

**Project Name** | Settlers Glen Iron Enhanced Sand Filter**Date** | 3/5/2026**To / Contact info** | BCWD Board of Managers**Cc / Contact info** | Karen Kill, District Administrator**From / Contact info** | John Sarafolean; Erik Megow, PE; Camilla Corell, PE / EOR**Regarding** | 2026 Maintenance & Operations Scope of Services

## Background

The purpose of this memorandum is to outline maintenance and reporting tasks for operation of the Settlers Glen Iron Enhanced Sand Filter (IESF) in 2026. This was the first application of its kind using stream stage to control a pump that charges the filter (Stormwater “Pump-and-Treat”). The District has been operating and monitoring the project performance since installation in 2014.

For this year, we will continue to monitor, maintain, and sample at the pump, while trying to continue balancing the filter’s performance with changing hydrology and hydraulics from the local beaver community. Their activity is enhancing wetland hydrology, restoring the historic sedge meadow by raising water levels and removing early succession tree species. However, their dams have led to increases in water levels and inundation that negatively affect the filter and pump system flow meter components. To mitigate this, two Clemson beaver levelers were installed in 2025, which is a component of the system that we will continue to manage in 2026.

This year we are also including time and budget to complete a feasibility study to determine the cost and extent of the expected media replacement to occur in 2027. The feasibility will also include a possible partnership with the City to execute some pond dredging.

## 2026 Scope of Services

The on-going operation and maintenance of the project involves remote desktop monitoring and adjustment of the pump settings based on stream stage and weather conditions, site visits to check operation, vegetation, sediment accumulation, erosion, beaver activity, Clemson leveler operation, and filter surface condition. EOR will coordinate with WCD staff to maintain the filter surface with monthly raking and aeration as well as the expected installation of a third Clemson leveler to further manage beaver activity.

An end of year performance evaluation from the sampling results will be supplied as well as updating the project operation and maintenance manual based on the activities throughout the year (pump on/off or variable speed drive setting alterations, additional maintenance performed outside of the norm, etc.).

In 2024, BCWD collaborated with the Saint Anthony Falls Laboratory to conduct water and sediment sampling as part of the 2024-2025 *‘Iron Enhanced Sand Filters Performance and Maintenance Meta-Analysis’* research project. Per EOR’s May 1<sup>st</sup>, 2024 Memo, ‘Project Performance & Cost Summary’ for the Settler’s Glen IESF, we estimated that the filter media had approximately 80 lbs of total phosphorus capture capacity remaining. At an average removal of 25 pound/year of capture, this means that the filter media will likely be at the end of its lifespan at the end of 2026. Additionally, the MN Stormwater Manual recommends the replacement of IESF media if the total phosphorus of the treated effluent

exceeds 0.07 mg/L. Our 2022-23 monitoring showed that the effluent TP concentration ranged from <0.05 mg/L to 0.105 mg/L with an average of 0.075 mg/L. Although our average was at the threshold, we still saw good performance overall with an estimated 69%-90% TP removal. The estimated TP removal efficiency of an IESF filter is 75%.

With the filter likely at the end of its life-expectancy, we recommend replacement of the filter media in January-March of 2027 with the following schedule:

- Proposed 2026 schedule of work included in this budget:
  - Spring-Summer: Engage the City of Stillwater regarding timing of dredging of their adjacent stormwater basin.
  - Discuss collaboration of planning and cost sharing opportunities with the City of Stillwater.
  - Summer-Fall: Production of the feasibility report and cost estimate for IESF filter replacement and dredging, including any testing we may need.
  - Fall-Winter: Prepare RFQ for Pond/IESF Maintenance.
- Potential 2027 schedule (budget not included in this memo):
  - Complete the dredging of the stormwater basin and filter media replacement between February-March of 2027, during periods of low flow.

## **2026 Maintenance Tasks**

### **Task 1: System Status - Remote and in-person pump operation, inspections, and reporting**

It is recommended that a qualified technician inspect the pump station every two years, based on the mild conditions for the type of pump installed at the IESF (Intermittent pump duty cycle and relatively low abrasiveness of the water being pumped). The pump system was thoroughly inspected in 2025 by Tri-State Pump and Control, Inc., therefore this maintenance is not needed for 2026 and not included in this scope.

### **Task 2: Site Maintenance and Beaver Activity Mitigation**

The filter surface has been aerated and raked monthly during the growing season to loosen the upper portion of the sand and encourage movement of water into, rather than across, the filter. It is recommended that the Washington Conservation District (WCD) seasonal BMP maintenance staff continue to conduct this maintenance at this frequency. In addition to this coordination, it is recommended to maintain two Clemson levelers installed in 2025, to maintain the dams that are interfering with the filter and pump components. We also expect that a third Clemson leveler will need to be installed in 2026 to mitigate additional beaver activity. The maintenance work for two Clemson levelers and installation of a third is included in the IESF 2026 Operation and Maintenance Scope of Services below.

### **Task 3: ISEF Media Replacement and Pond Dredging Planning**

The third maintenance task we are planning for this year is the replacement of the iron-enhanced sand filter media that we expect is near the end of its life-expectancy. To replace the media we are expecting to provide a feasibility report, coordination with the City of Stillwater, and soil testing to determine the ultimate scope and timing of this work. For this task, we have planned for the feasibility memo, soil testing, coordination with the City, and the development of a Request for Quote

(RFQ) package to complete the media replacement and possible City pond dredging work in winter-spring 2026-27. The development of the RFQ package depends on the results of the feasibility study. At this time, we assume that the overall project cost will be less than \$175,000 and will not need to be publicly bid.

### Scope

The following table outlines the cost and hours anticipated for 2026.

<b>Task</b>	<b>Description</b>	<b>Hours</b>	<b>Cost*</b>
1. System Status	Remote desktop monitoring & pump setting adjustments, Monthly site visits, operational inspections, special Clemson leveler/beaver visits, mileage, system operation, and documentation	47	\$8,647
2. Site Maintenance	Filter surface and Clemson leveler coordination and maintenance with the installation of a third Clemson leveler	15	\$3,193
3. Coordination, testing, feasibility memo, and RFQ package** for IESF media replacement and dredging	In 2026, EOR will coordinate with the City and BCWD to complete a feasibility memo on the replacement of IESF media within the filter and possibly pair and cost-share the testing and work with the dredging of a nearby/adjacent pond maintained and operated by the City of Stillwater. This budget also includes the development of an RFQ package to complete the work in winter-spring 2026-27	159	\$31,745
<b>Total</b>		<b>221</b>	<b>\$43,585</b>

\* Given the weather-dependent nature of the work, the costs are estimates only. Additional project needs will be brought to the attention of the District Administrator and outlined in a separate scope of work. Vegetation maintenance of this project is included in a separate, District-wide vegetation maintenance scope.

\*\* This assumes we will move ahead with the RFQ package in 2026, estimated at \$14,438. That estimate could change based upon the scope of work determined in working with the City of Stillwater and what conclusions are found from the feasibility study.

### Requested Action

Consider approval of this scope of services for an estimated cost of \$43,585 from account 948-0000.