

November 27, 2014

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County of St. Paul  
5015-49 Avenue  
St. Paul, AB T0A 3A4

Via email: [skitz@county.stpaul.ab.ca](mailto:skitz@county.stpaul.ab.ca)

**Attention: Sheila Kitz, Chief Administrative Officer**

**RE: WORK PROGRAM – SPEDDEN TO ASHMONT TRANSMISSION MAIN AND FACILITIES  
PRELIMINARY DESIGN, DETAILED DESIGN, CONSTRUCTION SERVICES & WATER  
SUPPLY AGREEMENT ADVISORY SERVICES**

Urban Systems Ltd. (Urban) is pleased to provide a work program for consulting services related to preliminary design, detailed design, and construction services for the following;

- 11 km of potable water transmission main between the Hamlet of Spedden and the Hamlet of Ashmont
- Pumping station at Spedden,
- Filling station at Ashmont
- Communication upgrade for the existing Ashmont truck fill station
- Private water service connections along the transmission alignment

There has been a great deal of work done over the past 5 years to determine a new, sustainable potable water source for hamlets of Ashmont, Lottie Lake and Mallaig. On Monday, November 10<sup>th</sup>, the County of St. Paul Council passed a resolution to move forward with extending the existing regional water system in Spedden to the existing reservoir in Ashmont. This regional water system has its source through EPCOR in Edmonton and is delivered to Spedden through the Capital Region Northeast Water Services Commission and the Highway 28/63 Regional Water Services Commission.

The following outlines a description of the project, our approach to project delivery, tasks to be completed through the course of the project, our project team, anticipated schedule, and fees to complete this project.

### **PROJECT DESCRIPTION**

At this time, it is understood that extension of the regional water system to Ashmont will include installation of approximately 11 km of watermain, installation of a new pumping station and filling station, a communications upgrade to the existing truck fill station in Ashmont, and private water service connections along the transmission alignment. The following outlines a high level estimate of the construction cost of this infrastructure with a 25% allowance for contingency:

Item	Estimated Cost
a) ±11 km of 150mm diameter watermain	\$2.21M
b) New pumping station (incl. building) in Spedden	\$0.90M
c) New filling station (incl. building) in Ashmont	\$0.40M
d) Communication upgrade of the truck fill station in Ashmont	\$0.05M
e) Private Water Service Connections	\$0.40M
<b>Sub-Total</b>	<b>\$3.96M</b>
Contingency Allowance (25%)	\$0.99M
<b>Sub-Total Construction Cost (Including Contingency)</b>	<b>\$4.95M</b>

The construction costs identified in the attached table include the following assumptions:

a) ±11 km of 150mm diameter watermain

- ±11,000m of 150mm diameter watermain (PVC or HDPE). Installation may be open cut or trenchless. This length assumes an alignment on or near the Iron Horse Trail, where NE Muni-Corr Ltd. may dictate installation methods within the Iron Horse Trail.
- Road, watercourse and utility crossings
- Water valves approximately every 1.5 km
- Pig launch and retrieval stations
- Air valves approximately every 1 km

b) New pumping station (including a new building) in Spedden

- New standalone building on or adjacent to existing reservoir. Includes pumps, HVAC, electrical, instrumentation and controls.
- Radio towers

c) New filling station (including a new building) in Ashmont

- New standalone building on or adjacent to existing reservoir (inadequate space within existing WTP). Includes process piping, HVAC, electrical, instrumentation and controls.

d) Communication upgrade of the truck fill station in Ashmont

- Upgrade to the communication system from coin operated to electronic access system

e) Private Water Service Connections

- Allowance for up to 20 private water service connections along the transmission main alignment
- Service and meter chamber
- Water meter & AMR radio
- Water service road crossing

Along with the design and construction of the items mentioned above, an integrated communication system will be required to ensure the new facilities can communicate with the existing regional system. The County needs to enter into a new Water Supply Agreement(s) to be able to purchase water from the Highway 28/63 Water Commission and the Capital Region Northeast Water Commission.

**PROJECT APPROACH**

Due to the proposed schedule and nature of the project (proposed construction in 2015), a variety of activities will occur concurrently. A start-up meeting will be held at the onset of the project. Major project goals and milestones will be reviewed and communication lines established.

Mike Hopkins is the Project Leader. Mike has worked closely with Matt Brassard and Golnaz Azimi who have both been involved with this project for some time. Mike is quite familiar with County of St. Paul staff and understands County's expectations. As part of Urban's general approach to project leadership, we place great emphasis on:

- Establishing a qualified and effective team;
- Understanding and defining project goals and objectives;
- Maintaining scope, schedule and budget;
- Effective consultation and management of expectations; and
- Effective internal (project team) and external communication.

**TASKS**

Based on discussions with Alberta Transportation and the County of St. Paul, we have outlined the following tasks to ensure successful delivery of this project:

**I. Project Management and Administration**

As we anticipate there will be many parties involved in delivery of this project, strong leadership will be required to ensure successful delivery. Coordination between members of the project team, the County of St. Paul client team, Alberta Transportation and other regulatory authorities, and affected Water Commissions will be a significant component of this task. The following outlines a breakdown of the items included in this task:

- On-going communication between Project Team and Client (including specialty consultants)
- Project meetings
- Liaison with Alberta Transportation and other regulatory agencies
- Schedule and Budget Management

- Quality control and management
- Liaison with Water Commissions and EPCOR

Monthly meetings will be held with regulatory agencies and the County of St. Paul, either on site or via conference call. These meetings will be attended by the project leader and, if required, by a technical specialist. A monthly progress report will be provided.

The project leadership and administration defined under this task will be applied up to design completion and award of tender. Project leadership during construction is included with Task IV – Contract Administration and Construction Services.

*Deliverables: Quality Management Plan (internal), Monthly Progress Reports, Cash Flow Forecast, Communication Plan*

## **II. Preliminary Design & Data Collection**

This task will establish the design criteria for each component of the project. One of the first items of this task will be to confirm the alignment of the transmission main and the location and design requirements for each of the buildings. Once the alignment has been confirmed, existing utilities will be located along the extent of the project using a private locating company such as Alberta 2<sup>nd</sup> Call. Survey will follow shortly after, and will include establishment of a 3 dimensional survey control network, and rural/urban topographic and boundary survey along the alignment and within the Hamlets of Spedden and Ashmont.

A geotechnical investigation will be completed concurrently, allowing for 19 test holes along the alignment and 4 additional test holes at the crossing of Secondary Highway 866. We have also included an allowance of 1 additional test hole in both Spedden and Ashmont at the locations for the proposed filling and pumping stations. Should it be determined that the buildings for the stations can be installed above the existing reservoirs, these two test holes will not be required and our fees would be adjusted accordingly. As part of the geotechnical investigation the soils will be analyzed for cathodic protection parameters, assisting in the corrosion protection design.

Further, a Phase 1 ESA and desktop historical resources review will be completed along the proposed alignment. Should these studies identify the need for further environmental or archeological investigation, these would be completed under a separate scope.

We expect that the transmission main will likely follow within the Iron Horse Trail that parallels Highway 28 for much of the distance between Spedden and Ashmont. The feasibility and construction conditions within the Iron Horse Trail lands will need to be confirmed with North East Muni-Corr Ltd. early in this task. Assuming this alignment, we have assumed land acquisition will not be required and have not included fees for land acquisition and consultation services.

Through the preliminary design task we will also confirm hydraulics and pumping requirements, determine system sizing, and perform a surge analysis. We will also prepare an application under the Environmental Protection and Enhancement Act for the transmission main, as well as Code of Practice Notifications and Fisheries and Oceans Project Review Applications for the water crossings along the alignment.

A critical component of this task will be the confirmation of control and communication requirements which will be determined through a radio path study and collaboration with EPCOR, the Capital Region Northeast Water Services Commission, and the Highway 28/63 Regional Water Services Commission.

Deliverables: Geotechnical Report, Environmental Assessment / Historical Resources Memorandum, Survey Report, Preliminary Design Drawings (50% completion).

### **III. Detailed Design and Tender**

This task will include detailed design of all system components. For the transmission main we will develop plan and profile sheets along the length of the alignment, define connection points to the new pump and fill stations, obtain necessary crossing agreements and investigate options for installation (e.g. open trenching / directional drilling). ASM Corrosion will also provide corrosion protection design for all susceptible fittings along the transmission main.

We will also work with our other specialty consultants to produce detailed design drawings for acceptance and tender for the pump station in Spedden and the fill station in Ashmont. We expect that each of these facilities will require their own building. This task will include design and coordination of the communication system, including required radio towers and operational upgrades to the existing truck fill station in Ashmont.

Through our design process we will work with senior practitioners with years of experience in this field to review the constructability of our design and ensure its feasibility prior finalization of design. We will also prepare a Class "B" cost estimate for budgeting purposes and a pre-tender cost estimate after design acceptance.

Finally, we will prepare specifications and tender documents. Upon receipt of authorization by the County we will proceed with tendering of the project as a single contract. Tendering will include electronic distribution of the tender documents, advisory services to the County's project manager during the tender period, issuance of addenda as required, attendance at tender opening and a recommendation of award

Deliverables: 2 sets of Drawings (Issued for Approval, Issued for Tender), Contract Documents, Tender Review Summary and Award Recommendation.

### **IV. Contract Administration and Post Construction Services**

Once the project has been awarded, the next step in the process is to complete the construction phase during the 2015 construction season. This stage will include the following:

- Execute the Contract
- Coordination meeting with the County of St. Paul and the Contractor to coordinate construction schedules
- Complete a pre-construction inspection
- Prepare and distribute 'Issued for Construction' drawings
- Coordinate and attend a preconstruction meeting (1-2 weeks prior to construction)
- Contract Administration
- Full time Inspection Services
- Biweekly site meetings
- Record Drawings and GIS based data submission
- Commissioning (testing)

Strong leadership and communication will also be integral during construction. The project leader (Mike) will confirm project objectives and the scope of work with Alberta Transportation and the County prior to construction. Mike will also confirm roles and responsibilities of the project team (internal and external), confirm deliverables, budget and schedule at the outset of the work.

During construction Mike will track progress, issue scope changes as required, provide written updates to the County with monthly invoices and conduct a project completion meeting to review project successes and lessons learned.

To ensure construction is completed in accordance with the design, we will assign a contract administrator (Mike) and a field inspector who will be responsible for administering the construction contract and conducting the field inspection. Generally, the scope of services will include:

- Resident Inspection services (sixteen weeks), bi-weekly site meetings, and periodic visits by the design engineer, to the Place of Work;
- Issue Notice of Award upon receipt of award notification by the County of St. Paul
- Prepare three sets of formal Contract Documents for execution.
- Collect and forward bonding and insurance documentation from contractor for review by the County of St. Paul.
- Prepare ten sets of formal "Issued for Construction" drawings.
- Issue Notice to Proceed
- Preparation and distribution of Notices, change orders, and other necessary project documentation during the course of the execution of the Work;
- Review of Shop Drawings;
- Monitor compliance with the program of construction reviews and testing which may be required by the Consultant or imposed by law in connection with the execution of the Work by the Contractor;
- Regular site reviews of the Work of the Contractors to ascertain if the reviewed Work is in general conformance with the Construction Documents;
- Interpretation of the Construction Contract Documents;
- Prepare Progress Payment Certificates;
- Review of an application for Substantial Performance of the Work noting defects and deficiencies observed in the Work;
- Certification of the Contractor's Substantial Performance of the Work and review of the correction of defects and deficiencies observed in the Work when completed;
- Arrange for reference surveys for use in the Contractor's layout of the Work (not including surveys of legal property boundaries);
- Arrangement of field testing, environmental monitoring and inspection of materials and equipment for the Client's quality assurance program;
- Investigation, reporting, and providing recommendations on unusual circumstances that arise during the Project implementation;
- Final inspection at the conclusion of the Project Construction Contract, including any elements of commissioning agreed to as part of the Client's acceptance program.

We have provided for sixteen (16) weeks of full time construction inspections services for one (1) inspector. Should the level of effort need to increase as a result of the contractors schedule, construction methodology (multiple crews, speed of work), or other influences beyond our control, we will work with the County of St. Paul and AT to adjust our level of effort accordingly.

The physical installation of the work is not the end of the project. Once the construction is complete, our team will be handling the following additional services:

- Provision of commissioning services (testing);
- Collection and organization of maintenance manuals;
- Identification of deficiencies during the warranty period at the Client's request;
- Preparation of record drawings.

Deliverables: Quality Management Plan (internal), Monthly Progress Reports, Project Completion Report, Notice of Award, Contract Documents for Execution, Issued for Construction Drawings, Notice to Proceed, Contract Administration, Resident Inspection Services, Record Drawings and GIS Data (Electronic Submission)

## **V. Advisory Services for Water Supply Agreement(s)**

This task is separate to the design and construction of the required facilities to bring potable water to Ashmont from Spedden. Instead this task will focus on the legal framework and agreements for transmission, supply and purchasing cost of water. It is expected that multiple meetings will be required with the County of St. Paul and upstream Water Commissions to establish a sustainable and fair water supply agreement(s) that clearly identifies the roles and responsibilities of each affected party.

Our fee estimate for this task includes our time for advisory services to assist in development of the required water agreements. We have identified an upset limit of \$25,000 for our fees, however as agreements of this nature can be quite complex and involve multiple parties, additional fees may need to be negotiated once the upset limit is reached.

For budgetary purposes, we have also identified an allowance of \$20,000 for legal services to support in the drafting of the required agreements. We expect the County will engage legal counsel directly through this allowance.

We believe that it is integral to bring all parties to the table early in the project to establish the terms of the agreement and ensure that once construction is complete, the contract(s) is in place and the water can start to be used immediately.

## **PROJECT TEAM**

We have assembled a team with both corporate and personal experiences that are very well aligned to deliver this project. The majority of work on this project will be performed in-house by Urban Systems professionals. We plan to work with the following specialty consultants for the facility and communication design:

- Structural Engineering – Ptarmigan Engineering (Rick Imai, P.Eng.)
- Architectural – Rockliff Pierzchajlo Architects and Planners (Jan Pierzchajlo, MAAA, MRAIC)
- Electrical, Instrumentation, Controls & Communication – Canadian Consulting Group (Andrew Hingston, P.Eng.)
- Mechanical (HVAC / Plumbing) – 1389667 Alberta Ltd (Craig O'Brien, P.Eng.)
- Geotechnical – Thurber Engineering (Ada Lao, P.Eng.)

The following lists our core Urban team members and their roles for this project – you'll recognize most of these team members from ongoing County projects over the past few years:

- Mike Hopkins, E.I.T. – Project Leader
- Matt Brassard, P.Eng. – Senior Advisor
- Golnaz Azimi – Water Policy Specialist
- Mohammed Elenany, Ph.D, P.Eng. – Engineer of Record
- Brian Hobbs, P.Eng. – Senior Review
- Andrew Christian, ALS – Survey Coordination
- Darren Filipic, R.P.Bio. – Environmental Specialist
- Mark Taylor, C.E.T. – Design Lead

## **SCHEDULE**

Upon acceptance of this work program, our team has the capacity to begin work right away. We would look to begin the assessment of potential alignment options as soon as possible and obtain any available asbuilt drawings of the existing facilities to determine the building design criteria. The utility locates, boundary and topographic survey and geotechnical investigation would follow shortly after (likely in January). The project schedule and budget will be maintained by establishing milestone dates at the outset of the project and clearly communicating expectations around roles and responsibilities, establishing the required level of effort by team members, and through continuous open dialogue as the project progresses.

We would also look to schedule a start-up meeting with Alberta Transportation and the County of St. Paul immediately to confirm project scope and milestones. This meeting would also be used to discuss preliminary routing options and connection requirements to the Highway 28/63 Regional Water Services Commission in Spedden.



The following outlines a rough outline of the anticipated schedule that targets construction completion in the fall of 2015.

Preliminary Design – December 2014 - February 2015

Detailed Design – March 2015 – April 2015

Tender – May 2015

Construction – June 2015 – September 2015

Water Supply Agreement(s) – January 2015 – August 2015\*

\*Timeline dependent on availability of all affected parties

### **CONSULTING FEES**

A breakdown of our proposed design and construction consulting service fees are summarized below. We have also included fees for advisory services for the water supply agreement(s). Should you require a more detailed breakdown of these fees, please do not hesitate to ask.

<b>Task</b>	<b>Fee</b>
I. Project Management and Administration	\$45,000
II. Preliminary Design & Data Collection	\$275,000
III. Detailed Design & Tender	\$235,000
IV. Construction Services	\$270,000
<b>Subtotal (Not Including GST)</b>	<b>\$825,000</b>
V. Advisory Services for Water Supply Agreement(s)	\$25,000
<b>Subtotal Fees (Not Including GST)</b>	<b>\$850,000</b>
Cash Allowance for Legal Services	\$20,000
<b>Total Fees, Including Cash Allowance (not including GST)</b>	<b>\$870,000</b>

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A few notes on this table:

- Our proposed fees are inclusive of the specialty consultant contributions as outlined in the task list.
- Construction services are based on a total of 16 weeks of construction with full time inspection services (average of 40 hours/week for one full time site inspector).
- The construction services assume that the regional system and construction of the pumping and filling stations will be completed under one contract. Staging of construction or phased implementation of multiple contracts may require additional scope.
- These fees are inclusive of disbursements. Office disbursements are charged at 8%, while travel disbursements include mileage and subsistence.
- Tasks I-V will be billed monthly on percent complete basis for each task.

## **CONCLUSION**

Thank you for the opportunity to submit this work program. Please feel free to contact the undersigned at your convenience should you wish to discuss the content in more detail or if you have any questions.

If you are in agreement with this proposal for consulting services, please sign and date below.

Sincerely,

**URBAN SYSTEMS LTD.**

A handwritten signature in blue ink, appearing to read "Mike Hopkins".

Mike Hopkins  
EIT, Project Leader

A handwritten signature in blue ink, appearing to read "M. Elenany".

Mohammed Elenany  
Ph.D, P.Eng., Engineer of Record

cc: Golnaz Azimi, Urban Systems

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Sheila Kitz, CAO

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Date