

# TOWN OF THOMPSON, NY

SULLIVAN COUNTY, NEW YORK

## KIAMESHA LAKE WASTEWATER TREATMENT PLANT UPGRADE MAP, PLAN, & REPORT

PREPARED FOR:

**TOWN OF THOMPSON, NY**

4052 STATE ROUTE 42  
MONTICELLO, NY 12701

PREPARED BY:



**DELAWARE ENGINEERING, D.P.C.**

55 SOUTH MAIN STREET  
ONEONTA, NEW YORK 13820  
607-432-8073

**AUGUST 12, 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 the wastewater treatment plant (WWTP) serving the Kiamesha Lake Sewer District. Completion of the MPR is required whenever a town resolves to undertake a project to improve or reconstruct existing facilities and appurtenances on behalf of a sewer district.

A comprehensive upgrade of the 65 year-old facility is necessary to meet recently updated water quality standards, to improve and expand bio-solids processing capacity, and to ensure the plant's long-term viability.

In February 2020, the Town was informed by the New York State Environmental Facilities Corporation (NYSEFC) that this upgrade project is eligible for interest-free ("hardship") financing for a term of up to 30 years through the Clean Water State Revolving Fund (CWSRF).

The Town intends to seek additional financial support for this upgrade through other funding programs. However, since funding from those sources has not yet been secured, this MPR assumes that the CWSRF will be the sole source of funding.

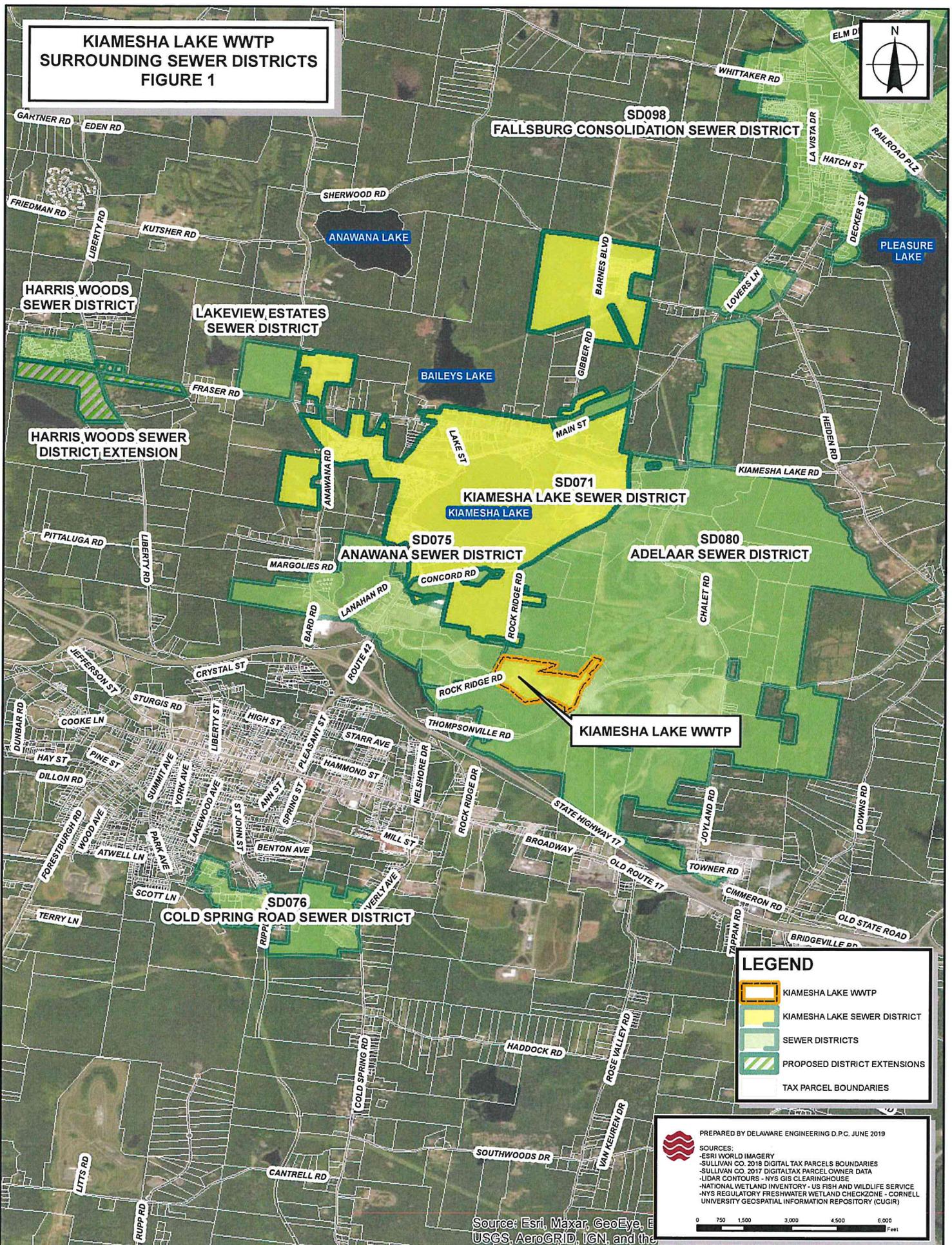
### 1.1 Background

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 Kiamesha Lake wastewater treatment plant (WWTP) which is located on a 48.3-acre parcel along Rock Ridge Road, northeast of the NYS Route 17/42 interchange. A map identifying the Kiamesha Lake WWTP site and sewer district boundaries is included as **Figure 1 – Location Map**.

The WWTP serves residents and businesses in the hamlet of Kiamesha Lake which has a full-time population of approximately 1,100 residents. The Kiamesha Lake sewer district has 378 service accounts of which 287 ( $\pm$  75%) are single-family dwellings. While there are no large industrial users connected to the system, wastewater from the Adelaar Resort complex and the Route 42 commercial corridor is treated at the Kiamesha Lake WWTP.

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 operates under SPDES Permit No. NY 003 0724. 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.

**KIAMESHA LAKE WWTP  
SURROUNDING SEWER DISTRICTS  
FIGURE 1**



**LEGEND**

-  KIAMESHA LAKE WWTP
-  KIAMESHA LAKE SEWER DISTRICT
-  SEWER DISTRICTS
-  PROPOSED DISTRICT EXTENSIONS
-  TAX PARCEL BOUNDARIES

PREPARED BY DELAWARE ENGINEERING D.P.C. JUNE 2019

**SOURCES:**

- ESRI WORLD IMAGERY
- SULLIVAN CO. 2018 DIGITAL TAX PARCELS BOUNDARIES
- SULLIVAN CO. 2017 DIGITAL TAX PARCEL OWNER DATA
- LIDAR CONTOURS - NYS GIS CLEARINGHOUSE
- NATIONAL WETLAND INVENTORY - US FISH AND WILDLIFE SERVICE
- NYS REGULATORY FRESHWATER WETLAND CHECKZONE - CORNELL UNIVERSITY GEOSPATIAL INFORMATION REPOSITORY (CUGIR)

0 750 1,500 3,000 4,500 6,000 Feet

Source: Esri, Maxar, GeoEye, Earthstar, CNES, Airbus, GeoEye, IGN, and the

The SPDES permit allows for the plant to discharge up to 2.0 million gallons per day (MGD), although the plant typically operates at approximately 50% capacity. Outflows from the plant are received by an unnamed tributary of the Kiamesha Creek. In 2017, the SPDES permit was modified to include discharge limits for fecal coliform and chlorine residual. To meet the updated permit limits, the Town will install ultra-violet (UV) disinfection facilities as part of the planned facility upgrade.

## 1.2 Reasons for the Project

- 1) The Kiamesha Lake WWTP has been in service for nearly 65 years and while the equipment, systems and processes have been maintained throughout the intervening years, the plant is approaching the end of its design life expectancy, typically 35-40 years. In addition, the plant employs older technologies that are costly to repair and maintain due to the difficulties in obtaining replacement parts.
- 2) In order to maintain SPDES permit compliance, the Town is required to install disinfection facilities by May 2022. Effluent disinfection is required to meet the permit limits for fecal coliform (since the Town intends to employ UV disinfection, chlorine residual limits will not be a factor). The plant does not currently have any disinfection facilities to address the modified permit limits. Without this upgrade, the plant will be out of compliance with permit discharge limits after May of 2022.
- 3) In addition to the Kiamesha Lake WWTP, the Town of Thompson owns and operates four additional wastewater treatment facilities. Kiamesha Lake is the only plant with functional sludge handling and processing equipment. Consequently, sludge from the other Town plants is sent to the Kiamesha facility for processing. Processing the additional sludge strains the plant's aging equipment, making upgrades to the existing system both necessary and prudent. Additionally, new technologies will reduce the overall sludge volume thereby lowering disposal costs.

To address these conditions, the Town is proposing a comprehensive WWTP upgrade with an estimated capital project cost of **\$26,535,721**. The proposed project will upgrade the existing plant and provide new treatment facilities that will ensure continued compliance with SPDES permit requirements for the near term, as well as for the estimated loading conditions at 2.0 MGD.

## 2.0 District Boundary Description

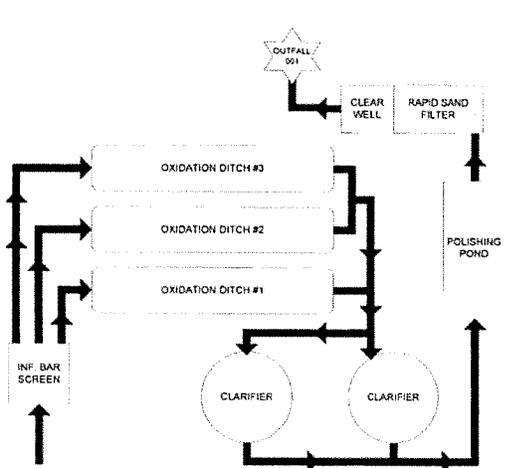
The Town of Thompson owns, operates and maintains multiple sanitary sewer districts. The primary sewer district served by the Kiamesha Lake WWTP is the Kiamesha Lake Sewer District. As shown in **Figure 1**, outside users in four additional districts also convey sanitary sewage to the Kiamesha plant as follows:

- Adelaar Resort Sewer District
- Anawana Sewer District
- Harris Woods Sewer District
- Lakeview Estates Sewer District

An expansion of the Harris Woods sewer district is currently under review by the Thompson Town Board as shown in Figure 1. This proposed expansion would include two existing bungalow colonies and four single-family residential properties located in the vicinity of Harris Woods along Old Liberty Road and Fraser Road.

## 3.0 Description of Existing WWTP Facilities

The Kiamesha Lake WWTP is an extended aeration, oxidation ditch style, activated sludge treatment plant that achieves biological ammonia removal through nitrification. The secondary treatment process includes two clarification tanks, while tertiary treatment uses sand filtration units to meet discharge permit levels.



Process Diagram from SPDES permit

Influent enters the facility through the influent channel structure where it passes through a mechanically cleaned bar screen, Parshall flume, grit chamber, and flow splitter box. At the flow splitter box, the incoming sewage is divided and conveyed to the three oxidation ditches.

Effluent from the oxidation ditch flows to the secondary clarifiers and then to the sand filter units for tertiary treatment. Tertiary effluent passes through the post aeration tank prior to discharge to an unnamed tributary of the Kiamesha Creek.

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## 4.0 General Plan of Improvements

The following is a summary of the principal proposed upgrades and improvements necessary to adequately treat current demands 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, Autothermal Thermophilic Aerobic Digestion (ATAD) system and sludge press, and construction of a new Maintenance and Shop 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 Kiamesha Lake WWTP

- Influent Channel and Flow Splitter Box Improvements
- Grit Removal Improvements
- Oxidation Ditch Improvements
- Process Air Supply Blower Improvements
- Sand Filter Improvements
- Post Aeration Improvements
- New UV Disinfection System & Building
- Sludge Holding Tank Improvements
- RAS/WAS Pump Improvements
- Aerobic Sludge Digestion Improvements (new ATAD system)
- Sludge Press Improvements
- Sludge Drying Bed Improvements
- Pump Station Process Improvements
- Control Building Improvements
- Grit Removal Building Improvements
- Filter Building Improvements
- Storage Building Improvements
- Blower Building Improvements
- New Work Shop and Maintenance Building
- New emergency generator
- Yard Piping Improvements
- Site Work Improvements
- SCADA Improvements
- Instrumentation Improvements

DATE: 8/30/18  
 DRAWN BY: MO  
 SCALE: 1" = 100'  
 PROJECT NO.: DNO  
 FILE: 180303

DEL AWARE  
 ENGINEERING, D.P.C.  
 CIVIL AND ENVIRONMENTAL ENGINEERING

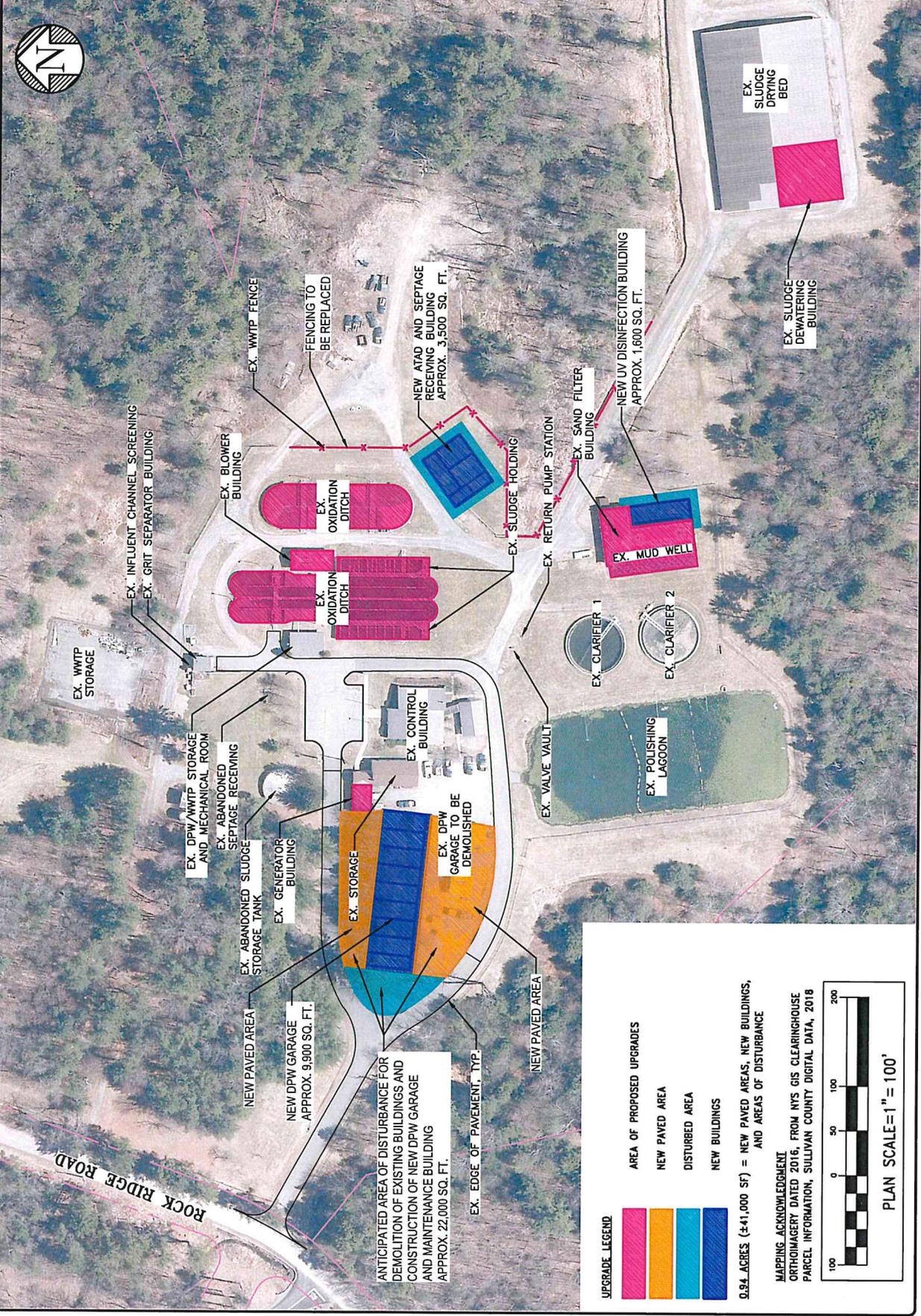
55 SOUTH MAIN STREET, CHEWINGTOWN, NY 13020 - 607.432.8073  
 88 MADISON AVENUE, ALBANY, NY 12203 - 518.452.1200  
 18 WASHINGTON STREET, MALDEN, NY 12548 - 518.452.8252  
 19 MAIN STREET, LIBERTY, NY 12545 - 518.452.8252  
 16 EAST MARKET STREET, RED HOOK, NY 12071 - 518.452.1200

REVISIONS

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |
|     |      |             |
|     |      |             |
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KIAMESHKA LAKE  
 TOWN OF THOMPSON  
 SULLIVAN COUNTY, NY

UPGRADE SITE PLAN  
 FIG-3  
 SHEET:



**UPGRADE LEGEND**

- AREA OF PROPOSED UPGRADES
- NEW PAVED AREA
- DISTURBED AREA
- NEW BUILDINGS

0.94 ACRES (±41,000 SF) = NEW PAVED AREAS, NEW BUILDINGS, AND AREAS OF DISTURBANCE

**MAPPING ACKNOWLEDGMENT**  
 ORTHOMAGERY DATED 2016. FROM NYS GIS CLEARINGHOUSE PARCEL INFORMATION, SULLIVAN COUNTY DIGITAL DATA, 2018

PLAN SCALE = 1" = 100'

ROCK RIDGE ROAD

ANTICIPATED AREA OF DISTURBANCE FOR DEMOLITION OF EXISTING BUILDINGS AND CONSTRUCTION OF NEW DPW GARAGE AND MAINTENANCE BUILDING APPROX. 22,000 SQ. FT.

NEW PAVED AREA  
 NEW DPW GARAGE APPROX. 9,900 SQ. FT.

EX. ABANDONED SEPTAGE RECEIVING AND MECHANICAL ROOM  
 EX. DPW W/TP STORAGE

EX. INFLUENT CHANNEL SCREENING  
 EX. GRIT SEPARATOR BUILDING

EX. W/TP STORAGE

EX. BLOWER BUILDING

EX. OXIDATION DITCH

EX. OXIDATION DITCH

NEW ATAD AND SEPTAGE RECEIVING BUILDING APPROX. 3,500 SQ. FT.

EX. SLUDGE HOLDING

EX. RETURN PUMP STATION

EX. SAND FILTER BUILDING

NEW UV DISINFECTION BUILDING APPROX. 1,600 SQ. FT.

EX. CLARIFIER 1

EX. CLARIFIER 2

EX. MUD WELL

EX. VALVE VAULT

EX. POLISHING LAGOON

EX. SLUDGE DRYING BED

EX. SLUDGE DEWATERING BUILDING

EX. CONTROL BUILDING

EX. STORAGE

EX. DPW GARAGE TO BE DEMOLISHED

EX. GENERATOR BUILDING

EX. ABANDONED SEPTAGE STORAGE TANK

EX. EDGE OF PAVEMENT, TYP.

NEW PAVED AREA

## 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 Kiamesha plant employs a dedicated staff of one 3a-certified licensed operator and three 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 (DEC) and the NYS Environmental Facilities Corporation (EFC).

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 May 19, 2020 meeting of the Thompson Town Board, at which time the Board declared their intent to serve as lead agency for the Unlisted action.

## 7.0 Maximum Amount to be Expended

The maximum amount that is planned to be expended is **\$26,535,721** (see attached cost estimate).

**Town of Thompson, NY  
Kiamesha Lake WWTP Upgrade  
Estimated Project Cost Summary**

Last Revised 07-31-2020

|      |  |  |  | OPTION A             | OPTION B             | OPTION C             |
|------|--|--|--|----------------------|----------------------|----------------------|
|      |  |  |  | 2019 PER Budget      | No DPW Bldg          | No DPW/No ATAD       |
| 1.)  | <b>Construction - All Trades (General, Electrical, HVAC, &amp; Plumbing)</b>                             |  |  |                      |                      |                      |
| a.)  | Influent Channel/Flow Splitter Box Process Improvements  |  |  | \$ 34,000            | \$ 34,000            | \$ 34,000            |
| b.)  | Mechanical Screen Process Improvements   |  |  | \$ -                 | \$ -                 | \$ -                 |
| c.)  | Grit Removal Process Improvements  |  |  | \$ -                 | \$ -                 | \$ -                 |
| d.)  | Oxidation Ditch D1 & D2 Process Improvements   |  |  | \$ 949,140           | \$ 949,140           | \$ 949,140           |
| e.)  | Oxidation Ditch D3 Process Improvements  |  |  | \$ 330,925           | \$ 330,925           | \$ 330,925           |
| f.)  | Blower Building Process Improvements   |  |  | \$ 558,146           | \$ 558,146           | \$ 558,146           |
| g.)  | Secondary Clarifier Process Improvements   |  |  | \$ 1,200             | \$ 1,200             | \$ 1,200             |
| h.)  | Filter Building Process Improvements   |  |  | \$ 564,450           | \$ 564,450           | \$ 564,450           |
| i.)  | UV Disinfection Process  |  |  | \$ 1,043,250         | \$ 1,043,250         | \$ 1,043,250         |
| j.)  | Polishing Lagoon Process Improvements  |  |  | \$ -                 | \$ -                 | \$ -                 |
| k.)  | Sludge Holding Tank Process Improvements   |  |  | \$ 267,250           | \$ 267,250           | \$ 267,250           |
| l.)  | RAS/WAS Pump Process Improvements  |  |  | \$ 355,200           | \$ 355,200           | \$ 355,200           |
| m.)  | Aerobic Sludge Digester Process (Added chiller \$60,000)   |  |  | \$ 5,171,780         | \$ 5,171,780         | \$ -                 |
| n.)  | Sludge Dewatering Process Improvements and Sludge Tanker Truck   |  |  | \$ 1,033,400         | \$ 1,033,400         | \$ 1,033,400         |
| o.)  | Sludge Drying Bed Improvements   |  |  | \$ 401,360           | \$ 401,360           | \$ 401,360           |
| p.)  | Pump Station Process Improvements  |  |  | \$ 46,400            | \$ 46,400            | \$ 46,400            |
| q.)  | Control Building Improvements  |  |  | \$ 191,305           | \$ 191,305           | \$ 191,305           |
| r.)  | Grit Removal Building Improvements   |  |  | \$ 28,150            | \$ 28,150            | \$ 28,150            |
| s.)  | Filter Building Improvements   |  |  | \$ 477,025           | \$ 477,025           | \$ 477,025           |
| t.)  | Storage Building Improvements (old Blower Building)  |  |  | \$ 40,400            | \$ 40,400            | \$ 40,400            |
| u.)  | Blower Building Improvements   |  |  | \$ 63,900            | \$ 63,900            | \$ 63,900            |
| v.)  | WWTP Work Shop/8-Bay Maintenance Building (9,900 SF) - New Item  |  |  | \$ 2,944,100         | \$ -                 | \$ -                 |
| w.)  | Yard Piping  |  |  | \$ 387,145           | \$ 387,145           | \$ 387,145           |
| x.)  | Site Work (Revised to include Paving limited to WWTP Work Shop area, disturbance <1 AC, no SWPPP req     |  |  | \$ 185,106           | \$ 185,106           | \$ 185,106           |
| y.)  | SCADA  |  |  | \$ 438,000           | \$ 438,000           | \$ 438,000           |
| z.)  | Instrumentation  |  |  | \$ 70,950            | \$ 70,950            | \$ 70,950            |
| aa.) | WWTP Emergency Generator   |  |  | \$ 576,000           | \$ 576,000           | \$ 576,000           |
| ab.) | Other Expenses   |  |  | \$ 85,200            | \$ 85,200            | \$ 85,200            |
| ac.) | NYSEFC Contract Compliance   |  |  | \$ 38,500            | \$ 38,500            | \$ 38,500            |
| ad.) | Contractors Overhead and Profit (15% Max)  |  |  | \$ 2,442,342         | \$ 2,000,727         | \$ 1,224,960         |
| ae.) | Mobilization/Demobilization/Bonds/Insurance (3% Max)   |  |  | \$ 561,739           | \$ 460,167           | \$ 281,741           |
|      | <b>Subtotal - All Construction</b>   |  |  | <b>\$ 19,286,363</b> | <b>\$ 15,799,076</b> | <b>\$ 9,673,103</b>  |
| 5.)  | <b>Construction Cost Inflation Adjustment (@3% per year, August 2019 - Sept. 2021 Bidding = 2 Years)</b> |  |  | <b>\$ 1,157,182</b>  | <b>\$ 947,945</b>    | <b>\$ 580,386</b>    |
|      | <b>Subtotal - Construction Cost Inflation Adjustment</b>   |  |  | <b>\$ 1,157,182</b>  | <b>\$ 947,945</b>    | <b>\$ 580,386</b>    |
|      | <b>Subtotal - All Construction</b>   |  |  | <b>\$ 20,443,545</b> | <b>\$ 16,747,021</b> | <b>\$ 10,253,489</b> |
| 6.)  | <b>Other Costs (18%)</b>   |  |  | <b>\$ 3,679,838</b>  | <b>\$ 3,014,464</b>  | <b>\$ 1,845,628</b>  |
| a.)  | Engineering/Professional Services  |  |  | \$ 3,531,886         | \$ 2,866,512         | \$ 1,697,676         |
|      | <b>Subtotal - Engineering/Professional Services</b>  |  |  | <b>\$ 3,531,886</b>  | <b>\$ 2,866,512</b>  | <b>\$ 1,697,676</b>  |
| b.)  | Other Town Costs (includes short term financing for preconstruction phase \$1.5M @ 5% for 1 year)        |  |  | \$ 147,952           | \$ 147,952           | \$ 147,952           |
|      | <b>Subtotal - Other Town Costs</b>   |  |  | <b>\$ 147,952</b>    | <b>\$ 147,952</b>    | <b>\$ 147,952</b>    |
|      | <b>Subtotal - Other Costs</b>  |  |  | <b>\$ 3,679,838</b>  | <b>\$ 3,014,464</b>  | <b>\$ 1,845,628</b>  |
| 7.)  | <b>Project Contingency (10% of Construction and Other Costs)</b>   |  |  | <b>\$ 2,412,338</b>  | <b>\$ 1,976,148</b>  | <b>\$ 1,209,912</b>  |
|      | <b>Subtotal - Project Contingency (10% of All Project Costs)</b>   |  |  | <b>\$ 2,412,338</b>  | <b>\$ 1,976,148</b>  | <b>\$ 1,209,912</b>  |
| 8.)  | <b>SRF Issuance Costs (1.84%) (If hardship this goes to 0%)</b>  |  |  | <b>\$ -</b>          | <b>\$ -</b>          | <b>\$ -</b>          |
|      | <b>Subtotal - SRF Issuance Cost (1.84% of All Project Costs)</b>   |  |  | <b>\$ -</b>          | <b>\$ -</b>          | <b>\$ -</b>          |
|      | <b>Total Estimated Project Cost</b>  |  |  | <b>\$ 26,535,721</b> | <b>\$ 21,737,633</b> | <b>\$ 13,309,029</b> |

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## 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 Kiamesha Lake Sewer District and extension thereof 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 Points* of the Town Code. Single family dwellings are assigned 7.5 rent points each for capital improvements and 7.5 rent points for operations and maintenance costs.

Additional sewer Districts that send wastewater to the Kiamesha WWTP include the Adelaar, Anawana, Harris Woods and Lake View Sewer Districts. These sewer districts have their own budgets for operation and maintenance and debt service for their collection systems, and are charged annually a portion of the costs of the Kiamesha WWTP based on their contributed percentage of the total wastewater flow to the WWTP. Those WWTP charges are included in the individual sewer district budgets. Single family residences in the Anawana, Harris Woods and Lake View districts are assigned 10 debt points for capital improvements and 10 rent points for operations and maintenance costs. The Adelaar Sewer District assigns 1 point per property, and it includes the Catskill Regional Medical Center, which is charged a flat rate.

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.

Costs associated with the planned upgrade will be presented based on the anticipated receipt of interest-free (0%) financing through the NYSEFC, for a term of 30-years, for the capital improvements that would apply to current debt service rates.

Operation and maintenance (O&M) costs are anticipated to increase slightly as a result of this project due primarily to increased energy usage. Costs for debt service and O&M are described below and will be based on the current number of rent points (i.e., no additional users).

## 9.1 Operations and Maintenance (O&M)

The planned upgrade primarily entails the replacement of existing equipment for continued operation and the addition of two processes – UV disinfection and Autothermal Thermophilic Aerobic Digestion (ATAD). Additional O&M costs are associated with the anticipated increase in energy use and periodic UV bulb replacement.

In the Adopted 2020 Town of Thompson Budget, users in the districts that send wastewater to the Kiamesha WWTP were charged for operation and maintenance of the system as follows:

|              | O&M<br>(per point)* | Points assigned to a<br>typical user | Annual<br>Cost |
|--------------|---------------------|--------------------------------------|----------------|
| Kiamesha     | \$60.20             | 7.5                                  | \$451.48       |
| Anawana      | \$40.33             | 10                                   | \$403.33       |
| Harris Woods | \$52.30             | 10                                   | \$523.02       |
| Lake View    | \$90.66             | 10                                   | \$906.60       |
| Adelaar      | \$12,853.33         | 1                                    | \$12,853.33    |

\* rounded to the nearest penny

The annual O&M budget is expected increase by approximately 3.5% after the proposed upgrade due primarily to an increase in energy usage. Changes in operations and maintenance costs can be spread among the contributing sewer districts according to the charges to each for treatment of wastewater.

## 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 Points*.

In the Adopted 2020 Town of Thompson Budget, users in the districts that send wastewater to the Kiamesha WWTP were charged for debt service as follows:

|              | Debt Service<br>(per point) | Points assigned to a<br>typical user | Annual<br>Cost |
|--------------|-----------------------------|--------------------------------------|----------------|
| Kiamesha     | \$8.11                      | 7.5                                  | \$60.84        |
| Anawana      | \$0                         | 10                                   | -0-            |
| Harris Woods | \$107.70                    | 10                                   | \$1076.99      |
| Lake View    | \$4.94                      | 10                                   | \$49.40        |
| Adelaar      | \$0                         | 1                                    | -0-            |

\* rounded to the nearest penny

The estimated full project cost to be financed is approximately \$26.5 million and it is anticipated that the town will receive hardship financing from NYSEFC at 0% interest for a 30-year period. Annual debt service is estimated at \$724,588.77. Two reduced scale alternatives that were considered included the full project without the new sludge digester, and the full project without the new DPW building.

Any future debt service associated with capital improvement costs for sludge processing will be allocated to the other WWTPs that send sludge to Kiamesha WWTP, as the new equipment would benefit those operations as well. Annual debt service fees will be apportioned to each contributing Sewer District according to each district's approximate percentage of wastewater flow to the Kiamesha WWTP.

## 10.0 Cost to a Typical Single Family Home

The estimated rate impact to a typical sewer user, assuming a typical single-family home (SFH) in each of the districts that send wastewater to the Kiamesha WWTP is projected to be as follows:

| <b>2020 Annual Sewer Costs for a Typical SFH</b> |                |             |                    |
|--|----------------|-------------|--------------------|
|  | <b>O&amp;M</b> | <b>Debt</b> | <b>Total</b>       |
| Kiamesha Lake                                    | \$451.48       | \$60.84     | <b>\$512.32</b>    |
| Adelaar  | \$12,853.33    | -           | <b>\$12,853.33</b> |
| Anawana  | \$403.33       | -           | <b>\$403.33</b>    |
| Harris Woods                                     | \$523.02       | \$1076.99   | <b>\$1,600.01</b>  |
| Lake View  | \$906.60       | \$49.40     | <b>\$956.00</b>    |

| <b>Estimated Future Annual Sewer Costs for a Typical SFH</b> |                      |                                    |                    |
|--|----------------------|------------------------------------|--------------------|
|  | <b>Current Costs</b> | <b>Additional O&amp;M and Debt</b> | <b>Total</b>       |
| Kiamesha Lake  | \$512.32             | \$206.54                           | <b>\$718.86</b>    |
| Adelaar  | \$12853.33           | \$2,326.46                         | <b>\$15,179.79</b> |
| Anawana  | \$403.33             | \$94.57                            | <b>\$497.90</b>    |
| Harris Woods   | \$1600.01            | \$144.93                           | <b>\$1744.94</b>   |
| Lake View  | \$956.00             | \$543.58                           | <b>\$1,499.58</b>  |

*Note: The capital costs for the new digester and sludge processing equipment will be allocated to users in other districts that send sludge to the Kiamesha WWTP, resulting in a new debt charge of \$46.82 for a typical SFH in those sewer districts (Emerald Green, Sackett Lake and Melody Lake).*

The above costs and rate impacts are based on current district users, 2020 Sewer Rates and 0% financing from NYSEFC. Costs would be reduced if the town is able to secure grant funding for the proposed improvements. Future development would also reduce the cost to each individual user as the user base increases.

The Town is also in the process of consolidating and restructuring rates for all of the sewer districts, which will impact future rates in the Kiamesha Lake Sewer District as costs are allocated across a larger user base. Note that the estimated costs summarized in the above tables are averages and are used as an example of possible rate changes, in order to assist in decision making.

### **11.0 Method of Finance**

At this time, the Town has a commitment from NYSEFC to provide 0% short and long-term financing for the project for a term of 30 years term through the CWSRF Program. Additional subsidized grant financing through NYSEFC's Water Infrastructure Improvement Act (WIIA) and NYSDEC's Water Quality Improvement Program (WQIP) are anticipated to be sought to reduce financial impact of the project to system users.

### **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.