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December 19, 2025

Kyle Hinrichs
Associate Utilities Director
City of Mankato
730 Mound Avenue
Mankato, MN 56001

Re: Pilot Study – Water Treatment Plant
Mankato Water Treatment

Dear Kyle,

HR Green appreciates the opportunity to be involved in the continued development of concept planning for improvements to the Water Treatment Plant. Conducting a pilot study will allow us to determine operating parameters and characteristics of a membrane filtration system for water treatment plant upgrades. The Minnesota Department of Health (MDH) requires pilot studies for nanofiltration or reverse osmosis membrane systems. Additionally, MDH will require a pilot because the proposed improvements would change the treatment process at the plant which utilizes groundwater under the influence of surface water.

Based on our recent discussion of the pilot study, a scope and fee was developed to assist with pilot study coordination.

The not to exceed fee of this proposed scope is **\$48,000**. Details of the scope and work effort breakdown are enclosed below.

If you have any questions or comments regarding this proposal, please contact me at 605-221-2659 or respond via email at scotter@hrgreen.com.

Sincerely,

HR GREEN, INC.

A blue ink signature of Sam Cotter.

Sam Cotter, PE
Project Manager

Enclosures

cc: Mark Hardie (HR Green)

PROJECT UNDERSTANDING

GENERAL UNDERSTANDING

The City of Mankato, MN (CLIENT) operates a lime softening water treatment plant serving Mankato, MN, referred to as the Water Treatment Plant (WTP). HR Green, Inc. (COMPANY) previously provided facility planning services for CLIENT for the water supply, treatment, and distribution infrastructure. This facility plan evaluated various alternatives to expand the capacity of the facility. CLIENT's preferred alternative is for an expansion with Reverse Osmosis (RO) treatment process and Ultrafiltration (UF) treatment processes.

The Minnesota Department of Health (MDH) requires that a pilot study demonstrate proof of treatment over the range of water quality and test long enough to demonstrate required cleaning procedures. For that reason, a 6-month pilot study is proposed. The pilot will test an Ultrafiltration membrane and a Reverse Osmosis membrane for 3 months and then conduct a test of a standalone Reverse Osmosis system for 3 months, for a total of a 6-month pilot study.

The RO & Ultrafiltration pilot equipment will include pilot-mounted instrumentation plus additional water quality sampling of the feed, membrane effluent (permeate), and membrane reject/residual (concentrate) to demonstrate successful operation of the RO membrane technology.

The results of the RO Pilot Study will be provided in a Pilot Study Report that will document the results, findings, and recommendations. The Reports will provide documentation for review and approval by MDH as a preliminary design step for the WTP Expansion. This project will also identify additional detail and primary design criteria for the future full-scale design.

DESIGN CRITERIA/ASSUMPTIONS

The following design standards and assumptions are made for this project scope:

- Recommended Standards for Water Works (Ten States Standards), 2022 Edition, adopted design standards of the Minnesota Department of Health (MDH).
- Applicable design standards of the Minnesota Department of Health.
- CLIENT will direct-hire contractor(s) as required for completing modifications necessary to operate the RO Pilot. COMPANY will provide information and drawings to identify modifications/improvements necessary.
- The pilot study will be conducted with a single RO process/pilot unit and a single UF process/pilot unit.
- CLIENT will provide water quality sampling, either through its instrumentation, in-house laboratory, or a 3rd party certified laboratory. Costs for sampling will be paid by the CLIENT.
- CLIENT will obtain daily operational data from RO pilot unit in accordance with requirements established in the RO pilot protocol.

SCOPE OF SERVICES

The CLIENT agrees to employ COMPANY to perform the following services:

TASK 1: PILOT STUDY PROJECT MANAGEMENT

- 1.1. Coordination, QC review, and project management during 6-month pilot study.

TASK 2: PILOT STUDY PROTOCOL DEVELOPMENT

- 2.1. Develop a pilot protocol to outline the parameters of the pilot test and the data collection requirements.
- 2.2. Review the pilot protocol with potential equipment manufacturers and pilot equipment providers and incorporate their applicable comments into the pilot protocol.

- 2.3. Review the pilot protocol with CLIENT and incorporate client comments. Review meeting is anticipated to be virtual.
- 2.4. Submit the pilot protocol to the Minnesota Department of Health (MDH). Review the pilot protocol with MDH. Review meeting, if required, is anticipated to be virtual.

TASK 3: ONGOING PILOT STUDY SUPPORT

- 3.1. Assist with equipment supplier proposal review, and evaluate proposals for compliance with protocol. Conduct coordination between CLIENT and equipment supplier for pilot equipment delivery and setup.
- 3.2. Assist CLIENT with coordination of equipment supplier setup of the pilot.
- 3.3. Visit CLIENT's facility to review pilot equipment setup. This scope includes one site visit.
- 3.4. Assist CLIENT and equipment vendor with questions throughout the anticipated 6-month pilot study period.
- 3.5. Coordinate with the equipment supplier to review data submitted by the Owner on a weekly basis to determine if changes are recommended to operation of the pilot.

PILOT STUDY COMPLETION AND REPORT

- 4.1. Receive and review the pilot study evaluation report provided by the equipment supplier.
- 4.2. Develop a summary Pilot Study Memorandum identifying the purpose, procedure, and results of the pilot study. The report will include equipment design parameters to be included in the full-scale facility design, including:
 - Design flowrates for the membrane feed, permeate, bypass, and concentrate flows.
 - Anticipated chemical feed rates and storage/capacity requirements based on final flowrates and water quality. Chemical feed systems related to the membrane pilot systems include:
 - New Pre-treatment scale inhibitor (membrane conditioner)
 - New Post-treatment pH adjustment
 - Existing chlorine feed will be used for disinfection
- 4.3. Review the Design Memorandum and equipment supplier report with CLIENT and incorporate client comments. Meeting is anticipated to be virtual.
- 4.4. Submit the pilot study summary report to the MDH for their review and approval.

DELIVERABLES AND SCHEDULES INCLUDED IN THIS AGREEMENT

The Project shall be initiated upon authorization by CLIENT. The estimated project schedule assumes a Notice to Proceed at CLIENT's January Council Meeting.

Notice to Proceed	January 12, 2026
Pilot Study Protocol Development	January 2026
MDH Pilot Study Protocol Review.....	January 2026
Pilot Study Equipment Supplier Selection	February 2026
Pilot Study	March-August 2026
Pilot Study Report	September 2026

This schedule was prepared to include reasonable allowances for review and approval times required by the CLIENT and public authorities having jurisdiction over the project. This schedule shall be equitably adjusted as the project progresses, allowing for changes in the scope of the project requested by the CLIENT or for delays or other causes beyond the control of COMPANY.

ITEMS NOT INCLUDED IN AGREEMENT/SUPPLEMENTAL SERVICES

The following items are not included as part of this AGREEMENT:

1. Furnishing, operation, and/or maintenance of pilot equipment.
2. Water quality testing and/or 3rd party laboratory sampling.
3. Final design, bidding, or construction phase services for the full-scale system.
4. Funding applications to federal, state, and/or local agencies.
5. Historical, archeological, cultural resources, wetlands, floodplains, or environmental investigations, assessments, test, studies, and reports.
6. Surveying services.
7. Maps, plats, deeds, or easement documents.
8. Legal services of any kind.
9. Additional meetings with federal, state, or local agencies other than those specifically identified in the Scope of Services above.
10. Appearances at public meetings and public hearings other than those specifically identified in the Scope of Services above.
11. Additional meetings with CLIENT other than those specifically identified in the Scope of Services above.
12. Permit fees.
13. Any other additional engineering services in connection with the project.

Supplemental services not included in the AGREEMENT can be provided by COMPANY under separate agreement, if desired.

SERVICES BY OTHERS

1. Pilot equipment to be supplied by others and contracted directly with CLIENT.
2. Modifications/improvements to the existing Water Treatment Plant for interconnections with Pilot equipment to be completed by WTP staff or others and contracted directly with CLIENT.

CLIENT RESPONSIBILITIES

1. Provide access to work sites for COMPANY to perform or furnish services.
2. Furnishing and/or Contracting with 3rd parties for construction/modification required to operate the pilot system, such as raw water supply, effluent to waste, electrical power, and communication interconnections as required by the pilot supplier.
3. Operate pilot equipment and collect data as required by the pilot protocol.
4. Furnishing and/or supplying chemicals associated with the pilot equipment.
5. Provide and/or pay for 3rd party laboratory for water quality testing as required by the pilot protocol.
6. Provide relevant materials, such as maps, drawings, specifications, shop drawings, O&M manuals, operating data and reports, maintenance data and reports, water quality data and reports.
7. Provide personnel knowledgeable about operations and maintenance of facilities to be available for discussions and to answer questions.
8. Provide assistance in determining the locations of existing facilities and utilities.
9. Pay permit fees and other required fees associated with the project.
10. Review project deliverable documents submitted by COMPANY and provide comments back to COMPANY within one week, or otherwise as required by the project scope of services and schedule.
11. Attend meetings and hearings as required for this project.
12. Provide legal services as required for this project.
13. Appoint a CLIENT'S REPRESENTATIVE with respect to the services to be performed under this agreement. CLIENT'S REPRESENTATIVE shall have complete authority to transmit instructions, receive information, and interpret and define CLIENT'S policies. COMPANY shall be entitled to rely on representations made by CLIENT's REPRESENTATIVE unless otherwise specified in writing by CLIENT.

PROFESSIONAL SERVICES FEE FEES

The fee for services will be based on COMPANY standard hourly rates current at the time the AGREEMENT is signed. These standard hourly rates are subject to change upon 30 days' written notice. Non-salary expenses directly attributable to the project such as: (1) living and traveling expenses of employees when away from the home office on business connected with the project; (2) identifiable communication expenses; (3) identifiable reproduction costs applicable to the work; and (4) outside services will be charged in accordance with the rates current at the time the service is done.

INVOICES

Invoices for COMPANY's services shall be submitted, on a monthly basis. Invoices shall be due and payable upon receipt. If any invoice is not paid within 30 days, COMPANY may, without waiving any claim or right against the CLIENT, and without liability whatsoever to the CLIENT, suspend or terminate the performance of services. The retainer shall be credited on the final invoice. Accounts unpaid 30 days after the invoice date may be subject to a monthly service charge of 1.5% (or the maximum legal rate) on the unpaid balance. In the event that any portion of an account remains unpaid 60 days after the billing, COMPANY may institute collection action and the CLIENT shall pay all costs of collection, including reasonable attorneys' fees.

EXTRA SERVICES

Any service required but not included as part of this AGREEMENT shall be considered extra services. Extra services will be billed on a Time and Material basis with prior approval of the CLIENT.

EXCLUSION

This fee does not include attendance at any meetings or public hearings other than those specifically listed in the Scope of Services. These service items are considered extra and are billed separately on an hourly basis.

PAYMENT

The CLIENT AGREES to pay COMPANY on the following basis:

Lump sum with a breakdown as follows:

- Tasks 1 through 4: Forty-Eight Thousand and No/Dollars (\$48,000.00).

WORKPLAN

HR Green developed the individual tasks required for the scope. The estimated amount of effort was designated for the appropriate staff members. A detailed spreadsheet is enclosed.

WORKPLAN SPREADSHEET

TOTAL HOURS					259	22	60	6	41	114	10	3	3
COST PER HOUR/UNIT (CHARGE-OUT RATE)						\$ 290.00	\$ 222.00	\$ 287.00	\$ 195.00	\$ 140.00	\$ 174.00	\$ 139.00	\$ 90.00
TOTAL COSTS		\$ 47,804.00	\$ 196.00	\$ 48,000.00									
% OF TOTAL LABOR COST						13%	28%	4%	17%	33%	4%	1%	1%
Task	DESCRIPTION OF TASK	Labor Task Total	ODC Task Total	Task Total	EARNED VALUE TO DATE	PIC	PROJ MGR	SR TECH ADV	PROJ ENG	STAFF ENG	FIELD TECH	PROJECT CONTROLS	ADM ASST
Task 1	PROJECT MANAGEMENT	\$ 5,785.00	\$ -	\$ 5,785.00		5	10	4	0	2	0	3	3
	Client coordination	\$ 1,024.00	\$ -	\$ 1,024.00		2	2						
	Internal coordination & QC Review	\$ 1,872.00	\$ -	\$ 1,872.00			2	4		2			
	Project management - 6 months	\$ 2,889.00	\$ -	\$ 2,889.00		3	6					3	3
Task 2	PILOT STUDY PROTOCOL	\$ 5,800.00	\$ -	\$ 5,800.00		4	8	2	6	8	0	0	0
	Develop Pilot Data Collection, Schedule, Design Basis	\$ 2,258.00	\$ -	\$ 2,258.00		1	2	2	2	4			
	Coordinate & Distribute Request for Proposal with Potential Vendors	\$ 1,404.00	\$ -	\$ 1,404.00		1	2		2	2			
	Review protocol & vendor proposals with CLIENT	\$ 734.00	\$ -	\$ 734.00		1	2						
	Submit pilot protocol to Minnesota Department of Health and meet with MDH to discuss	\$ 1,404.00	\$ -	\$ 1,404.00		1	2		2	2			
		\$ -	\$ -	\$ -									
Task 3	ONGOING PILOT STUDY SUPPORT	\$ 25,298.00	\$ 196.00	\$ 25,494.00		7	34	0	20	72	10	0	0
	Assist with CLIENT and equipment supplier coordination.	\$ 1,468.00	\$ -	\$ 1,468.00		2	4						
	Site Visit: review pilot setup (Assume 1 site visit)	\$ 2,184.00	\$ 196.00	\$ 2,380.00			2				10		
	Assist with CLIENT and vendor questions throughout 6-month pilot period.	\$ 9,250.00	\$ -	\$ 9,250.00		5	20			24			
	Review weekly field data.	\$ 12,396.00	\$ -	\$ 12,396.00			8		20	48			
		\$ -	\$ -	\$ -									
Task 4	PILOT STUDY COMPLETION & REPORT	\$ 10,921.00	\$ -	\$ 10,921.00		6	8	0	15	32	0	0	0
	Receive and review pilot study report from equipment supplier.	\$ 1,684.00	\$ -	\$ 1,684.00		1	2		2	4			
	Pilot Study Memo, Summarize Data	\$ 6,688.00	\$ -	\$ 6,688.00		4	4		8	22			
	Review summary report with CLIENT	\$ 2,074.00	\$ -	\$ 2,074.00		1	2		4	4			
	Submit summary report to MDH	\$ 475.00	\$ -	\$ 475.00					1	2			