

TOWN OF THOMPSON, SULLIVAN COUNTY, NEW YORK

EMERALD GREEN WASTEWATER TREATMENT PLANT UPGRADE MAP, PLAN, & REPORT

PREPARED FOR:

TOWN OF THOMPSON, NY

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JULY 14, 2020



1.0 Introduction

This Map, Plan, and Report (MPR) has been prepared as required by, and in accordance with New York State Town Law 202b, and is intended to assist Town officials and residents in evaluating the public benefit of a project that will upgrade and expand the wastewater treatment plant (WWTP) serving the Emerald Green-Lake Louise Marie Sewer District (EGSD). Completion of the MPR is required whenever a town resolves to undertake a project to improve or reconstruct existing facilities on behalf of a sewer district.

A comprehensive upgrade of the facility is necessary to meet recently updated water quality standards, expand plant flow capacity, expand bio-solids processing capacity, and to ensure the plant's long-term viability.

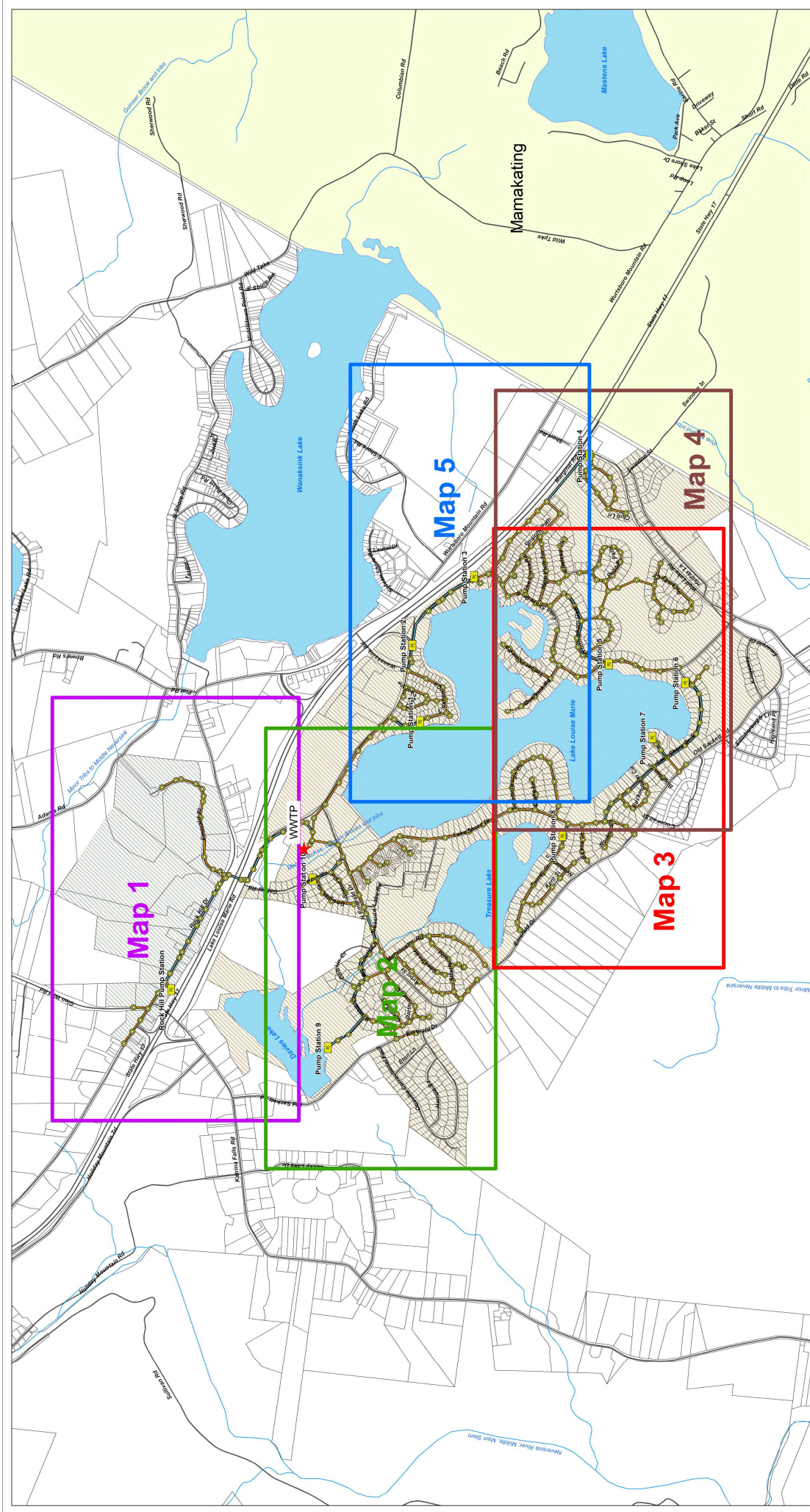
Funding for this upgrade and expansion project has not yet been secured. The Town intends to apply for funding through the New York State Environmental Facilities Corporation (NYSEFC) Clean Water State Revolving Fund (CWSRF). Additionally, the Town will submit a grant application to the NYS Water Grant program authorized through the Water Infrastructure Improvement Act (WIIA), which may provide grant funds up to 25% of the eligible project costs. Additional funding sources, including the NYSDEC Water Quality Improvement Program (WQIP) and the NY State and Municipal (SAM) funding program will be applied for pending completion of project eligibility reviews.

1.1 Background

The Town of Thompson, Sullivan County, is located in the foothills of New York State's Catskill Mountain region. The Town owns and operates the Emerald Green wastewater treatment plant (WWTP) which is located on a 14.92 -acre parcel on the southern side of NY Route 17 and just north of Lake Louise Marie, in the hamlet of Rock Hill. A map identifying the Emerald Green WWTP site and sewer district boundaries is included as **Figure 1 – Location Map**.

The WWTP serves NY residents and businesses in the hamlet of Rock Hill. Flow contributions to the plant are primarily from district residences with some light-commercial users. There are approximately 1,350 properties in the EGSD for which the Town has approximately 885 service accounts. Approximately 97% (862) of the accounts are registered single-family homes (SFH). There are no major industrial discharges to the WWTP nor are any planned or anticipated in the near future.

The WWTP is regulated by the New York State Department of Environmental Conservation (NYSDEC) under the State Pollutant Discharge Elimination System (SPDES) Permit program and



Manholes and pump stations located by NYRWA using GPS in March 2008.
 2008 parcel and district boundaries provided by Sullivan County Planning and Community Development.
 Lake, stream, and road centerline data from the New York State GIS Clearinghouse.

Scale
 1 inch equals 700 feet



- Legend**
- Sewage Pump Station
 - Manhole
 - Road Centerline
 - Parcel Boundary
 - Sewer District
 - Sewer Main Force
 - Sewer Main Gravity
 - Stream
 - Emerald Green
 - Rock Hill



New York Rural Water Association
 Address: P.O. Box 487, Claverack, NY 12513
 Phone: 518-528-3155
 Web Site: <http://www.nyrwatwa.org>

Map No. A Drawn By: SJW Checked by: JH Date: July 2008

Figure 1

Town of Thompson, NY

Emerald Green & Rock Hill

Sewer Districts Index Map

operates under SPDES Permit No. NY0035645. The SPDES permit regulates the volume (capacity) and quality of water (effluent) permitted to be discharged from the facility, and details the daily and monthly water quality monitoring requirements.

The SPDES permit allows for the plant to discharge up to 0.410 million gallons per day (MGD), and the plant typically operates at approximately 70% capacity. Outflows from the plant are received by McKee Brook, a class B(T) stream.

The SPDES permit was recently modified to include discharge limits for fecal coliform and total residual chlorine. These modifications will go into full effect as of May 1, 2022. Additionally, the SPDES permit requires that the facility implement a temperature monitoring program to ensure that the effluent is not exceeding the 70° F permit limit. The monitoring program is currently on-going.

1.2 Reasons for the Project

- 1) Under its current process configuration, the Emerald Green WWTP has been in service for nearly 30 years and while the equipment and systems have been maintained throughout the intervening years, the plant is approaching the end of its design life.
- 2) While the existing disinfection system is able to meet interim SPDES permit limits for Total Residual Chlorine (2.0 mg/l), it is uncertain whether the system will be capable of consistently meeting the stricter limits (0.03 mg/l) set to go into effect in May 2022. To remedy this, the Town will remove the chemical disinfection and switch to UV disinfection, thereby avoiding possible exceedances of the SPDES permit limit for Total Residual Chlorine.
- 3) The plant is currently utilizing approximately 70% of its available hydraulic capacity. The Town is requesting a permit increase of 65,000 GPD to ensure the facility will be able to accommodate future growth.
- 4) The plant does not currently have facilities for processing waste sludge, which is hauled to the Town's Kiamesha WWTP for processing. If the Kiamesha sludge handling and processing facilities were ever disabled, the Emerald Green facility, with its limited waste sludge storage capacity, would experience a severe operational disruption as well. By adding sludge processing facilities, the facility would be able to function independent of the Kiamesha plant operations.

To address these conditions, the Town is proposing a comprehensive WWTP upgrade with an estimated capital project cost of **\$14 million**. The proposed project will upgrade the existing plant, provide new treatment facilities that will ensure continued compliance with SPDES permit requirements for the near term, as well as for the estimated increase in loading conditions up to 0.475 MGD.

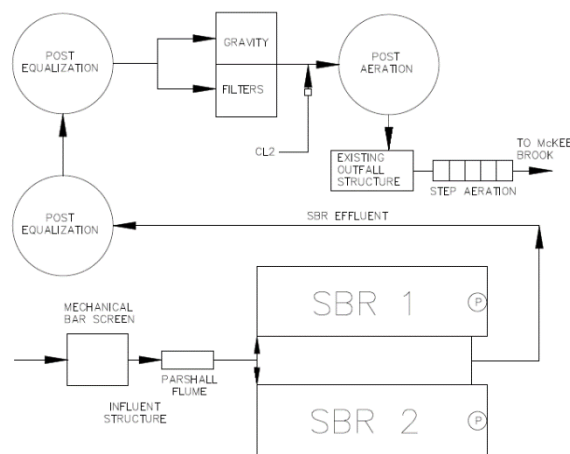
2.0 District Boundary Description

The Town of Thompson owns, operates and maintains multiple sanitary sewer districts. As shown in **Figure 1**, both the Emerald Green and the Rock Hill Sewer Districts convey sanitary sewage to the Emerald Green WWTP.

There will be no immediate expansion of the existing Emerald Green Sewer District boundaries resulting from this project, and all properties currently included in the district will remain in the district.

3.0 Description of Existing WWTP Facilities

The Emerald Green WWTP is a single stage nitrification process utilizing Sequenced Batch Reactors to achieve ammonia and phosphorus removal. The SBR effluent flows to tertiary treatment units to meet discharge permit levels.



Process Diagram

Influent enters the facility through the influent channel structure where it passes through a mechanical bar screen and Parshall flume. Influent then flows to the influent holding tank and then on to the two SBR basins.

Treated water is removed from the SBR basins via decanters to the two Post EQ tanks then on through the sand filters. The effluent then passes through the chlorine contact tank and the post aeration tank. Finally, the effluent is dechlorinated prior to discharge to McKee Brook.

4.0 General Plan of Improvements

The following is a summary of the principal proposed upgrades and improvements necessary to adequately treat anticipated demand up to 0.475 MGD, and provide for future needs. The current proposed layout of these facilities is shown on the site plan (see **Figure 2 – Upgrade Site Plan**).

The comprehensive facility upgrades and improvements will encompass plant buildings, equipment, systems, and site conditions. Significant improvements include installation of a new UV disinfection system and the construction of a new sludge dewatering building.

The upgrade will occur within the current property limits and within previously disturbed areas.

The following is a detailed list of proposed improvements to the Emerald Green WWTP:

- Influent Channel Improvements
- Influent Holding Tank Improvements
- SBR Basin 1 & 2 Improvements
- SBR Basin 3 Construction
- Post Equalization 1&2 Improvements
- Process Air Supply Blower Improvements
- Sand Filter Improvements
- UV Disinfection Process Improvements
- Post Aeration Improvements
- Sludge Holding Tank Improvements
- Sludge Processing Construction and Belt Filter Press
- Yard Piping Improvements
- Site Work Improvements
- SCADA Improvements
- Other Improvements

Further details on this upgrade and expansion project are included in the Preliminary Engineering Report (July 2, 2020) prepared by Delaware Engineering, D.P.C..

5.0 Proposed District Operations

The Town of Thompson Water and Sewer Department oversees day-to-day operations, maintenance, and administration of all four of the Towns' wastewater treatment facilities. The department is managed by the superintendent and assistant superintendent with support by a foreman and account clerk. Additionally, the Emerald Green facility employs a dedicated staff consisting of one 3a-certified licensed operator and two 2a-certified operators.

It is anticipated that additional personnel will not be required to operate or maintain the upgraded facilities, and staffing is anticipated to remain at current levels.

6.0 Statement of Regulatory Review and Approvals Required Prior to Construction

Regulatory review and approvals of the engineering report and design documents are anticipated to be conducted by the NYS Department of Environmental Conservation and the NYS Environmental Facilities Corporation.

Plans will also be submitted to the Delaware River Basin Commission (DRBC), a regional water resource management consortium made up of four states and the US Army Corps of Engineers. The DRBC coordinates with states and local governments on water and wastewater projects throughout the Delaware River Basin region. The WWTP is located in an area identified by the DRBC as "special protection waters" and DRBC review is required for any new treatment facility or expansion of an existing facility with an average daily discharge rate of 10,000 gallons a day or more during any consecutive 30-day period.

Because this action will require the discretionary approval of multiple governmental and quasi-governmental agencies, NYS requires the completion of a State Environmental Quality Review (SEQR) coordinated with all involved, and potentially involved agencies. The SEQR process was initiated at the June 2, 2020 meeting of the Thompson Town Board, at which time the Board declared their intent to serve as lead agency for the Unlisted action. At their July 7, 2020 meeting, the Town Board resolved to issue a negative declaration for the proposed action as no significant environmental impacts were identified during the SEQR process.

7.0 Maximum Amount to be Expended

The maximum amount that is planned to be expended is \$14 Million.

8.0 Cost of Hook-Up Fees Charged by District, If any

The Town intends to continue with its current policy regarding hook-up fees and reserves the right to modify this in the future.

9.0 Detailed Explanation of Costs (How Costs are Computed)

The schedule of rates for capital improvements and operation and maintenance expenses for properties included in the Emerald Green - Lake Louise Marie Sewer District are computed based on the number of rent points assigned to each property. Rent points are determined based on property use and codified in *§194-46 Schedule of Rates* of the Town Code. Single-family homes are assigned 10 rent points each for capital improvements and 10 rent points for operations and maintenance costs.

Costs to the typical user are calculated based on the total operations and maintenance (O&M) costs plus a unit share of any debt service owed by the sewer district. Only those properties within the district that are connected to public sewer system are responsible for a share of the O&M costs. However, all properties owners -- including vacant land not connected to the sewer system -- are and will continue to be charged for a share of the debt service.

9.1 Operations and Maintenance (O&M)

Operations and maintenance costs are not anticipated to substantially increase as a result of this project. The costs associated with disinfection will decrease by approximately \$12,000/yr due to the elimination of the need for chlorine and sodium bi-sulfate. However, there will be additional costs associated with increased energy usage by the UV disinfection system and periodic UV bulb replacement.

In 2019, users in the EGSD were charged **\$63.02** per point for operations & maintenance of the system. A single-family home is assigned 10 points, resulting in an annual O&M charge of **\$630.20**.

9.2 Debt Service

Sewer unit shares for debt service are calculated in accordance with Part 2, Article IX of the Thompson Town Code. Each property located in the sewer district is assigned a debt points value in accordance with *§194-46 – Schedule of Rates*. In 2019, property owners in the EGSD were charged **\$19.67** per point for debt service. A single-family home is assigned 10 debt points, resulting in an annual debt service charge of **\$196.70**

2019 Sewer Rates		
	Per Point	Typical User (10 points)
Annual O&M Cost	\$63.02	\$630.20
Annual Debt Service	\$19.67	\$196.70
Total:	\$82.69	\$826.90

10.0 Cost to a Typical Single-Family Residential Property

Until funding is secured for the project, the final costs to users can only be estimated. Estimates provided below are based upon three financing scenarios at currently available rates. The NYSEFC provides three levels of funding; market rate (3.3%), subsidized (1.65%), and hardship (0%). Each of the scenarios are considered below. All scenarios assume a loan term of 30 years.

Estimated Annual Debt Service			
<i>Project Cost - \$14,000,000</i>	Hardship (0%)	Subsidized (1.65%)	Market Rate (3.3%)
Annual Debt Service	\$466,677	\$595,419	\$742,245
Average Annual Cost Increase to the Typical SFH	\$393	\$502	\$625

Estimated Future Sewer Rates for the Typical SFH						
	Per Point			Typical User (10 points)		
	0%	1.65%	3.3%	0%	1.65%	3.3%
Annual O&M Cost	\$63.02	63.02	\$63.02	\$630.20	\$630.20	\$630.20
Existing Annual Debt Service*	\$19.67	19.67	1\$9.67	\$196.70	\$196.70	\$196.70
Additional Debt Service	\$39.30	\$50.20	\$62.50	\$393.00	\$502.00	\$625.00
Total	\$121.99	\$132.89	\$145.19	\$1,219.90	\$1,328.90	\$1,451.90

*Note: \$1.3 million in existing debt will be paid off in 2030 and the remainder will be paid off in 2050.

The above costs and rate impacts are based on current district users and 2019 Sewer Rates. Rates would be reduced if more development occurs within the district and/or if the town is able to secure grant funding for the proposed improvements. The Town is also in the process of consolidating and restructuring rates for all of the sewer districts, which may impact future rates in the Emerald Green-Lake Louise Marie Sewer District.

11.0 Method of Finance

Funding for this upgrade and expansion project has not yet been secured. The project has been submitted for listing on the New York State Environmental Facilities Corporation (NYSEFC) 2020 Intended Use Plan, which is the first step to secure funding through the NYSEFC Clean Water State Revolving Fund (CWSRF). A funding application will be submitted with the July 2020 Engineering Report, and a funding determination is expected by late fall. Additionally, the Town will submit a grant application to the NYS Water Grant program authorized through the Water Infrastructure Improvement Act (WIIA) which may provide grant funds up to 25% of the eligible project costs. Additional funding sources, including the NYSDEC Water Quality Improvement Program (WQIP) and the NY State and Municipal (SAM) funding program will be applied for pending completion of project eligibility reviews.

12.0 Statement as to Benefit Assessment

At this time, the costs associated with the debt service from the bond that is planned to be secured to finance the facility upgrades, and associated increases in O&M costs, will be charged on a benefit basis. Each holder of real property within the sewer district that will benefit from the project, as well as any out of district users, will be levied a share of those costs in accordance with the current Town Code and/or sewer use agreements/contracts.