AMENDMENT NUMBER ONE

2021 TAWAS UTILITY AUTHORITY CWSRF PROJECT PLAN 5721-01

Tawas Utility Authority (TUA)

Dated: April 10, 2023

This Amendment also includes the work scope revised per the letter to Ms. Kathy Roeder, Project Manager EGLE dated February 3, 2022

Item No. 1: Delete the Sludge Storage Tank

Revise Section 2.1 final paragraph starting on page 17 and continuing with bullet points on page 18; delete bullet point 6 "Addition of tertiary treatment" and the last part of bullet point 8 "Sludge mixing system improvements and additional sludge storage capacity" to delete the addition of additional sludge storage.

Item No. 2: Delete the proposed screen for East Tawas flows with the following additional impacts:

Delete the proposed headwords screening for solely East Tawas flows. This also will negate the need for the associated building expansion and odor control system.

Item No. 3: Propose a single screen to handle the total flow entering the plant upstream of grit

Headworks Improvements – Screening:

The selected options for screening improvements is Option 1 for East Tawas and Option 2 for the whole plant. This Option was selected to provide protection of the raw sewage lift pumps, fully screen incoming trash, provide enhanced odor control. Various types of equipment are available to serve the fine screening function and can be considered for TUA

Revise Section 3 – Selected Alternatives as follows:

Relevant Design Parameters:

The recommended alternative is a comprehensive capital improvement project to upgrade the existing facility and process, as described in the previous section. This alternative includes the following capital improvements to the TUA WWTP. More detail of the specific improvements recommended under each heading is provided in the following sections. Note that the recommended project is a comprehensive project that provides the most cost effective solution over the long term and should minimize the need for any major improvements over the next 20 years. However, if the overall project cost or user cost increases are excessive and deemed not acceptable, the minimum project should be implemented to address the on-going discharge violations in terms of suspended solids and fecal coliform. Items that appear necessary to specifically address the violations are noted with an asterisk (*), in case the project needs to be constructed in phases. Those items identified with an asterisk would need to be constructed as a first phase.

1. Site work
2. Headworks improvements to incorporate automatic fine screening for all flows entering the plant
3. Headworks improvements for odor control
4. Rehabilitation of primary clarifiers

5. Rehabilitation of the existing oxidation ditches
6. Rehabilitation of the secondary clarifiers
7. Modification to the return and waste sludge pumping equipment to improve process control
8. Chlorine system improvements.
9. Rehabilitation of existing digesters
10. Digester improvements to provide mixing
11. Upgrade the existing SCADA system
12. Electrical improvements
13. Structural, Safety and other improvements to existing buildings

No. 1 – Headworks Improvements:

Headworks improvements will include installation of a new automatic mechanical fine screen with solids washer and compactor. The new screen will be installed immediately upstream of the grit removal system.

Grit Removal:

The existing aerated type grit removal process is relatively new and reported to be in excellent condition. Improvements to the existing odor control system, grating, piping and valves and other ancillary items will be included.

Return Activated Sludge (RAS)/Waste Activated Sludge (WAS) Improvements:

The existing RAS/WAS system will be improved to provide greater flexibility to the plant operations. At present, the plant typically operates only one oxidation ditch leaving the other empty. The current RAS/WAS configuration prevents utilization of the empty ditch as equalization volume during wet weather events. These improvements will allow using the empty ditch as equalization thereby preventing SSO discharges at the facility.

Disinfection System Improvements:

The proposed project includes improvements to the facility's chlorine disinfection system. Historically, the facility has occasionally exceeded fecal coliform limits. These improvements will provide a more robust system capable of reducing fecal coliform to appropriate levels.

SCADA and Control Upgrade:

The existing control and monitoring system for the WWTP is digital based and has been upgrade regularly since 1993. A SCADA (Supervisory Control and Data Acquisition) upgrade is recommended under this report. This is needed to incorporate the new primary treatment system, expanded secondary treatment process, include effluent booster pumping, and general upgrades needed. These are aimed at:

- Upgrading process control when significant cost savings result
- Improving reliability by upgrading existing equipment to automatically startup after power failure

- Improving WWTP protection and alarming systems such as high water alarms and security breech

Miscellaneous WWTP Improvements:

This includes miscellaneous items regarding work throughout the proposed project that may be altered or needed as part of the final design. The following headings depict the scope of work under the "Miscellaneous" heading.

General Concrete Repair:

Miscellaneous locations of concrete and masonry deterioration will be repaired. Repairs normally include chipping away loose concrete and patching with latex modified, Portland cement based patching material. Deteriorated concrete exists at the following locations over the surface areas noted below. Following is additional detail.

Painting:

Painting of metal and interior masonry surfaces is needed in some locations throughout the WWTP. Painting of interior masonry, piping, equipment, handrails, and other ferrous metal surfaces is needed to enable the staff to maintain an annual rotation basis. The following painting and (or) coating work is recommended:

- Submerged and intermittently submerged concrete surface of clarifiers, aeration tanks, digesters, and other wastewater storage structures.
- Steel and iron process piping and equipment, interior exposed, exterior exposed, and submerged.
- Interior and exterior exposed ferrous metal surfaces such as handrails, stair stringers, ladders, and frames.
- Interior exposed masonry and concrete surface in occupied areas.

It is recommended that areas of strong need or high difficulty be recoated under this improvement. Areas where existing paint coatings have begun to fail and are difficult to access when other improvements are ongoing, should be completed under a high priority of Phase 1 project. Areas in fair condition and those not requiring intense surface preparation or special cure protection can be continued over time by operating personnel. Painting of wall surface should include protective coating of electrical conduit and equipment.

SRF Green Project Reserve:

After reviewing the EGLE Green Project Reserve Guidance document, some of the proposed improvements meet the categorical requirements. Higher efficiency HVAC systems and electrical components may meet the business case requirements.

Special Assessment District Projects:

The special assessment district is not applicable to this project.

Sensitive Features:

Work will take place on treatment facility grounds and be isolated from any potential sensitive environmental locations. It will be necessary to protect the waters of the Tawas River during construction. Noise and dust must be controlled.

Environmental impacts will be minor and temporary construction related. Mitigation measures as necessary will be required via construction contracts. Permits (along with related agency reviews) will be obtained during the design process. The work will be within 500 feet of a body of water, Tawas River.

Schedule for Design and Construction:

A proposed project schedule Table follows

Table 8. Schedule

Task Description	Planning Date
Letter of Intent	12/2020
TUA Authorizes Project Plan Preparation	9/2020
Project Plan/MDEQ Meeting	12/2020
Complete Formal Draft Project Plan	4/12/21
Advertise for Public Meeting	4/11/23
Hold Public Hearing	4/27/23
Submit SRF Project Plan	5/1/23
Design Begins	9/2023 to 11/2023
Final Project Priority List Published	10/23
Rate Methodology Approved	10/2023
Submit Part I and II SRF Application	11/2023
Complete Permit	11/2023
FONSI Clearance	10/2022
Design Complete	10/2022
Submit Bid Advertisement	12/2023
Submit Part III SRF Application	2/2024
Notice of Award To Contractor	3/2024
MDEQ Order of Approval	2/2024
SRF Bonds Sold	3/2024
Construction Notice To Proceed	4/2024
Complete Construction	4/2027

Cost Summary:

Table 9 is a summary of construction costs for each recommended improvement. Improvement costs are listed in columns to represent order of priority and potential project phasing.

Construction costs in Table 9 are increased by engineering and contingency allowances to provide total project costs at the bottom. A more detailed breakdown of construction costs is included in Appendix D.

Table 9: Cost Summary

Tawas Utilities Authority SRF Project Plan CWSRF Amendment 1 April 2023 OPINION OF COST		
General conditions	0.03	$442,000
SiteWork		$588,000
East Tawas Headworks		$-
Tawas City Headworks		$-
Odor Control Equipment		$1,500,000
Total Flow Screening (prior to grit rem.)		$1,600,000
Primary Clarifier Rehabilitation		$195,000
Oxidation Ditch Rehabilitation		$3,000,000
Secondary Clarifier Rehabilitation		$815,000
RAS and WAS Improvements		$650,000
Chlorine System Improvements		$560,000
Effluent Metering		$75,000
Digester Rehabilitation		$3,650,000
Existing sludge Storage Tanks Mixing		$600,000
New Sludge Tank		$-
Electrical Improvements		$700,000
SCADA System Upgrade		$450,000
Structural, Safety, Other improvements		$325,000
Total Construction Items		$15,150,000
Contingency	15%	$2,272,500
Construction Cost Opinion		$17,422,500
Engineering		$1,250,000
Legal and Admin	2%	$228,000
Total Project Cost Opinion		$18,900,500

SRF Eligible Project Funding:

No items to be included in the project are believed to be ineligible for funding under the Michigan SRF program.

3.1 Authority to Implement the Selected Alternative

The Tawas Utility Authority is comprised of 50% ownership by both the Cities of Tawas City and East Tawas. The Authority was set up under PA 233 and the Articles of Incorporation provide the authority to both implement the project and to bond for it.

3.2 User Costs

The fees and charges imposed by the Tawas Utilities Authority for wastewater treatment comprise only a portion of the end user costs. Each community also adds costs for the operation and maintenance of their individual sewer collection system. The user rates vary between communities.

For the purposes of this project, the user cost increase attributed to the project financing under a CWSRF loan (no principle forgiveness is currently assumed) is estimated as follows:

20 Year Financing: Cost increase per REU - $353/year or $29.40/month

The user cost increases shown above are for financing of the recommended full, comprehensive project. If the project is to be constructed in phases, and the initial phase consisting of only those items necessary for permit compliance, the user rate increases would be scaled back proportionately.

The above approximation of user rate impacts is based on the current guidelines for bonding rates at 1.875% for 20-year and 2.125% for 30-year terms. The increase in cost for debt service per user is based on a total of 2,500 REUs in the system for the three communities served. The 3,519 REU amount was determined from a review of billing records from each of the three communities served by the TUA.

The proposed project includes improvements which involve energy conservation and water use conservation. These components will be submitted to EGLE for funding under the Green Project Reserve. It is possible that principal forgiveness may exist for components which qualify for the Green Project Reserve and should the TUA qualify for Disadvantaged Community Status (see below). These have not been included in the cost analysis, which would effectively reduce the estimated user rate impacts.

3.3 Overburdened Community (formerly Disadvantaged)

For FY 2024 funding the Disadvantaged Community rating system has been replaced with an “Overburdened Community” determination. Overburdened Community status for TUA is based on a blended median annual household income, and taxable value per capita for the Cities of East Tawas, and Tawas City, and Alabaster, Baldwin and Tawas Townships. The number of Residential Equivalent Units (REUs) for the service area was determined based on the number and sizing of water services. TUA qualifies as an Overburdened Community Criteria based on the project costs per user for the proposed improvements. The required EGLE documentation is included with this document.

3.4 Useful Life

Remaining Useful Life of all wastewater assets is available in 2018 SAW Asset Management Plan. The remaining useful life for WWTP assets is summarize in Appendix F, which is a copy of the Asset Management Plan Summary Sheet.

For new capital improvements including those under the proposed SRF project the total useful lives are as listed below based on methodology for salvage value computation.

- Building: 40 years

- Underground facilities including piping and foundations: 50 years (100 years expected based on performance of existing systems).
- Short-lived equipment: 20 years (30 to 40 years expected based on performance of existing equipment).

Equipment Depreciation and Replacement:

Separated from capital improvements, planning for regular equipment replacement is an important component of plant operations and should be a line item in the budget. Recommendations for annual repair, replacement, and improvement (RRI) of existing short-lived systems was conducted under the 2018 SAW program.

Table 10: Present Worth Analysis

Item	Description	Value
1	Capital Costs	$18,900,500
2	Annual Operation and Maintenance	$1,000,000
3	Future Salvage Value	$7,500,000
4	Present Worth of O&M	$635,202
5	Present Worth of Salvage Value	$5,298,448
6	Total Present Worth	$17,454,312

Scoring Evaluation

Compliance:

The Tawas Utility Authority has been advised by the Michigan Dept. of Environment, Great Lakes and Energy (EGLE) to make plant improvements and failing to do so will result in enforcement action. These projects are based on that advisement and the potential for enforcement by the state.

Public Health:

As noted previously, the proposed improvements to the RAS/WAS system will allow using the empty oxidation ditch as equalization during wet weather flows. This will reduce the potential for wet weather SSO's and the associated detrimental impact to public health.

Water Quality:

The proposed improvements to the biological processes will increase treatment efficiency and process control, and improve overall quality of plant effluent.

The proposed improvements to the chlorine disinfections system will minimize the potential for excess fecal coliform discharges.

Improving Infrastructure:

The proposed improvements will replace and upgrade the mechanical components at the facility as identified in the Asset Management Plan developed as part of the SAW Program.

The TUA facility currently operates as a regional facility providing wastewater treatment to two cities and a portion of a township.

Affordability/Disadvantaged:

The communities served by the TUA facility qualify as Overburdened.