of the overall system.

4.5 Open houses. Work with the City to publicize and facilitate up to three open houses to discuss study findings and options and solicit input from the general public.

Task 5 | Documentation

This task provides for documentation of findings in a comprehensive study report, and in the adopting ordinance and resolution needed to implement the utility and supporting rate. This task includes the following elements:

5.1 Draft an initial, comprehensive stormwater utility ordinance and accompanying rate resolution that address, among other things, rate structure, rate levels, credits, and appeals.

5.2 Revise the ordinance based on feedback from the City.

5.3 Draft a full report documenting the findings, calculations, and recommendations of the study.

5.4 Revise the full report based on feedback from the City.

5.5 Provide a list of answers to frequently asked questions for use by City staff after utility / rate adoption and implementation.

BUDGET

The following budget is for the task plan described above.

Task Number	Task Description	Budget
Task 1	Project Initiation & Expenses	$49,002
Task 2	Refine Program Development	$224,508
Task 3	Financial & Rate Analysis	$39,279
Task 4	Communication & Outreach	$58,937
Task 5	Documentation	$25,369
	Total Contract Amendment #1	**$397,095**