



ENVIRONMENTAL REVIEW  
FOR CLEAN WATER SRF LOANS  
Water Division/Wastewater Engineering Bureau



**RSA/Rule:** Env-Wq 508

I. PROJECT APPLICANT	Town of Exeter, New Hampshire
ADDRESS	10 Front Street, Exeter, NH 03833
PROJECT	Squamscott River Sewer Siphon Upgrades Project
SRF PROJECT NUMBER	CS-330130-18

II. INTRODUCTION

The Town of Exeter, New Hampshire has applied for a Clean Water State Revolving Fund (CWSRF) loan 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 508 of these rules, the environmental review.

III. BACKGROUND

The Town of Exeter currently utilizes four siphons that are located underneath the Squamscott River: two 8-inch, 860 linear foot, ductile iron sewer siphons and two 36-inch combined sewer/stormwater siphons. The sewer siphons convey sewage from the Jady Hill Ave. area, Hayes Trailer Park, portions of Portsmouth Ave. and all the flow from the Webster Avenue Pump Station. The existing siphons were inspected, and it was determined that they have reached the end of their useful lives. The Town intends to install a new three-barrel sewer siphon, through the construction method of horizontal directional drill (HDD) to replace the existing siphons. The two existing combined sewer/stormwater siphons will remain in use.

The following document concerning the sewer siphon upgrades has been developed and is available for public review:

Exeter, New Hampshire Squamscott River Sewer Siphon Upgrade Preliminary Design Report, Wright-Pierce, April 2021.

IV. PURPOSE AND NEED

An engineering analysis of the Squamscott River Sewer Siphon identified minor capacity concerns during normal dry weather flows and identified the siphons are undersized for new connections or during

christina.buckman@des.nh.gov or phone (603) 271-0734  
PO Box 95, Concord, NH 03302-0095  
www.des.nh.gov

extreme wet weather events. This analysis has been confirmed through sanitary sewer overflows (SSOs) immediately upstream of the two siphon barrels at Duck Point located at the bottom of Jady Hill Avenue. Much of the sewer siphon piping has reached the end of its useful life, resulting in the need for replacement. The installation of new siphons with increased capacity will reduce the risk of SSOs and allow for improvements to sewer infrastructure located upstream of the siphon barrels.

## V. ALTERNATIVES ANALYSIS

**No Action Alternative:** The design basis for a no-action alternative is to continue operating the existing sewer siphons as they are. This would eventually result in the pipes breaking and sewage entering Squamscott River as well as Clemson Pond.

**Alternative #1:** The design basis for this alternative is for the existing dual siphons to be replaced with a new three-barrel siphon through horizontal directional drilling. This alternative is intended by the Town to ensure environmental protection and sufficient capacity for expanding collection system flows.

**Alternative #2:** The Town reviewed the option of rehabilitating the existing siphon in its current alignment. Based on the CCTV inspection performed during conceptual design, it was anticipated that some large excavations would be required to facilitate this construction, potentially requiring a barge in the water way. The existing CSO siphons would have created additional significant issues with the anticipated spot repairs. Additionally, a large access structure would have been required on the dike around Clemson Pond. The impacts and constructability of this structure was of concern to the Town.

**Alternative #3:** The Town also reviewed an alternative to open cut excavate and replace the existing siphon. The Town looked at replacement in the same alignment, but the existing CSO pipelines made this route infeasible. The Town looked at an open cut alignment similar to the proposed horizontal directional drill but due to concerns related to additional costs, economic impacts, permitting, and environmental concerns, the Town has decided the most practicable approach is to move forward with alternative #1.

## VI. DETAILS of PROJECT

The Town of Exeter intends to install a new three-barrel siphon beneath the Squamscott River, from the east side of the river to the west side. The project scope will consist of the horizontal directional drill of three barrels, new inlet and outlet siphon structures and rerouting of sewer. The pipe diameters are anticipated to be 10-inches, 10-inches, and 12-inches in diameter. High Density Polyethylene (HDPE) pipe will be used to facilitate the required bending radii of the horizontal directional drill and for its resistance to many sources of internal and external corrosion. The proposed siphons are designed for 20-foot separation from the river bottom and will be located 100-150 feet from the existing siphons. The existing siphons are intended to be abandoned in place.

The anticipated construction disturbances are approximately 27,000 SF of temporary impacts to previously disturbed tidal buffer zone, approximately 1,300 SF of permanent impact to previously disturbed tidal buffer zone, 13,000 SF of temporary shoreland impacts and approximately 2,000 SF of

christina.buckman@des.nh.gov or phone (603) 271-0734  
 PO Box 95, Concord, NH 03302-0095  
 www.des.nh.gov

permanent shoreland impacts. The disturbances are required to facilitate the drilling process and include are not limited to disturbances from drill bore pits, frac tank sighting, required onsite equipment, and test pits to confirm depth and location of existing utilities.

There will be site/civil modifications to support these improvements, including excavation and earthwork for the drill, and the installation of new access ways to the structures. No existing buildings are anticipated to be impacted by this portion of the scope.

The project scope area will also include improvements to Webster Avenue Pump Station site and its force main. This portion of the work is strictly for design purposes and will not involve alterations to the pump station building, however, subsurface geological investigations for design will be performed within a 300 foot by 300 foot area centered on the pump station. This area is previously disturbed by construction and upgrades to the pump station and continues to be used by the Town for supporting pump station operations.

The total cost for the proposed project is estimated to be \$2,800,000.

## VII. ENVIRONMENTAL CONCERNS AND MITIGATION

The environmental concerns of the project are minimal. No adverse environmental impacts are anticipated from the project. The primary impacts are short-term impacts which will affect the area only during the period of construction. The following categories of impacts will illustrate the potential negative and positive effects anticipated from the project:

Air: Air impacts will be limited to some dust created during the construction portion of the project. Dust will be prevented and controlled through the use of water or dust retardant chemicals. No long-term air impacts are anticipated; mitigation measures will be employed if needed.

Noise: The noise from construction activities should be limited in duration. Noise impacts, if encountered, will be minimized by scheduling work to reduce effects in the area. No long-term noise impacts are anticipated.

Surface Water, Groundwater, Wetlands, and Shoreland: There should be no significant groundwater impacts from the project. The project is aware of potential groundwater and/or soil contamination in and/or near Swasey Parkway. Geotechnical investigation performed in this area will include screening and sampling of borings for testing. NPDES Construction General or Dewatering Permits may be required.

Temporary impacts to surface water are anticipated as the sewer siphon pipe improvements will involve construction of an additional sewer siphon pipe beneath a portion of the Squamscott River. The sewer siphon pipe improvements design and construction will warrant shoreland permitting as the geotechnical investigation and construction activities will occur within 250 feet

christina.buckman@des.nh.gov or phone (603) 271-0734  
PO Box 95, Concord, NH 03302-0095  
www.des.nh.gov

of the designated corridor of the Squamscott River. No surface water and shoreland impacts are anticipated on the Webster Avenue Pump Station and force main project area which is outside of the 250 foot boundary of any designated river corridors.

Temporary wetland impacts may be expected on this project as estuarine, marine, marine deep water, and freshwater forested/shrub type wetlands have been reported within the project area by NHDES OneStop mapping resources. Verification and delineation of these wetlands have been performed by a professional wetland scientist and mapped by a professional surveyor during project design of the sewer siphons and Webster Avenue Pump Station and force main rehabilitation. Wetland permitting is anticipated and impacts to wetlands will be minimized by use of best management practices.

It is important to note a portion of the project area near Jady Hill Avenue is adjacent to Clemson Pond, which is reported on OneStop as a Freshwater Pond. Clemson Pond was built by the Town in 1965 as part of the Wastewater Treatment System Upgrades Project and is used as a holding pond for combined sewer overflows. Impacts to Clemson Pond are not anticipated on this project. Additionally, no wetland impacts are anticipated on Webster Avenue Pump Station and force main project area.

All additional permits shall be obtained from local, state, and federal agencies as necessary. Best management practices will be employed to minimize impacts to surface water, shoreland, and wetlands identified within the project area. These practices include minimizing erosion by using proper erosion control methods such as hay bales, silt fences and rapid re-seeding of affected areas.

Floodplain: The upstream access structure is located outside the 100-year flood plain. The downstream access structure is located within the 100-year flood plain. The downstream access structures cannot be located outside the floodplain due to the required hydraulics of the proposed siphon and the Town's existing downstream sewer infrastructure. The proposed siphon needs to maintain downstream inverts to discharge into the Town's Main Pump Station.

Designated River: This project falls within the Designated River corridor of the Squamscott River. The Exeter-Squamscott River Local Advisory Committee (ESRLAC) provided the following:

ESRLAC supports the application as proposed but recommended the Town and Wright-Pierce consult with NH Fish and Game about the timing of the project so that the drilling does not disturb the annual spring alewife migration. ESRLAC also expressed concern for salt marsh located in the project area but was informed by Ms. Eckstrom that there would be no impacts to the marsh. Thank you, Theresa Walker [staff to ESRLAC].

Wright-Pierce consulted with NH Fish and Game regarding the alewife migration. NH Fish & Game stated that "as long as there is no major sound/vibration in the water there should be no impact

christina.buckman@des.nh.gov or phone (603) 271-0734  
PO Box 95, Concord, NH 03302-0095  
www.des.nh.gov

to river herring.” As the proposed alignment is approximately 20 feet below the river bottom, no major sound or vibration impacts are anticipated.

Plants & Wildlife: A Natural Heritage Bureau DataCheck has been conducted. Two plant species (seaside brookweed and spongy-leaved arrowhead) and one animal species (Northern Black Racer) were identified as occurring in the project area.

Based on review of additional information submitted to the NHB, construction will not occur in an area where these species would occur, and they came to the decision that they had no additional questions or concerns about the project.

The project will employ recommendations to protect the Northern Black Racer as recommended by NH Fish and Game. As there are no direct impacts to the Squamscott River there should be no impacts to the American eel.

Voluntary conservation measures will be employed, where appropriate, in order to reduce impacts to the Northern Long-eared Bat as outlined under item 2 on page 3 of this document: <https://www.fws.gov/midwest/endangered/mammals/nleb/pdf/S7FrameworkNLEB17Feb2016.pdf>

Recreation and Historic: The Division of Historical Resources (DHR) requested that a Phase 1A Archaeological Survey be conducted given the culturally sensitive nature of historical Native American habitats in the vicinity of Duck Point and the Squamscott River. The DHR also requested that the Exeter Heritage Commission be contacted to determine their interest in commenting on the project. The Phase 1A survey was completed and the results found that “the project area has been extensively disturbed by previous sewer and roadway construction. No further study is recommended.” The DHR concurred with the results of the survey and made the determination that no historic properties will be affected. The Exeter Heritage Commission was contacted in June 2020 and invited to provide comments on the project. No comments have been received to date. Any comments received will be addressed under coordination with the Exeter Heritage Commission.

Previous and current land use of this area is recreational and residential, however, given the proposed infrastructure will be buried except for a few manhole covers and access drive, no adverse impacts to recreational areas are anticipated. The project site was previously the location of a water treatment facility and much of the area that is anticipated for excavation has previously been disturbed for utility projects. Due the previously disturbed nature of the site, no adverse impacts are anticipated to historical areas.

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 as opposed to other funding sources.

christina.buckman@des.nh.gov or phone (603) 271-0734  
PO Box 95, Concord, NH 03302-0095  
www.des.nh.gov

Whereas this project constitutes only a minor project 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 Strategic Initiatives, were received on July 23, 2020. The results summary indicates concurrence with the proposed project.

IX. PUBLIC REVIEW

The Town voted to authorize funding in the amount of \$1,600,000 for the Squamscott River Sewer Siphon Improvement project at the March 10, 2020 Town Meeting.

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

christina.buckman@des.nh.gov or phone (603) 271-0734  
PO Box 95, Concord, NH 03302-0095  
www.des.nh.gov