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Proposal for Services

Client:	St. Paul Regional Water Services	Proposal Date:	9/27/2021
Project Name:	M1/V2 Investigation and Corrosion Mitigation Estimate	Job Number:	21-219
Client Contact:	Kaitlin Swanson, PE	Precision Engineering Contact:	Josh Schultz, PE

Overview

Precision Engineering Solutions (PES) in partnership with General Corrosion Corporation (GCC) is pleased to submit this proposal for services to support St. Paul Regional Water Services(SPRWS) on the M1 and V2 Corrosion Mitigation project. We focus on client satisfaction; we are committed to improving our customers' experience through value-added solutions, our ability to meet evolving project requirements, and responsiveness to project demands.

SPRWS has requested hot spot evaluations for M1 and V2, along with an engineering estimate of the upcoming corrosion mitigation budget that SPRWS can expect across M1, M2, and V2. SPRWS has also requested a brief review of their existing specifications and details as they pertain to the raw water conduits discussed herein.

Execution Strategy

GCC and PES plan to implement a similar range of inspection services completed on M2 for the V2 conduit and will work directly with GCC to identify the method that will most effectively analyze the conduit based on the available information and site conditions. PES will provide the new data on V2 in a similar manner as was seen in the M2 report formats.

GCC and PES plan to utilize the previously gathered hot spot investigation data for M1 and provide recommendations on M1 in a similar report format as was seen on M2 and is planned for V2.

GCC and PES plan to estimate the required upcoming corrosion management work and transfer that to a rough dollar amount per year. The estimate will be communicated in a technical memo format that SPRWS can efficiently use for planning purposes.

GCC and PES will analyze the existing specifications and details that SPRWS uses for anode bank installation along with any other miscellaneous corrosion mitigation adjacent details with the goal of identifying any areas of deficiency or oversite when applied to the large-scale raw water conduits.

Project Scope of Work

The following table identifies the project scope of work for the M1/V2 Investigation and Corrosion Mitigation Estimate :

Scope of Work	Description	Proposed Solution
M1 Survey	➢ Analyze M1 for potential high corrosion areas	➢ PES will utilize previous hot spot survey completed by others ➢ PES will provide hot spot cathodic protection recommendations in a report format. ➢ Propose additional test station locations.
V2 Survey	➢ Analyze V2 for potential high corrosion areas	➢ PES will work with GCC to conduct the hot spot survey. ➢ PES will provide hot spot cathodic protection recommendations in a report format. ➢ Propose additional test station locations.

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Future Planning	➢ Create rough estimate for rough yearly budget moving forward on metallic sections of SPRWS raw water conduits	➢ Plan out for potential yearly workload of corrosion investigations and corrosion mitigation projects ➢ Finalize an estimated budget based on engineering estimate in a tech memo format
Spec's and Detail Examination	➢ Determine any potential changes or additions to SPRWS's specifications and details	➢ GCC and PES will help ensure that there are no additions or changes that SPRWS's specifications or details will require before beginning the next phase of corrosion mitigation projects on the raw water conduits.

Proposed Timeline for Execution

Key Project dates are outlined as an estimate below based on approximated notice to proceed. Dates are estimates based upon the project scope and deliverables.

Description	Start Date	End Date
M1 Final Report	October 2021	November 2021
V2 Survey and Final Report	TBD	TBD
Future Planning	October 2021	November 2021
Specification and Detail Examination	October 2021	November 2021

Pricing

The following table details the pricing of the services outlined in this proposal. This pricing is valid for 30 days from the date of this proposal.

Project Deliverable	Billing Description	Rate	Qty	Sub Total
M1 Engineering	Project engineer	$95.00	60 hr.	$5,700.00
	Senior Engineer	$165.00	8 hr.	$1,320.00
Subtotal				**$7,020.00**
V2 Soil Survey	Wenner 4-pin Method	$500.00	20 ea.	$10,000.00
V2 Corrosion Survey	Cell-to-Cell Potential Method	$2,400.00	4.5	$10,800.00
V2 Engineering	Project engineer	$95.00	60 hr.	$5,700.00
	Senior Engineer	$165.00	8 hr.	$1,320.00
Subtotal				**$27,820.00**
Future Planning	Project engineer	$95.00	100 hr.	$9,500.00
	Senior Engineer	$165.00	50 hr.	$8,250.00
Subtotal				**$17,750.00**
Spec's and Detail Examination	Project engineer	$95.00	60 hr.	$5,700.00
	Senior Engineer	$165.00	20 hr.	$3,300.00
Subtotal				**$9,000.00**
Total				**$61,590.00**

Disclaimer: The prices listed in the preceding table are an estimate for the services outlined herein. This summary is not a warranty of final price. Estimates are subject to change if project deliverables are changed, additional work scope is added, or project schedules are modified.

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Assumptions and Clarifications

1. Scope of Work as defined above
2. The M1 hot spot survey used for evaluation will be the EN Engineering Report titled;
    a. External Corrosion Assessment Mississippi River Conduit M1 60-Inch Steel Supply Conduit Saint Paul, Minnesota
3. The V2 hot spot survey will consist of the following;
    a. Wenner 4-pin soil survey
        i. 12-20 tests along the 4.4-mile section of V2
    b. Cell-to-cell survey
        i. One reading every 20 feet on soft cover areas
        ii. Core drilling through roads, parking lots, etc. not included
4. PES and GCC will not be re-working or redrawing any specifications or details but will only be providing input and judgment based on the applicability to the raw water conduit metallic sections.

Conclusion

We look forward to working with St. Paul Regional Water Services and supporting the M1/V2 Investigation and Corrosion Mitigation Estimate project with our services. We are confident that we can meet your project needs and stand ready to partner with you in delivering an effective solution.

If you have questions on this proposal, feel free to contact us at your convenience by email at joshschultz@precisionpipelinellc.com, or by phone at (715) 214-7909.

Thank you for your consideration,

Josh Schultz, PE

Director of Engineering