

I. PROJECT APPLICANT

Town of Enfield

ADDRESS

23 Main St (PO Box 373)
Enfield, NH 03748

PROJECT

Lakeview Condominium and Shaker Landing Sewer Connection
Grafton County

SRF PROJECT NUMBER

CS-330167-04

II. INTRODUCTION

The Town of Enfield, New Hampshire, has applied for Clean Water State Revolving Loan Funds (CWSRF) through the State of New Hampshire Department of Environmental Services in accordance with provisions of Chapter Env-Wq 500 rules of the department. These rules prescribe procedures for the application process concerning the CWSRF of the department. This document will discuss the requirements of Part Env-Wq 509 of these rules, the environmental review.

III. BACKGROUND

This project proposes to extend the municipal sewer line along Landing Road and Route 4A to provide municipal sewer service to Lakeview Condominiums (Lakeview). The project also proposes to provide complete municipal sewer service to six buildings of the Shaker Landing Home Owner's Association (Shaker Landing) by removing or abandoning the existing septic tanks, and replacing the effluent pump station with a new solids handling pump station and connecting this to the new municipal sewer line.

Lakeview:

Lakeview is a residential housing complex consisting of 29 buildings with 131 units, located on NH Route 4A across from the southeastern shore of Mascoma Lake. Lakeview operates seventeen separate on-site sanitary waste disposal systems. Thirteen of these systems are located within the Lakeview property boundaries, and four of these systems are located southwest of the Lakeview property on privately owned land, operating under a deeded right-of-way.

The thirteen systems located within the Lakeview property were installed in the late 1980's to early 1990's. The four wastewater disposal systems located outside the Lakeview property were originally installed in 1989 and were rebuilt in 1993 after the systems began to fail. Two of the fields were reconstructed again in 2009 due to operational issues. After reconstruction one of the fields showed immediate signs of operational difficulties and was taken offline. In Spring 2014, the three remaining fields showed operational problems associated with field saturation and breakout. Investigations and evaluations were completed to troubleshoot the systems, but in April 2015 the NHDES Subsurface Bureau issued a Letter of Deficiency (LOD)

requiring positive action to prevent future breakout. As a result of that letter, Lakeview took the remaining three fields offline and began trucking, transporting, and disposing of the wastewater from these four fields at an off-site wastewater treatment facility. The thirteen fields on the Lakeview property remain operational, but are in need of replacement.

There are two pump stations associated with the upper four fields. The lower pump station is in poor condition, while the upper pump station is in fair condition. Other distribution structures are also in poor condition.

Shaker Landing:

Shaker Landing is a residential housing complex located along the shoreline of Mascoma Lake. The lowest portion of the complex includes six triplex buildings, which were constructed in the 1960s. Multiple septic tanks and an on-site leachfield originally served the buildings. With the original septic tankage portion remaining, the solids that are within the wastewater coming from the six buildings are collected in these existing tanks and the liquid portion (effluent) flows to the pump station. Prior to the Shaker Village gravity sewer extension in the 1980's, the effluent was pumped via the two 2" forcemains to on-site soils based "leachfields". When the Shaker Village gravity sewer extension was constructed in the 1980's, the two 2" forcemains were intercepted and the effluent was pumped to the gravity municipal sewer. The Shaker Landing septic tanks have continued to collect the solids portion of the wastewater.

Shaker Landing has utilized a septic pumping subcontractor to pump the solids out every year and haul them to a treatment facility.

The following documents have been developed and are available for public review upon request:

1. Environmental Report for Lakeview Condominiums Municipal Sewer Connection, NH Route 4A, Enfield, New Hampshire, Pathways Consulting, LLC, March 14, 2016.
2. Preliminary Engineering Report for Lakeview Condominiums Municipal Sewer Connection, NH Route 4A, Enfield, New Hampshire, Pathways Consulting, LLC, March 14, 2016.

IV. PURPOSE and NEED

Lakeview:

The purpose of this part of the project is to provide an immediate and long-term solution to the sanitary sewage problem that Lakeview faces, as well as eliminate the risk posed to the surrounding environment and public safety concerns, by extending the municipal sewer service to include the Lakeview property.

The four upper fields were constructed on poor native soils with low infiltration rates and as a result system saturation and breakouts occur, resulting in the release of partially treated sanitary waste into the environment. This poses an immediate risk to surface water quality in streams and drainage courses passing through the site and entering Mascoma Lake in the vicinity of a publicly used beach area. It also poses an immediate risk to public health since the breakouts are adjacent to access roads and trails used by the public to access conservation lands west of Lakeview. The four upper fields are also directly above grade of the residential units that make up the Lakeview.

The discontinued use of the four on-site septic fields has removed reliable, long-term sewage disposal capability from nine of the condominium buildings associated with the westernmost development of Lakeview. The lack of reliable wastewater disposal has resulted in significant operating costs as wastewater flow is required to be transported off-site for disposal in a municipally operated facility.

All components of the original systems are at the end of their useful life and would require replacement and/or reconstruction if the existing system was to be returned to service. The systems may also require significant expansion and additional construction measures to achieve the required level of treatment and loading and to meet current NHDES regulations. Therefore, the most practical option is to abandon the existing systems and connect Lakeview to the municipal sewer system to meet their existing and long-term sanitary sewer needs.

Shaker Landing:

The purpose of this part of the project is to provide complete municipal sewer service to this portion of Shaker Landing. The existing subsurface precast concrete tanks are aging and there is concern for the tank longevity. The subsurface septic tanks and pump station structures will be abandoned by pumping them out and filling the tanks with clean sand where possible. Alternatively, the tanks would be removed for disposal at a designated facility if they cannot be abandoned in place.

The current pump station and pumps cannot handle solids larger than approximately ½" diameter. Therefore, the proposed pump station will have new grinder pumps that can handle and pump the solids to the municipal system.

The septic tanks and pump station are nearing the end of their useful life and the annual maintenance and operating costs continue to increase as the system ages. By replacing the system not only will Shaker Landing will have an adequate level of sanitary sewage treatment and disposal, but the risk of possible future release of sewage to the groundwater table or to Mascoma Lake due to equipment failure is significantly diminished.

V. ALTERNATIVES ANALYSIS

The proposed project does not meet the criteria outlined in 40 CFR 6.204 and is not eligible for a Categorical Exclusion. The following project alternatives were reviewed for cost effectiveness, feasibility, and potential environmental impacts in order to identify the preferred option.

Lakeview:

1. No action alternative: The lower thirteen fields will continue to be maintained and used, and the waste from the upper four fields will be pumped and transported off-site for treatment. Continuing to operate the system in its current condition is not a feasible option as the intent of the LOD will not be met and breakouts may still happen, posing a risk to surface water quality and public health. This arrangement is not viable for the long-term needs of Lakeview.
2. Repair existing systems to operating condition: This alternative assumes that system maintenance, cleaning, and repair will be sufficient to restore all the systems to operating condition. This is not a feasible option because in order to meet the requirements of the LOD, the systems would require substantial changes and simple maintenance and repair will not be enough to meet the conditions set forth by the LOD. Furthermore, the soils underneath the four upper beds do not appear to be able to support even minor system repair or cleaning.
3. Reconstruction and replacement of existing systems: Data suggests that the existing beds of the upper four fields may not be capable of infiltrating the original design flows and that larger beds, or additional beds, would be required to handle the design flows. Assuming that an evaluation of the upper easement area finds that the soils will allow expansion, the four upper fields would either be expanded or four or more new fields would be constructed. All deteriorated components associated with the upper fields will be replaced (pump stations, structures, distribution systems and controls) and the thirteen lower fields will be replaced within ten years. It is assumed that some of the existing concrete septic tanks and pump stations can be rehabilitated rather than replaced. All system replacements will be designed in accordance with the current NHDES regulations, and in accordance with the recent LOD. This option is likely unfeasible as the remaining native soils have low infiltration rates, so there is no guarantee that it will be possible to designate additional or expanded areas that can be permitted under the current NHDES regulations.
4. Municipal sewer extension – option A: A single duplex pump station with holding tank will be sited on the Lakeview property to serve all existing units. Where possible, existing piping or collection systems will be incorporated into the system. A 6-inch diameter forcemain will be routed along the eastern and southern side of NH Route 4A within the state highway ROW and will extend to a new manhole located near Lower

Shaker Village at Chosen Vale Lane. The remaining sewer will be gravity sewer into the existing municipal collection system that routes flow from Lower Shaker Village into the Town pump station. Flow will be pumped from this location for ultimate treatment and disposal in the City of Lebanon wastewater treatment facility.

5. Municipal sewer extension – option B: A single duplex pump station with holding tank will be sited on the Lakeview property to serve all existing units. Where possible, existing piping or collection systems will be incorporated into the system. A 6-inch diameter forcemain will be routed along the eastern and southern side of NH Route 4A within the state highway ROW and will extend to a new manhole located near Lower Shaker Village at Landing Road. The remaining sewer will be gravity sewer into the existing municipal collection system located within Lower Shaker Village, and through that sewer to the Town pump station. Flow will be pumped from this location for ultimate treatment and disposal in the City of Lebanon Wastewater Treatment Facility.

Shaker Landing:

1. No action alternative: Continuing to utilize the current system with no improvements is not a feasible option as portions of the system have reached the end of their useful life and continued use will likely lead to increased groundwater infiltration and/or sewage leakage as concrete structures continue to deteriorate. Currently there is no capability to transfer solids into the municipal sewer system, which requires the solids handling tanks to be closely monitored and emptied annually to prevent maintenance issues due to solids blockage or build-up.
2. Equipment upgrade and replacement: Replacing the existing system is the most feasible option, as it will reduce the risk of sewage breakout due to system failure and bring the system into compliance with current standards and codes.

VI. DETAILS of PROJECT

The preferred option, based on cost evaluations and considerations to design, permitting, and construction, is municipal sewer extension – option B, with the equipment upgrade and replacement for Shaker Landing. This is the preferred option because it is an economically practical, long-term solution for both Lakeview and Shaker Landing.

Lakeview:

For Lakeview, the existing sanitary disposal leachfields are above grade and hydraulically upgradient of Mascoma Lake and within the one mile radius in which no further loading or impacts to water quality are allowed. The preferred alternative eliminates seventeen indirect discharge points to the groundwater table flowing into Mascoma Lake, therefore providing a significant water quality benefit.

The Lakeview on-site total temporary project disturbance area is approximately 385,000 square feet. This is an overall outer area estimate that includes some buildings that will have no disturbances. The total temporary project disturbances associated to the trenchless horizontal directional drilling of the proposed 6" forcemain is estimated to be 3,000 square feet. Permanent project disturbances will be limited to the proposed pump station control building, and areas within feet of the 15+/- manhole structures that will have access covers to the surface. All other areas of temporary disturbance are planned to be re-established to current conditions. Permanent project disturbances are estimated to be less than 3,000 square feet.

The Lakeview portion includes the following work:

- Construction of a 7,450 linear foot (LF), 6-inch diameter forcemain along the western and southern side of NH Route 4A within the State ROW that will extend from the Lakeview pump station to a new manhole located near Lower Shaker Village at Landing Road.
- Construction of 200 LF of gravity sewer between the forcemain and the existing municipal collection system located near the end of Landing Road.
- Construction of a single duplex pump station with an emergency backup power generator on the Lakeview property to serve all existing units, which will connect to the proposed 6" forcemain.
- Decommissioning of the existing subsurface septic tanks and pump stations, removal or abandonment of existing on-site wastewater disposal systems and certain piping for service connections and collection sewers.
- Direct all sanitary sewage flow from all residential units into the new pump station. Where possible, existing service piping or collection systems will be incorporated into the system to minimize project costs and impact areas.
- Cleaning, abandonment, or demolition of existing systems that will be taken out of service in accordance with NHDES regulations and guidance documents.
- Installation of new monitoring and control instrumentation.
- Flow will be pumped from this location for ultimate treatment and disposal in the City of Lebanon Wastewater Treatment Facility.

This design will simplify a complex sanitary waste disposal system consisting of multiple pump stations, forcemains, gravity collection systems, septic tanks, and seventeen on-site sanitary leachfields with a single duplex pump station, a simplified gravity collection system, and a single forcemain. Long term maintenance and operating costs will be reduced with the single system.

Shaker Landing:

Shaker Landing is also close to Mascoma Lake, so by replacing the aging system the risk of system failure and release of untreated sewage into the lake is reduced. The existing subsurface wastewater tankage is approximately 110' from the ordinary water level of the

Lake. The proposed pump station and piping will be approximately 140' from the ordinary water level of the Lake.

The Shaker Landing on-site total temporary project disturbance area is approximately 31,000 square feet. This is an overall outer area estimate that includes some building footprints that will have no disturbances. Permanent project disturbances will be limited to the areas within feet of the subsurface pump station and associated structures that will have access covers to the surface. All other areas of temporary disturbance are planned to be re-established to current conditions. Permanent project disturbances are estimated to be less than 500 square feet.

The proposed project will include the following work on the Shaker Landing property:

- Clean and abandon the existing septic tanks in place.
- Replace the existing pump station with a solids handling pump station that is adequately sized and designed in conformance with the current NHDES sewer regulations, the current standard of practice for pump stations, and typical energy efficiency standards for process equipment.
- A new forcemain will be routed into the municipal sewer extension intended to serve Lakeview and tied into a receiving manhole.

For both the Lakeview Condominium and Shaker Landing portions, septage removed from the abandoned septic tanks will be transported to the Lebanon Wastewater Treatment Facility for treatment. Final plans for removal or abandonment of the septic tanks, pump stations, and other miscellaneous tanks will be vetted during the final design.

The total project cost for the proposed project is estimated to be \$2,440,777.71.

VII. ENVIRONMENTAL CONCERNS and MITIGATION

The environmental concerns of the project are minimal. No adverse environmental impacts are anticipated from the project. The following categories of impacts will illustrate the potential negative and positive effects anticipated from the project:

Air: The project has the potential for generating emissions from construction vehicles or fugitive dust during construction. These will be controlled through the implementation of various Federal, State, as well as the Occupational Safety and Health Administration (OSHA) laws, which require low emission equipment, dust control for erosion control purposes and prevention of air borne silicates. Modern construction equipment have controls that greatly reduce emissions. In locations of asphalt and concrete saw cutting, water is typically used for better tool longevity and air borne silicate control. Because of the relatively limited area of project disturbance and the short duration of

construction activities, it is concluded that the proposed project will not have the potential for a significant, long-term environmental air quality impact.

Noise: Noise will be generated from the construction, however all construction activities will be conducted in accordance with existing Town ordinances and regulations. Construction will typically be limited to the hours of 7:00 a.m. to 5:00 p.m. No long-term noise impacts are anticipated.

Surface Water, Groundwater and Wetlands: The Lakeview and Shaker Landing sites lay within the Mascoma Lake and Mascoma River watershed. Mascoma Lake, Smith Pond, Shaker Brook, three unnamed perennial drainage courses, and several isolated wetland areas are identified in the project vicinity. The preliminary design effort is currently in process. After a preliminary design review meeting with New Hampshire Department of Transportation (NHDOT), it was determined that the trenchless horizontal directional drill installation of the 6" forcemain may be performed primarily under the existing pavement of NH Route 4A. There are some pipe and box culverts along the construction route, however the drilling route will pass under these structures so as not to disturb them. The project is being reviewed by NHDES Wetlands Bureau to determine if any permits will be required. No permanent impacts to wetland resources are anticipated to occur as a result of the project.

Three portions of the project lie within the 250-foot buffer for the Shoreland Water Quality Protection Act and will likely require permitting review through the NHDES: part of the on-site work at Lakeview, a section of the Route 4A forcemain installation, and the Shaker Landing pump station portions. Review with the Shoreland Division of NHDES has not yet been performed as the preliminary design effort is not complete. The majority of the proposed disturbances within the 250-foot buffer are planned to be temporary; the only permanent above-ground structure will be Lakeview's proposed pump station control building.

The Mascoma Lake is currently listed with the NHDES as an impaired water for which the 'No Additional Loading' criteria applies. The EPA website indicates that the water quality in the lake has been assessed, but that no 'Total Maximum Daily Load' (TMDL) or specific water quality contaminant has been defined. For this interim period, the NHDES has identified a one mile buffer around the lake as a restricted zone. The proposed project falls completely within that buffer. The project is intended to remove indirect discharge of sewage to the groundwater table connected with the Mascoma Lake watershed and is therefore likely to have a positive influence on the water quality within the lake. The project will not contribute to additional surface water or stormwater flows and it is therefore concluded that the project will not have any

negative impact on the Mascoma Lake water quality. Because of the definition of the impaired water buffer, some coordination with the NHDES will likely be required. The project will require preparation of a Stormwater Pollution Prevention Plan (SWPPP) and filing of a Notice of Intent to construction with the Federal EPA. The SWPPP will include mitigation measures to limit impacts to surface water during construction.

No changes to stormwater quantity (volume or rate of discharge) or quality are anticipated as part of this project. Existing on-site drainage patterns will be the same after construction of the below ground utility improvements. Stormwater will continue to discharge through undisturbed wooded or vegetated filter strips prior to entering nearby surface waters. Seventeen indirect discharges of sanitary sewage via leachfields to the groundwater table within the Mascoma Lake watershed will be removed as part of this project.

There should be no significant groundwater impacts from the project. A NPDES Construction General Permit will be required as part of the SWPPP; dewatering is permitted by the Construction General Permit. Erosion will be minimized by using proper erosion control methods such as hay bales, silt fences and rapid re-seeding of affected areas. Best management practices will be employed in this effort. All appropriate permits shall be obtained from local, state and federal agencies as necessary. In the event any contaminated groundwater is encountered, a NPDES Remediation Permit will be submitted for immediately.

Wildlife: After consultation with the Natural Heritage Bureau (NHB16-0147 & NHB16-1502), no significant negative impacts on area wildlife are anticipated from this project. An online review with the US Fish and Wildlife was also conducted for both the Lakeview and Shaker Landing portions of this project regarding the Northern Long-eared Bat. Since the construction will be completed within the existing Route 4A corridor, it is unlikely the project will impact the habitat for this species. The online review provided that there were no critical habitats in the project areas. There are few possible impacts to any habitat with few locations of single trees subject to clearing and no possible impacts to other Bat habitats such as the undersides of culverts and/or bridges. However, further coordination will continue as the design moves forward and if construction is to occur during the Bat nesting season.

Social and Economic: The social and economic impacts from the project are expected to be favorable. The financial impact on the ratepayer may be reduced for this project through the use of the State Revolving Loan Fund.

Recreation and Historic: After consultation with the Division of Historical Resources and the Town Heritage Commission, no impacts to historic areas are anticipated. There are

no recreational areas within the construction area, and therefore no impacts are anticipated.

Whereas this project constitutes only a minor project with all work taking place in previously disturbed areas and Town/State rights-of-way, and no significant environmental impacts are anticipated, a Finding of No Significant Impact (FONSI) is proposed.

VIII. INTERGOVERNMENTAL REVIEW

Results from the Intergovernmental Review, coordinated by the New Hampshire Office of Energy and Planning, were received on March 17, 2016. The results summary indicates concurrence with the proposed project.

IX. PUBLIC REVIEW

The Town of Enfield voted to authorize funding in the amount of \$2,500,000 for the proposed project on March 12th, 2016.

A public notice will be published by the Town of Enfield and a thirty-day public comment period will be held in accordance with the CWSRF rules.