

PUBLIC NOTICE

Notice of Intent of FEMA to Adopt Environmental Assessment
Oakdale Sewer Extension Project
Town of Islip, Suffolk County, New York
FEMA-4615-DR-NY

Notification is hereby given to the public of the intent of the Department of Homeland Security-Federal Emergency Management Agency (DHS-FEMA) to provide Federal financial assistance to the New York Department of Homeland Security and Emergency Services (DHSES), as Recipient, and Suffolk County as Subrecipient, to address issues from damaged septic systems that have occurred during and after storm events in the Town of Islip, Hamlet of Oakdale, Suffolk County, NY.

The NYS Governor's Office of Storm Recovery (GOSR) (now under the NYS Office of Resilient Homes and Communities) completed an environmental assessment (EA) pursuant to the State Environmental Quality Review Act (SEQRA) and related laws for the state environmental review of the Carlls River and Connetquot River Watersheds and Southwest Sewer District #3 (collectively referred to as CCSSD3) Sewer Expansion Project. GOSR issued a Negative Declaration for that project on June 12, 2018. FEMA completed an EA in accordance with the National Environmental Policy Act (NEPA) for the project in March 2019 under FEMA-DR-4085-NY, Hurricane Sandy. FEMA was the lead agency under NEPA and related laws for the federal environmental review of CCSSD3. On January 22, 2019, eligible voters in Great River (the Connetquot River Watershed) voted against implementation of the project and as a result, this geographic area of the CCSSD3 Sewer Extension Project did not move forward. Focus for the Connetquot River Watershed sewer connections was then directed to the Hamlet of Oakdale in the Town of Islip, Suffolk County, NY. To complete the Oakdale project, DHSES has requested FEMA Hazard Mitigation Grant Program (HMGP) funding under DR-4615-NY, Remnants of Tropical Storm Ida. GOSR completed an EA to consider potential impacts of the proposed Oakdale project and, based on their review, issued a Negative Declaration on February 24, 2022.

The Oakdale project would include a new sewer collection system from Suffolk County's Bergen Point Wastewater Treatment Plan, connecting to existing conveyance systems within the Hamlet of Oakdale, and the abandonment of existing septic tanks and cesspools. The project is intended to minimize short-term and repetitive, adverse impacts on human life and property associated with on-site wastewater system failures. The secondary purpose is to minimize long-term, adverse impacts associated with such failures on surface waters, groundwater and coastal wetlands that negatively affect these resources, and reduce the ability of these waters and wetlands to provide natural protection against storm surge.

In accordance with FEMA's implementation for NEPA compliance under FEMA Instruction 108-1-1, FEMA is required, during decision making, to fully evaluate and consider the environmental consequences of major federal actions it funds or undertakes. In accordance with FEMA Instruction 108-1-1 and the principles of Unified Federal Review (UFR), FEMA has considered the GOSR EA and findings and will adopt the same EA and findings with a FEMA-issued Finding of No Significant Impact (FONSI) pending public comments received in response to this notice. The EA can be found here: <https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository>.

Comments regarding the project, the EA, and/or potential impacts can be mailed or e-mailed to the contact information below within 30 days after the date of this legal notice publication in Newsday. If no substantive comments are received, the EA will be adopted and a FONSI will be signed by FEMA. FEMA will address substantive comments as part of the environmental documentation for the project. Contact: Federal Emergency Management Agency, Region 2, Environmental Planning and Historic Preservation, 26 Federal Plaza, Suite 1802, New York, NY 10278, or via email at FEMAR2COMMENT@fema.dhs.gov.

**New York State Environmental Quality Review Act
Determination of Significance**

Oakdale Expansion Area

**Carlls River and Connetquot River
Watersheds and Southwest Sewer
District #3 Sewer Project
Town and Village of Babylon;
Town of Islip; Suffolk County, NY**

Negative Declaration

February 24, 2022

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LIST OF ACRONYMS

APE	Area of Potential Effect
bgs	below ground surface
BMP	best management practice
CCSSD3	Carlls River and Connetquot River Watersheds and Southwest Sewer District #3
CFR	Code of Federal Regulations
CO ₂ e	carbon dioxide equivalent
CRIS	Cultural Resource Information System
dBA	A-weighted decibel
EA	environmental assessment
ECL	(New York) Environmental Conservation Law
EFH	essential fish habitat
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FONSI	Findings of no significant impact
GOSR	Governor's Office of Storm Recovery
gpd	gallons per day
HP	horsepower
I/A	Innovative/Advanced
Initiative	Suffolk County Coastal Resiliency Initiative
Ldn	day-night noise level
mgd	million gallons per day
mg/L	milligram per liter
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988

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NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NYCRR	New York Codes, Rules and Regulations
NYNHP	New York Natural Heritage Program
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSHPO	New York State Historic Preservation Office
OWTS	on-site wastewater treatment system
PM _{2.5}	fine particulate matter less than 2.5 micrometers in diameter
PSEG Long Island	Public Service Enterprise Group Long Island
RCRA	Resource Conservation and Recovery Act of 1976
SCDHS	Suffolk County Department of Health Services
SCDPW	Suffolk County Department of Public Works
SCWA	Suffolk County Water Authority
SEQRA	State Environmental Quality Review Act
SPDES	State Pollutant Discharge Elimination System
SSD	Southwest Sewer District
SSD #3	Southwest Sewer District #3 Laterals Area
SWPPP	Stormwater Pollution Prevention Plan
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WWTP	wastewater treatment plant

1.0 INTRODUCTION

The Governor's Office of Storm Recovery (GOSR), as the lead agency, completed an environmental pursuant to the State Environmental Quality Review Act (SEQRA) and related laws for the state environmental review of the Carlls River and Connetquot River Watersheds and Southwest Sewer District #3 (collectively referred to as CCSSD3) Sewer Expansion Project. On June 12, 2018, GOSR issued a Negative Declaration for the project. An Environmental Assessment (EA) was completed by FEMA for the project in March 2019 (FEMA, 2019). FEMA was the lead agency under the National Environmental Policy Act (NEPA) and related laws for the federal environmental review of the proposed CCSSD3 Sewer Extension Project.

On January 22, 2019, eligible voters in Great River (the Connetquot River Watershed) voted against implementation of the sewer project and as a result, this geographic area of the CCSSD3 Sewer Extension Project did not move forward. Funding for sewer connections was reallocated to the hamlet of Oakdale in the Town of Islip, Suffolk County, N.Y. The Oakdale project will connect approximately 420 developed parcels of property to Suffolk County's Bergen Point Wastewater Treatment Plant with the proposed sewer connection crossing under the Connetquot River.

The purpose of this document is to document GOSR's finding of non-significance for the Oakdale Project, pursuant to SEQRA. Accordingly, based on the analysis that follows, GOSR determined to issue a Negative Declaration for the Oakdale Project through this document.

1.1 Suffolk County Coastal Resiliency Initiative

The overall Initiative seeks to mitigate negative impacts on human life and property, surface waters, groundwater, and coastal wetlands associated with on-site wastewater treatment systems (OWTS) failures caused by natural hazards. Natural hazards include rain events, storm surge, and coastal flooding, particularly as they contribute to rising groundwater elevations and septic or cesspool failures. A conventional OWTS employs either a septic tank or a cesspool.

Suffolk County worked with community representatives on the Suffolk County Sewer District/Wastewater Treatment Task Force to identify the following potential sanitary sewer and wastewater infrastructure improvement projects: Southwest Sewer District #3 (SSD #3), Carlls River Watershed, Connetquot River Watershed, Patchogue River Watershed, and Forge River Watershed. The Initiative was configured in such a way that the five projects could each advance independently, subject to availability of funding. The Connetquot River Watershed project did not move forward, and funding was reallocated to the Oakdale area.

2.0 PURPOSE AND NEED

The primary purpose of this project is to minimize short-term and repetitive, adverse impacts on human life and property associated with OWTS failures. The secondary purpose is to minimize long-term, adverse impacts associated with such failures on surface waters, groundwater and coastal wetlands that negatively affect these resources and reduce the ability of these waters and wetlands to provide natural protection against storm surge.

The project is necessary because OWTS in the project area are susceptible to both capacity and treatment or disposal failures during floods and heavy rain events. Many systems in the project

area failed during Hurricane Sandy and eight other declared and undeclared flooding events since 2000.

3.0 PROJECT BACKGROUND AND DESCRIPTION OF PROJECT AREA

The Oakdale Sewer Extension Project would address issues from failed septic systems that have occurred during and after storm events in the hamlet of Oakdale. The project area consists of a portion Oakdale, the Connetquot River sewer line crossing, and the sewer line through the hamlet of Great River that connects to the SSD #3 service area (**Appendix A, Figure 1**). SSD #3 includes an area of approximately 57 square miles with more than 950 miles of existing sewer lines and 14 remote pumping stations. The Bergen Point Wastewater Treatment Plant (WWTP), located in Bergen Point, West Babylon, serves SSD #3 and has a current capacity of 30.5 million gallons per day (mgd).

The portion of the project area in Oakdale and the sewer line river crossing are evaluated in this Supplemental EA. The proposed sewer line in Great River follows the same route that was evaluated in the EA for the CCSSD3 Sewer Extension Project. For the existing conditions and potential impacts for the Great River portion of the project area please refer to the EA for the CCSSD3 (FEMA, 2019).

4.0 ALTERNATIVES

This section describes the three alternatives analyzed in this determination: the No Action Alternative and the two action alternatives (the Proposed Action and Innovative/Advanced [I/A] OWTS) that would meet the project Purpose and Need. The subrecipient eliminated three additional alternatives from further analysis, which are also described in this section.

4.1 Alternative 1: No Action

Under the No Action Alternative, the unsewered parcels in the project area would continue to use On-Site Wastewater Treatment Systems (OWTS), contributing to ongoing sewage backups during storm events and resulting in high effluent nitrogen concentrations from existing on-site disposal systems in the project area. Sanitary wastewater handled by existing on-site sanitary disposal systems would continue to enter waterbodies via shallow groundwater and tidal flooding. No measures to reduce nitrogen and pathogen pollution would be pursued under the No Action Alternative.

4.2 Alternative 2A: Proposed Action with Northern Crossing

Under Alternative 2A, the Oakdale Sewer Expansion Project (**Appendix A, Figure 1**), the Proposed Action would construct a new sewer collection system to connect parcels to existing conveyance systems via extended interceptors in the Town of Islip, within the southwestern portion of the hamlet of Oakdale. All hamlet parcels south and west of the Grand Canal, as well as properties on Shore Road between Grand Canal and Vanderbilt Avenue, would be connected to the system. The proposed sewer system expansion would be designed for a flow of 160,852 gallons of wastewater per day (gpd) from 468 parcels and convey it to the Bergen Point WWTP in

Southwest Sewer District #3 (SSD #3).¹ The new system would be a low-pressure system. The proposed work would include properly abandoning the existing OWTS.

Suffolk County would:

- Install +/- 35,750 linear feet of low-pressure sewer mains with diameters ranging from 2 to 10 inches via direction drilling.
- Install service laterals, check valves, and curb stops to each residence.
- Install low-pressure grinder pump stations at each of the +/- 468 residential properties.
- Connect the new collection system to the existing 15-inch diameter sewer stub located on the west side of Heckscher State Parkway.

4.2.1 Implementation and Construction

Construction of the proposed collection and conveyance systems would occur concurrently in the Oakdale Expansion Area, beginning in 2022. Construction would last approximately 1.5 to 3 years. For the purpose of this analysis, it is assumed that sewer lines would be installed at an average rate of approximately 200 feet per day in any one location.

Low pressure sewers would allow for directional drilling, which would minimize excavation. The proposed network of low pressure sewers would consist of 2-, 3-, 4-, 6- and 10-inch diameter force mains. The majority of the proposed district extension would be served by 3-inch mains, with the main increasing in size as more parcels are connected to the system, up to the largest size of 10-inch diameter. Within Oakdale, the 10-inch diameter pipe would be primarily located beneath Shore Drive.

To connect to SSD #3, a 10-inch force main would be installed beneath the Connetquot River, traverse through the Great River area, cross under Heckscher State Parkway and connect to the existing 15-inch diameter sewer stub located on the west side of Heckscher State Parkway. The sewer line beneath the river would be installed using horizontal directional drilling (HDD). The HDD installation process consists of four stages:

1. drilling the pilot hole to establish the alignment,
2. enlarging the pilot hole to a diameter sufficient to accommodate the casing pipe (pre-reaming),
3. installing the steel casing by pulling it through the drilled hole (pullback), and
4. installing the force main by pulling it through the installed casing (pullback).

One HDD drill site would be identified. A pipe pullback site (i.e., HDD work site) would be used to facilitate pullback of the casing and force main pipe through the casing. The HDD method also requires pipe and casing laydown/assembly areas. The pipe would be assembled and laid out in a continuous line for pulling through the excavated borehole. The drill sites, pullback sites and pipe and casing laydown/assembly areas would be determined when the project is further advanced.

¹ Actual flow estimates vary from 83,697 to 160,852 gpd.

In addition to the installations described above, the existing OWTS would be pumped out, filled with clean sand, and abandoned in place in accordance with Section 740-14 of the Suffolk County Code, “Discontinued use of cesspools and septic systems.” A licensed septage hauler would remove the solids from the individual systems and clean the tank or cesspool. The sludge and wastewater would be removed via vacuum truck and hauled to an approved wastewater treatment facility. Suffolk County prefers to abandon systems in place to reduce generation of solid waste and associated hauling and disposal. When infrastructure components must be removed because of contamination or other potential hazards, as determined by Suffolk County Department of Health Services (SCDHS), any recyclable components (i.e., steel tanks) would be recycled, if possible. The remaining non-recyclable materials would be handled as construction and demolition solid waste. Clean materials would need to be imported to replace the voids left by system components during abandonment of OWTS. The ground surface following construction activities would be landscaped or otherwise returned to its original condition to prevent soil erosion.

4.3 Alternative 2B: Proposed Action with Southern Crossing

Alternative 2B is similar to Alternative 2A except the Connetquot River crossing would be located farther south on the Oakdale side of the river. The location where the pipe crossing makes landfall on the west side of the river would be the same as Alternative 2A (**Appendix A, Figure 1**).

4.4 Alternative 3: Innovative/Advanced On-site Wastewater Treatment Systems

Under Alternative 3, Suffolk County would upgrade all cesspools and conventional OWTS within the project area to modern I/A OWTS pursuant to the Suffolk County Septic Demonstration Program (SCDPW 2016). To allow for environmental analysis of this alternative, Suffolk County assumes that some or all I/A OWTS under evaluation would be approved for general use by the New York State Department of Health. There are several different types of innovative systems that are currently being field tested by volunteer households in Suffolk County. Pending the results of the testing, some or all of those technologies are expected to be approved for general use, and the subrecipient assumes that there would be a selection of I/A OWTS types that could be installed under this alternative. This alternative does not specify which I/A OWTS types would be installed. Following is a brief description of each I/A treatment method (Jobin 2016).

4.4.1 Treatment Methods

I/A OWTS are miniature variations of the typical wastewater treatment processes found in large-scale treatment plants. They can employ different options to clarify and separate wastewater from the solids; aerate and treat the wastewater with microorganisms to break down wastes into water, carbon dioxide, and other inorganic compounds; and dispose of the treated effluent.

All I/A OWTS require a leaching field, and all would be installed below grade. The biological treatment processes employ a medium of a natural or synthetic solid material that supports biomass on its surface and within its porous structure. Suffolk County is currently evaluating the following systems: media filters, membrane bioreactors, and aerobic treatment units. I/A OWTS achieve an effluent quality of at most 19 milligrams per liter (mg/L) for total nitrogen, compared to 40 mg/L for total nitrogen under conventional OWTS.

4.4.2 Implementation and Construction

Under this alternative, installation of I/A OWTS would occur over a period of four years. All of the system types under evaluation by Suffolk County would be installed below grade and would require excavation to install.

In most cases, construction of I/A OWTS would require removal of the existing OWTS. If sufficient land area were available on the property to meet all regulatory setbacks, then the new I/A OWTS could potentially be installed at a different location within the parcel, and the existing OWTS could be abandoned in place to reduce the generation of solid waste.

Treated effluent from I/A OWTS would be discharged to leaching fields for further treatment by the surrounding soil and eventually discharged to groundwater. Reuse of existing leaching fields may be possible if they were properly sized and fully functioning. If an existing leaching field were deemed to be substandard, then a new leaching field would need to be constructed. A new field would be constructed as a system of trenches, and the distribution pipes would be partially filled with washed gravel or stone. Leaching field trenches would be excavated to approximately 4 to 6 feet below ground surface (bgs). Each leaching field would be properly sized and constructed to assure satisfactory operation. I/A OWTS would require regular servicing for removal of solids, similar to the existing OWTS.

4.5 Alternative Considered but Dismissed

4.5.1 Combination of Gravity and Low-Pressure Sewers

Under this alternative, the Proposed Action would be implemented as indicated under Alternative 2A or 2B, but a combination of gravity sewers and low pressure collection systems would be used. This combination would include a small gravity sewage collections which lead to a common low pressure pump station. This would allow approximately six to ten homes to share a larger low pressure pump station. While this arrangement would reduce to overall number of pump stations, it would increase the amount of sewer piping in the roads because both gravity and low pressure mains would be required. In addition, the gravity sewer lines would likely require dewatering given the depth to groundwater in the project area. Also, the larger pump stations would require greater area to install given the increased capacity and could require separate parcels be obtained by SCDPW. Due to these factors, this alternative was dismissed from further consideration (PW Grosser 2020).

4.5.2 Vacuum Sewers

Under this alternative, the Proposed Action would be implemented as indicated under Alternative 2A or 2B, but vacuum systems would be used. Vacuum sewers operate on a vacuum or negative pressure to move the sewage through the collection system. A typical vacuum sewer system consists of vacuum valve pits and a central vacuum pump station. The valve pits are located at the individual homes and typically hold approximately 10 gallons of sewage. Once the capacity of the valve pit has been reached, the pneumatic pressure controlled valves open and allows sewage to be drawn into the collection system piping. The central vacuum station houses the main vacuum pump which creates the vacuum within the collection system. This pump must be run constantly to create the vacuum necessary to convey sewage in the collection system into the collection tank. Once sewage enters the collection tank it is pumped into either a force main or gravity collection

system that ultimately discharges to the treatment facility. Similar to low pressure sewers, the benefit of vacuum sewers is that it allows for the collection system to be buried approximately 3-4 feet below grade. Also, since it uses a vacuum to convey the sewage, the collection system does not need to be laid at a downward slope. This would allow the collection system to be raised to avoid conflicts with other existing utilities.

Typically, vacuum sewers are more expensive to operate than a low pressure sewer system. There is a lack of local knowledge about the operation of vacuum sewers in the County. Reports indicate that the pressure controlled valves are susceptible to freezing during the winter months, which causes system failure. Due to these factors, this alternative was dismissed from further consideration (PW Grosser, 2020).

4.5.3 Land-Based Connection to SSD #3

Under this alternative, the Proposed Action would be implemented as indicated under Alternative 2A or 2B, but the connection to SSD #3 would not cross beneath the Connetquot River. Instead, connection to SSD #3 would occur via a new force main north beneath Vanderbilt Avenue and east beneath Montauk Highway and/or Sunrise Highway, crossing beneath the tracks of the Long Island Railroad (LIRR) Montauk Branch. Montauk Highway (County Route 85) is a four-lane thoroughfare through Oakdale's commercial district, and Sunrise Highway (State Route 27) is a six-lane limited access freeway. Partial or total closure of two miles of traffic lanes for excavation, force main installation, backfill, and repaving would increase construction costs, disrupt traffic flow and business operation, and require approval of New York State Department of Transportation. The LIRR Montauk Branch provides service between southeastern Long Island and points west, including New York City. Construction beneath the line would require coordination and approval with the Metropolitan Transportation Authority (MTA) and could require temporary service suspension. Due to these factors, this alternative was dismissed from further consideration.

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section discusses the potential impacts of the alternatives considered on environmental and cultural resources. Most of the evaluations focus on the construction period when short-term disruptions to the human environment would be experienced. In cases where a longer duration of impacts is expected to occur, such as during the project operational lifetime, an assessment of impact duration is also included in the analysis. Potential cumulative environmental impacts are also discussed (Section 5.19). A table summarizing the potential impacts of the alternatives evaluated is provided in Section 9.0, Summary of Impacts.

When possible, quantitative information is provided to establish potential impacts. The potential impacts are evaluated based on the criteria listed in **Table 5-1**.

Table 5-1 Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
No impact	The resource area would not be affected, and there would be no impacts.
Negligible	Changes would be non-detectable or, if detected, the impacts would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse impacts.
Moderate	Changes to the resource would be measurable and have both localized and regional impacts. Impacts would be within or below regulatory standards, but historical conditions would be altered temporarily. Mitigation measures would be necessary, and the measures would reduce any potential adverse impacts.
Major	Changes to the resource would be readily measurable and would have substantial consequences on local and regional levels. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse impacts would be required to reduce impacts, but long-term changes to the resource would be expected.

5.1 Resources Dismissed from Detailed Analysis

Geology and topography have been eliminated from further consideration because bedrock in the project area is more than 2,000 feet below ground surface (bgs) and would not be affected by excavations, and the alternatives would have negligible impacts on the topographic features within the project; neither land elevation nor slope would change.

Prime farmland is normally evaluated under the Soils resource topic; however, prime farmland is not present within the project area. Additionally, the Farmland Protection Policy Act, which requires federal agencies to consider potential adverse impacts of their actions on the preservation of farmland, does not apply to farmland within municipal boundaries. Thus, a farmland impact analysis is not required for the Proposed Action.

5.2 Soils

5.2.1 Existing Conditions

The soils types in the project area were determined based on the mapping by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) (USDA-NRCS, 2021). The soils mapping for the project area are depicted on **Figure 2** included in **Appendix A** and are summarized in **Table 5.2-1**. The predominant upland soil type in the project area is Riverhead and Haven soils (RhB). Soils with a drainage class of poorly drained or very poorly drained are considered hydric soils and are indicative of wetlands. Walpole sandy loam

(Wd) tidal marsh soils (Tm) are poorly drained and very poorly drained soils that are found in the project area.

Table 5.2-1. Mapped Soils in the Project Area

Soil Type	Drainage Class
Riverhead and Haven soils, 0 to 8 percent slopes (RhB)	Well Drained
Hooksan-Verrazano-Urban land complex, 0 to 8 percent slopes (HVU)	Well Drained
Riverhead sandy loam, 0 to 3 percent slopes (RdA)	Well Drained
Deerfield loamy fine sand, 0 to 3 percent slopes (De)	Moderately Well Drained
Fill land, sandy (Fs)	Moderately Well Drained
Cut and fill land, gently sloping (CuB)	Moderately Well Drained
Walpole sandy loam, coastal lowland, 0 to 3 percent slopes (Wd)	Poorly Drained
Tidal marsh (Tm)	Very Poorly Drained
Fill land, dredged material (Fd)	Not Determined

5.2.2 Potential Impacts

5.2.2.1 Alternative 1: No Action

Under the No Action Alternative, there would be no construction-related impacts on soils. The unsewered parcels in the project area would continue to use OWTS. As a result, existing issues related to soil contamination from leach fields and OWTS failure would continue. Thus, the No Action Alternative would continue to have a minor, adverse impact on soils in the vicinity of any OWTS that fail.

5.2.2.2 Alternatives 2A and 2B: Proposed Action

The on-land construction activities for Alternatives 2A and 2B are similar and would have the same impacts on soils. The Proposed Action includes the installation of 35,750 linear feet of new sewer main resulting in the temporary disturbance of soils. The new sewer main would be constructed within the right-of-way of the existing road system in the Oakdale project area. Since the low-pressure sewer system would use small diameter force mains, it would allow for the directional drilling of the force mains rather than “open trench” methods that would result in greater soil disturbance.

Existing OWTS would be pumped out, filled with clean sand, and abandoned in place in accordance with Section 740-14 of the Suffolk County Code, Discontinued Use of Cesspools and Septic Systems. OWTS abandonments would require the addition of clean fill to replace the voids left by system components. The ground surface following construction activities would be landscaped or otherwise returned to its original condition to prevent soil erosion.

Construction activities would disturb soils and the directional drilling is expected to result in minor, short-term local impacts on soil resources during construction. In accordance with state requirements, best management practices (BMPs), including soil and erosion control measures, would be employed during construction to minimize potential temporary soil erosion from stockpiles due to rainfall. These measures would be specified as part of the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity permit application, which would also include an Erosion and Sediment Control Plan and Stormwater Pollution Prevention Plan (SWPPP). Overall, the Proposed Action would result in minor, adverse soil impacts in the vicinity of the improvements during construction.

5.2.2.3 Alternative 3: Innovative/Advanced On-site Wastewater Treatment Systems

Soil disturbance from construction within each of the individual parcels would affect only those soils situated near existing and proposed OWTS systems. In some cases, construction of a new system would require removal of the existing OWTS, and construction of a new leaching field excavated to a depth of 4 to 6 feet, which would have additional impacts on soils, although the laterals would be placed in areas that were disturbed during the original development of the properties. However, under Alternative 3, impacts on soils would be considerably less than those under Alternative 2, which would include the installation of new sewer main and service laterals. Overall, impacts from Alternative 3 would be considered negligible, and adverse, short term and localized.

5.3 Air Quality and Greenhouse Gases

5.3.1 Regulatory Framework

The Clean Air Act of 1970 (42 USC 7401–7661 [2009]) authorized the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The NAAQS include standards for six criteria air pollutants: lead, nitrogen dioxide, ozone, carbon monoxide, sulfur dioxide, and particulate matter. Areas where the monitored concentration of a criteria pollutant exceeds the applicable NAAQS are designated as being in non-attainment of the standards, while areas where the monitored concentration of a criteria pollutant is below the standard are classified as in attainment. Former nonattainment areas are called maintenance areas.

NAAQS and NYS Ambient Air Quality Standards that would be applicable to the project area are presented in **Appendix B**, Air Quality Standards and Emissions Calculations.

5.3.2 Existing Conditions

Suffolk County is a serious nonattainment area for the 2008 8-hour ozone standard, moderate nonattainment area for the 2015 8-hour ozone standard and a maintenance area for the annual average and 24-hour average fine particulate matter (PM_{2.5}) standards (EPA 2021c). Suffolk County is an attainment area for the remaining criteria pollutants; therefore, general conformity requirements do not apply to other criteria pollutants in the project area and a *de minimis* evaluation is not necessary.

This analysis also considers the potential impacts of the alternatives on greenhouse gas emissions and the implications of those emissions for the potential environmental impacts of the alternatives. Greenhouse gases include carbon dioxide, methane, nitrous oxide, and fluorinated gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Construction activities, such as the combustion of diesel and gasoline to power heavy equipment, emit carbon dioxide and smaller quantities of methane and nitrous oxide. For the long-term operation of the proposed project, the relevant greenhouse gases are those associated with wastewater treatment processes: methane and nitrous oxide.

OWTS in the project area generate methane emissions. Based on statewide average per capita emission factors for OWTS and the existing residential population of the project area (i.e., approximately 1,235 persons), annual emissions from OWTS total 260.54 metric tons on a carbon dioxide equivalent (CO₂e) basis (Truhlar, et. al., 2014).² Additional emissions are generated by trucks servicing the OWTS, which would occur every 3 to 5 years at each parcel.

5.3.3 Potential Impacts

5.3.3.1 Alternative 1: No Action

Under the No Action Alternative, no temporary construction emissions would occur. No new stationary sources of emissions would be created, and mobile source emissions related to OWTS maintenance (vehicle use to periodically clean out on-site systems) would continue to be similar to existing conditions. There would be no change in air quality. The No Action Alternative would continue to have a long-term, negligible, adverse impact on greenhouse gas emissions because OWTS in the project areas would continue to generate methane emissions and localized mobile source emissions from trucks servicing the OWTS would continue.

5.3.3.2 Alternatives 2A and 2B: Proposed Action

Construction of the Proposed Action would result in short-term, temporary emissions of criteria pollutants from mobile equipment, including jackhammers, excavators or backhoes, small cranes, trucks, and paving machines. In addition, construction-related greenhouse gas emissions would be generated by both on- and off-road equipment and vehicles (construction vehicles, as well as haul truck trips and construction employee commutes). Emissions, including of greenhouse gases, and fugitive dust would be controlled through the implementation of standard construction BMPs,

² There are six major greenhouse gases, each with a different global warming potential. For example, each molecule of methane has 28 to 36 the global warming potential of each molecule of carbon dioxide. Therefore, greenhouse gases are typically converted into carbon dioxide equivalent (CO₂e) to present a single value that encompasses all six gases (EPA 2016).

including covering haul trucks and soil piles, restoring/replanting areas where vegetation is disturbed to prevent erosion and dust, and limiting idling to 5 minutes or less in accordance with NYS regulations (6 New York Codes, Rules and Regulations [NYCRR] Subpart 217-3).

As indicated in the 2019 Carlls River and Connetquot Watersheds and Southwest Sewer District #3 (CCSSD3) Draft Environmental Assessment (FEMA, 2019), construction equipment and activity-related emissions associated with that project would be well below the general conformity *de minimis* thresholds, and construction-related greenhouse gas emissions would be short-term and negligible.

The CCSSD3 project entailed connection to approximately 6,000 residential parcels across multiple locations and overlapping construction phases. Construction of the Oakdale Expansion Area project, which serves as a replacement for the CCSSD3 Connetquot Watershed component, would entail connection to 468 parcels, or less than 10 percent of the parcels that would be connected under the CCSSD3 project. Therefore, construction of the Oakdale Expansion Area project would result in a fraction of the overall emissions previously analyzed. Emissions would be below general conformity *de minimis* thresholds, and greenhouse gas emissions would be short-term and negligible. In summary, construction-related adverse impacts would be short-term and negligible.

Assuming each connected property would have its own grinder pump station, operation of the proposed Oakdale Expansion Area system would include 468 grinder pumps, each with backup generators. In addition, a single pump station would be required to convey wastewater from the expansion area, beneath the Connetquot River, to connect to the existing conveyance system on the river’s west side. Emissions from backup power sources would only occur in emergencies/power outages and for periodic testing, and they would result in emissions well below the general conformity *de minimis* thresholds, as shown in **Table 5.3-1** (see **Appendix B, Air Quality Standards and Emissions Calculations**).

Table 5.3-1. Backup Generator Emissions (Tons/year)

	NO_x	VOC	PM_{2.5}
Low-pressure grinder pumps	7.01	1.26	0.05
Pump station to convey wastewater beneath river	0.80	0.23	0.20
General conformity <i>de minimis</i> threshold	100.0	50.0	100.0
<i>De minimis</i> threshold exceeded?	No	No	No

Notes: NO_x – nitrogen oxide; VOC – volatile organic compound

A mobile-source air quality impact analysis for the operational impacts of the Proposed Action is not necessary because the provision of sewer infrastructure would have long-term, negligible, adverse impacts on trip generation and traffic patterns. Additionally, the Proposed Action is not likely to result in significant induced growth. Therefore, the Proposed Action would have a short-term, negligible, adverse impact on air quality during construction and long-term, negligible, adverse impacts on air quality during operation.

Table 5.3-2 summarizes the operational greenhouse gas emissions expected under the Proposed Action. Although providing centralized treatment is expected to reduce greenhouse gas emissions, this reduction would be more than offset by the electricity consumption required by the WWTP and related infrastructure. In addition, petroleum fuels would be used in emergency generators for grinder pump generators during power outages. As a result, the Proposed Action would result in a net greenhouse gas emissions increase of 1,012.51 metric tons CO₂e per year. The increase in emissions would have a long-term, minor impact on global greenhouse gas emissions.

Table 5.3-2. Summary of Operational Greenhouse Gas Emissions Net Change Compared to No Action

Emitting Activity	OWTS Per Capita Emissions Factor (CO ₂ e/person) ^a
Wastewater treatment (methane), shift from OWTS to centralized treatment	-95.2
Fuel consumption (grinder pumps, pump station)	+173.6
Electricity consumption (grinder pump stations, WWTP energy demand)	+934.07
Net emissions	+1,012.51

Source: EPA (2014)

5.3.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Constructing I/A OWTS would result in temporary criteria pollutant emissions from the use of heavy equipment, fugitive dust, and worker commutes. However, the construction equipment required, and the amount of soil hauled during each year of construction of the I/A OWTS would be substantially less than that required for construction of sewer infrastructure under the Alternative 2 because the I/A OWTS Alternative would not require construction of sewers and I/A OWTS systems would be backfilled with some of the excavated soil on site. Because emissions under Alternative 2 would be well under the General Conformity *de minimis* thresholds, emissions under the I/A OWTS Alternative would also be under the thresholds. Therefore, adverse impacts on air quality would be short term and negligible. Similarly, temporary greenhouse gas construction emissions would occur, but they would be of a smaller magnitude than those from Alternative 2. Construction-related greenhouse gas impacts would be short term, negligible, and adverse.

Suffolk County is evaluating several I/A OWTS technologies. Because of the relatively new nature of the technology, no information is available to provide a detailed assessment of how emissions of I/A OWTS designs would vary from conventional OWTS in the project area. Suffolk County conducted a literature review and identified no information on I/A OWTS emissions of volatile organic chemicals (VOCs). However, assuming I/A OWTS emissions are similar to traditional OWTS already present in the project area, long-term, negligible, adverse impacts on air quality are anticipated.

Information on the direct greenhouse gas emissions of I/A OWTS is not available. Indirectly, each OWTS would result in approximately 980-kilowatt hours per year of electricity demand (Reclaim Our Water 2017). The alternative would annually result in 257.4 metric tons CO₂e from electricity use.

5.4 Water Quality

5.4.1 Regulatory Framework

5.4.1.1 Federal Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) (42 U.S.C. §§ 300(f) – 300j-26) was established to protect the health of the public by ensuring that a safe drinking water supply exists. NYSDEC works to ensure public health protection through primacy of SDWA and the provision of potable water. Potable water is defined as finished water, after treatment, that is safe and satisfactory for drinking and cooking. Public water and water distribution systems in the State of New York are regulated by the NYSDEC (see 6 NYCRR Parts 700-706).

5.4.1.2 National Pollutant Discharge Elimination System Program

The EPA authorized NYSDEC to administer the National Pollutant Discharge Elimination System (NPDES) program authorized under Section 402 of the Clean Water Act (CWA). New York's program is referred to as the SPDES. Activities that disturb one acre of ground or more require a SPDES stormwater permit, while groundwater discharges of treated municipal wastewater require an SPDES municipal permit.

5.4.1.3 NYSDEC Protection of Waters Program

NYSDEC administers classifications of various waterbodies (6 NYCRR 701) that provide a standard indication of the best usage for each water resource (NYSDEC 2014a). Certain waters of the state are protected on the basis of their classification. All waters in New York State are assigned a letter classification that denotes their best uses. Letter classes such as A, B, C, and D are assigned to fresh surface waters, and SA, SB, SC, I, and SD to saline (marine) surface waters. Streams and water bodies with a classification of AA, A, B, CT, and CTS are collectively referred to as "protected streams," and are subject to the stream protection provisions of the Protection of Waters regulations (ECL Article 15). Waterbodies that are considered navigable waters such as the Connetquot River are also subject to the Article 15 regulations. Navigable waters include waterbodies on which vessels with a capacity on one or more persons are operated or can be operated. Disturbance to the bed or bank of a protected waterbody may require obtaining a Protection of Waters permit from NYSDEC.

5.4.1.4 Suffolk County Department of Health Services

The Suffolk County Department of Health Services (SCDHS) enacted policies to protect water quality and groundwater to ensure the availability of an adequate and safe source of water supply (Suffolk County 2011). Suffolk County is separated into eight groundwater management zones based on differences in hydrogeology and groundwater quality, and the County established flow limitations for parcels within each zone based on maintaining a maximum total nitrogen concentration in groundwater of 10 mg/L.

5.4.2 Existing Conditions

5.4.2.1 Surface Waterbodies

The Connetquot River, Grand Canal and other tidal creeks in the project area are all classified as Class SC waters. According to 6 NYCRR 701.12, the best usage of Class SC waters is fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. The Connetquot River and tributaries that are used for boating are navigable waters and are subject to NYSDEC Protection of Waters regulations. The Connetquot River is not listed on the 2016 New York State Section 303(d) List of Impaired/TMDL Waters nor on the 2018 draft list. There are no fresh surface waters in the project area.

The findings of the 2016 *Grand Canal Ecological and Public Health Assessment Report* indicate that the Grand Canal has experienced a reduction in water quality due to pollution sources including septic and stormwater input. Poor water quality observed during the 2016 study included low levels of dissolved oxygen, high levels of bacterial contaminants (coliforms) and elevated nutrient levels (nitrogen and phosphorus). The 2016 study concluded that bacteria levels in the Grand Canal water are elevated and discharges from OWTS appear to be major contributors (Suffolk County Department of Health Services, 2016).

5.4.2.2 Groundwater

Groundwater in Suffolk County comprises a designated sole source aquifer under the SDWA. This aquifer is the only source of potable water for the roughly 1.5 million residents. All three aquifers on Long Island (the Upper Glacial, Magothy, and Lloyd Aquifers, from shallowest to deepest), are present in the project area (Pluhowski and Kantrowitz 1964). The Upper Glacial Aquifer establishes the water table.

The Suffolk County Water Authority (SCWA) provides potable water to communities in the project area (SCWA 2016). The project area is located within Suffolk County Department of Health Services groundwater management zone VI (Suffolk County 2015). The public water supply wells draw from the Magothy Aquifer, which is rated as very high susceptibility for nitrate contamination (Suffolk County 2015). Private wells typically draw from the Upper Glacial Aquifer. Testing between 1997 and 2006 found maximum nitrate levels from “not detected” to six parts per million (Suffolk County 2015). Sole Source Aquifer Protection (Environmental Conservation Law [ECL] Article 55) designates nine areas within Nassau and Suffolk Counties as Special Groundwater Protection Areas. Based on a sole source aquifer screening and review of the Special Groundwater Protection Area (Central Suffolk) Critical Environmental Area Map #2, the Oakdale project area is not in a Special Groundwater Protection Area. Groundwater in the project area is generally between 5 and 10 feet below the ground surface (USGS, 2021). The Oakdale project area was previously served by private wells but has been connected to city water since 2001.

5.4.2.3 Wastewater Treatment Plant Effluent

Wastewater collected from connected properties in SSD #3 is treated at the Bergen Point WWTP, which is owned and operated by Suffolk County Department of Public Works (SCDPW). SCDPW

has recently upgraded the Bergen Point WWTP which has sufficient capacity for the project expansion areas considered in the original EA as well as the Oakdale project area.

5.4.3 Potential Impacts

5.4.3.1 Alternative 1: No Action Alternative

Under the No Action Alternative, the risk of discharge of sanitary wastewater from failing OWTS to adjacent estuarine waterbodies, and ultimately Great South Bay, in the event of future flooding would persist. Overflowing wastewater would continue to be transported into these surface waters either through point or non-point source runoff, or after first infiltrating into the groundwater and discharging later into these surface waters. Continued pollution from future flooding could affect these waterbodies, damaging habitat and causing adverse conditions for local plant and wildlife species that depend on the habitat, and could contribute to the deterioration of ecosystem functions in the Great South Bay. Contamination would continue to affect the nitrogen concentration in the Upper Glacial Aquifer. The risk of nitrate contamination of public water supply wells in the project area drawing from the Magothy Aquifer would remain unchanged. Overall, the No Action Alternative would result in long-term, moderate, adverse impacts on water quality during flood events.

5.4.3.2 Alternatives 2A and 2B: Proposed Action

Potential Construction-related Impacts

Stormwater Impacts during Construction: No construction would occur within surface waterbodies, nor would any work directly modify them. However, the Proposed Action would require construction activities such as clearing, grading, excavating, dewatering, and stockpiling soil and other earthen materials, which could adversely affect water quality through erosion and sedimentation.

The new sewer main would be constructed within the right-of-way of the existing road system. Directional drilling would be used for installation of the low-pressure system, which would reduce the quantity of excavated materials, helping to minimize potential erosion and sedimentation from stormwater runoff.

The HDD for installation of the 10-inch sewer line under the Connetquot River would not require any in-water work. The staging areas would be in previously disturbed uplands. Some construction activities—including the jacking and receiving pits for the Connetquot River crossing—would require dewatering when groundwater or precipitation accumulates in an excavation and must be removed for the work to be accomplished. Depending on the dewatering methods of the chosen contractor, a NYSDEC Water Withdrawal Permit, 6 NYCRR 601, could be required.

In accordance with state requirements, BMPs, including soil and erosion control measures, would be employed during construction to minimize potential temporary soil erosion from stockpiles due to rainfall. These measures would be specified as part of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity permit application, which would also include an Erosion and Sediment Control Plan and SWPPP. Water removed from excavations via dewatering would be handled according to the protocols established in the SWPPP. These protocols would include removing sediment from the water prior to discharge using BMPs such

as portable sediment settling tanks and/or silt control bags. Construction activities would result in short-term, minor, adverse impacts on water quality as a result of soil erosion.

Construction of the low pressure sewer system would use equipment that requires fuel, oil, solvents, and lubricants. Use of this equipment could result in spills that could contaminate receiving waters. While the likelihood of this is small, spill prevention, prompt spill notification and response, and soil handling techniques would be used to further reduce the potential for contaminating receiving waters, resulting in short-term, negligible, adverse impacts.

Removal of Existing OWTS: Existing OWTS serving the buildings within the project area would need to be removed or properly abandoned in place. This process would be performed in accordance with Section 740-14 of the Suffolk County Code, *Discontinued Use of Cesspools and Septic Systems*, and would involve some excavation and backfilling of the sites. Suffolk County would oversee abandonment of commercial OWTS, and any contamination in the OWTS would be remediated. Disturbed areas would be landscaped and returned to their original condition. Short-term, negligible, adverse impacts are expected from the removal of existing OWTS.

Potential Operational Impacts

Loading to Surface Waters: Wastewater from the 468 parcels in the project area would be collected and treated at the Bergen Point WWTP. The Bergen Point WWTP holds a SPDES permit for 40.5 mgd that includes the recent upgrade for 10 mgd (Permit No. NY0104809; NYSDEC 2014, 2016a). SCDPW has previously allocated 0.6 mgd from the connection of the entire Oakdale area to the Bergen Point WWTP. The added effluent to the WWTP would be discharged via the existing outfall to the Atlantic Ocean. Implementation and operation of the Proposed Action would minimize the risk of future releases of sanitary wastewater into nearby waterways during future flood events. The reduction in total nitrogen load from the 468 parcels in the project area would be 38.5 pounds per day or approximately 14,000 pounds per year.³ Overall, the implementation of the Proposed Action would have a long-term, beneficial impact on water quality of surface waters in the project area. The reduction in nitrogen and pathogen loading would be beneficial to Grand Canal and the other tidal creeks in the project area as well as the Connetquot River and Great South Bay in that it would assist in long term water quality improvements.

Stormwater Impacts: The Proposed Action would not add any new impervious surface to the project area. The ground surface following construction activities would be landscaped or otherwise returned to its original condition to prevent soil erosion. Therefore, there would be no long-term stormwater-related adverse impacts on water quality.

Groundwater Impacts: Implementation of the Proposed Action would reduce nitrate loading to groundwater. As a result, the Proposed Action would have a long-term, beneficial impact on groundwater quality in the project area. The Proposed Action would also reduce the risk of contamination of public water supply wells that draw from the Magothy Aquifer.

During operation of the project, groundwater could potentially be temporarily affected in the event of a sewage pipe leak or break. Temporary dewatering might be necessary to reach the pipe for repair. Excavation dewatering for the pipe repair would adhere to BMPs for water management

³ Nitrogen reduction was calculated using the following formula: N Load (lbs/day) = 468 parcels X 3 persons/parcel X 10 lbs/person/year X 1 year/365 days (Dvirka and Bartilucci 2014).

and to all applicable local, state, and federal regulations. Public water supply wells would not be affected by temporary leaks and repairs because they draw from the deeper Magothy Aquifer.

5.4.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Potential Construction-related Impacts

Stormwater Impacts during Construction: Construction would occur within the individual parcels and not directly impact any waterbodies. Construction of the I/A OWTS Alternative would require excavating, dewatering, and stockpiling of soil and gravel, which could adversely affect water quality through erosion and sedimentation. Construction would also require removal or abandonment of existing OWTS. I/A OWTS would be constructed at depths similar to conventional OWTS. Dewatering would likely be required for installing some I/A OWTS, particularly those in areas with shallow depths to groundwater (such as in the Connetquot Expansion Area; Suffolk County, 2015b). Water removed from excavations via dewatering would be handled according to the protocols established in the SWPPP, and BMPs similar to those described for Alternatives 2A and 2B would be employed during construction, resulting in short-term, negligible, adverse impacts.

Construction of the I/A OWTS would use equipment that requires fuel, oil, solvents, and lubricants. Use of this equipment could result in spills that could contaminate receiving waters. While the likelihood of this is small, spill prevention, prompt spill notification and response, and soil handling techniques would be used to further reduce the potential for contaminating receiving waters, resulting in short-term, negligible, adverse impacts.

Potential Operational Impacts

I/A OWTS Operation: Suffolk County only recognizes and approves I/A OWTS that are designed to reduce the total nitrogen concentration in treated effluent to 19 mg/L. A total nitrogen concentration of no higher than 19 mg/L would represent a significant improvement in treatment performance compared to conventional OWTS, which generally achieve a total nitrogen concentration of only 40 to 45 mg/L (Dvirka and Bartilucci 2012) and would benefit both surface and groundwater quality. However, the water quality impacts would not be as beneficial as those under Alternatives 2A and 2B, which would achieve effluent nitrogen concentration of 3 to 5 mg/L compared to I/A OWTS effluent nitrogen concentrations of 19 mg/L. Overall, implementation of this alternative would have a long-term beneficial impact on both surface water and groundwater quality in the project area.

Impacts during Flood Events: I/A OWTS can generally operate in areas with shallower groundwater tables compared to conventional OWTS. However, I/A OWTS constructed in parts of the project area with a shallow groundwater table would still be subject to failure similar to the existing OWTS. The issues that I/A OWTS could experience include reduced drain field capacity, exposure of or damage to components, and electrical power interruption. These disruptions in treatment by I/A OWTS during floods would result in adverse impacts on water quality and human health through exposure to bacteria in the wastewater. The extent of such impacts would vary substantially between individual storms and would generally be less than those under the No Action Alternative.

5.5 Wetlands

5.5.1 Regulatory Framework

5.5.1.1 Federal Clean Water Act

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States (U.S.) and regulating quality standards for surface waters. The USACE is the Federal agency that regulates waters of the U.S., including wetlands, under Section 404 of the CWA. Wetlands are generally defined by the USACE as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Activities that result in fill in wetlands would most likely require obtaining authorization from the USACE. Section 401 of the CWA requires any Federal license or permit applicant to obtain a water quality certification if any proposed activity may result in a discharge of pollutants into waters of the U.S. so that the discharge complies with state water quality standards.

5.5.1.2 New York State Freshwater Wetlands Act (Article 24 of the New York State Environmental Conservation Law)

NYSDEC regulates freshwater wetlands in accordance with the New York State Freshwater Wetlands Act (Article 24 of the ECL). In general, NYSDEC regulates wetlands that are 12.4 acres or greater, primarily based on the presence of hydrophytic vegetation that are shown on their wetland maps. In addition to the wetland itself, NYSDEC also regulates a 100-foot adjacent area around freshwater wetlands. Impacts within State-regulated wetlands and/or the 100-foot adjacent area would require a wetlands permit from NYSDEC.

5.5.1.3 New York State Tidal Wetlands Act (Article 25 of the New York State Environmental Conservation Law)

Under the Tidal Wetlands Act, NYSDEC administers a permit program regulating activities in tidal wetlands and their adjacent areas. In general, tidal wetlands consist of all the salt marshes, non-vegetated as well as vegetated flats and shorelines subject to tides. In New York, the tidal wetland adjacent area can extend up to 300 feet inland from the wetland boundary. The adjacent area may be less than 300 feet depending on the land use adjacent to the tidal wetland (e.g., a bulkhead or paved road). NYSDEC requires a permit for activities that will alter tidal wetlands and/or the adjacent area.

5.5.1.4 Town of Islip Wetland and Watercourse Regulations

Chapter 67, Wetlands and Watercourses, of the town code of the Town of Islip regulates activities that could affect coastal and tidal wetlands and other watercourses. The regulations intend to protect and preserve these resources and minimize disturbance and damage to them. Activities in or near wetlands or watercourses that could affect these resources are required to obtain a permit. These activities include excavation and deposition of materials, pollution in any form, and activities that could impair wetland functions.

5.5.2 Existing Conditions

- United States Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI) mapping: <https://www.fws.gov/wetlands/Data/Mapper.html>
- NYSDEC Environmental Resource Mapper: <http://www.dec.ny.gov/gis/erm/>
- New York State Department of State Geographic (NYSDOS) Information Gateway: <http://opdgig.dos.ny.gov/#/map/0/2ABDDDD1-60BC-4E93-AACC-7D4E14046A1F/-74.755,40.188,-71.426,41.682/topo/8>

According to NWI mapping (**Appendix A, Figure 3**), estuarine and marine wetlands are the dominant wetland types in the project area. Smaller areas of forested wetlands are also mapped in the project area. The estuarine/marine wetlands (i.e., salt marshes) are interconnected by small to medium sized tidal creeks that ultimately drain to the Connetquot River. The Grand Canal is the largest tidal creek and forms the east and north boundaries of the project area. The Grand Canal is a man-made waterway that includes a main channel with two openings to the Connetquot River. Most of the tidal creeks have been created for the purpose of recreational boating or for mosquito control. The tidal wetlands all drain to the Grand Canal that discharges to the Connetquot River at a south location and at a north location (USFWS, 2021).

The State-regulated tidal wetlands in the project area are depicted on **Figure 4 in Appendix A**. The Connetquot River and tidal creeks are mapped by NYSDEC as littoral zone (LZ). Tidal wetlands identified by NYSDEC in the project area include high marsh (HM), dredged spoil (DS) and formerly connected (FC). These tidal wetland categories as described by NYSDEC are:

- **High Marsh (HM):** This tidal wetland category includes the normal upper most tidal wetland zone usually dominated by salt meadow grass (*Spartina patens*) and spike grass (*Distichlis spicata*). This zone is periodically flooded by spring and storm tides and is often vegetated by low vigor smooth cordgrass (*Spartina alterniflora*) and seaside lavender (*Limonium carolinianum*). Upper limits of this zone often include black grass (*Juncus gerardi*), chairmaker's rush (*Scirpus sp.*), marsh elder (*Iva frutescens*) and groundsel bush (*Baccharis halimifolia*).
- **Littoral Zone (LZ):** This tidal wetland category includes all lands under tidal waters that are not included in any other category, extending seaward from shore to a depth of six feet at mean low water.
- **Formerly Connected (FC):** This tidal wetland category includes lowland areas whose connections to tidal waters are restricted by roadways, dikes, or other man-made facilities. The nature of these tidal wetland areas is widely variable and is a function of the extent of the tidal restriction and the time that has passed since the restriction occurred. Often, common reed (*Phragmites australis*) is the dominant vegetation.
- **Dredged Spoil (DS):** This tidal wetland category includes all areas of fill material identified at the time of the Tidal Wetland Inventory Map creation in 1976. These areas are generally barren of vegetative cover, diked or contained in some manner, and may not have specifically resulted from a dredging operation; e.g., the fill material may have been removed as part of a subsurface excavation at a nearby building site. In the intervening decades, many of these areas have become revegetated with high marsh and/or upland plant species, depending on current conditions.

The findings of the 2016 *Grand Canal Ecological and Public Health Assessment Report* indicate that the tidal marshes associated with Grand Canal are severely stressed due to the proliferation of invasive species (e.g., common reed), limited tidal flushing and reduced salinity (Suffolk County Department of Health Services, 2016).

Based on review of the NYSDEC Environmental Resource Mapper (ERM) there are no mapped State-regulated freshwater wetlands in the project area. The nearest mapped State-regulated freshwater wetlands are east of the project area on the east side of Grand Canal in the Pickman-Remmer Wetlands that are owned by the NYSDEC (NYSDEC, 2021; NYSDOS, 2021).

5.5.3 Potential Impacts

5.5.3.1 Alternative 1: No Action

Under the No Action Alternative, the existing OWTS would continue to operate in the project area. The No Action Alternative would not address current water quality and ecological health issues, and untreated wastewater would continue to enter local wetlands and water resources when OWTS fail. Untreated wastewater and high levels of nitrogen and pathogens would continue to degrade the wetlands in the project area. The wetland functions and values, and the ability of the wetlands in the project area to provide protection against storm surge, would continue to decrease. Therefore, the No Action Alternative would result in long-term, moderate, adverse impacts from the degradation of wetland functions in the project area, and the continued decrease in the ability of wetlands to protect the community from waves and storm surge.

5.5.3.2 Alternatives 2A and 2B: Proposed Action

The proposed sewer line alignments within the road system of the Oakdale project area are the same for Alternatives 2A and 2B. Construction activities for the low-pressure sewers would be within previously disturbed existing road rights-of-way or landscaped portions of developed lots and will not result in direct wetland impacts. However, some of these activities might take place in the NYSDEC-regulated tidal wetland adjacent area that can extend up to 300 feet from the wetland/upland boundary. The tidal wetland boundary would be determined in the field during the permitting stage of the proposed project and any NYCDEC regulatory requirements would be complied with.

The Connetquot River crossing is similar for Alternatives 2A and 2B, except the river crossing would be located farther south on the Oakdale side of the river for Alternative 2B. The Connetquot River HDD staging area is proposed to be the same location for Alternatives 2A and 2B on the west side of the river in Great River. The west staging area is proposed to be in a small town park called Great River Dock. Great River Dock consists of a paved parking area, lawn and landscaped areas. The water side of the park consists of a bulkhead and small boardwalk for recreational uses such as fishing and picnicking. There are no freshwater or tidal wetlands in this staging area. The extent of NYSDEC's tidal wetland jurisdiction most likely ends at the waterward side of the bulkhead. Therefore, there would be no direct wetland impacts or impacts to the NYSDEC-regulated tidal wetland adjacent area in this staging area.

The location where the river crossing makes landfall on the east side of the Connetquot River in Oakdale differs for Alternatives 2A and 2B and the HDD staging area would be different for each of these alternatives. The directional drilling staging area for Alternative 2A would most likely be

on the east side of Shore Drive in an undeveloped lot that is owned by the Town of Islip. The east side of Shore Drive where the directional drilling staging area is proposed consists of maintained lawn in the road right-of-way, small trees and shrubs along with a stand of common reed. There is also an area where the common reed has been cleared and is being maintained as a landscaped area with lawn and some ornamental plantings. An open water area is mapped as a tidal wetland approximately 40 feet to 50 feet from the east of the east edge of Shore Drive. Based on review of recent aerial photography, it appears that the NSYSEC-regulated tidal wetland adjacent area extends to the east edge of the paved surface of Shore Drive. The extent of the tidal wetlands in this area would be determined in the field during the permitting stage of the proposed project. The location of the directional drilling staging area would be based on the results of the wetland field delineation as well as other potential access constraints and would avoid or minimize potential short-term impacts to tidal wetlands and the NYSDEC-regulated adjacent area.

The HDD staging area on the east side of the river for Alternative 2B would be in former residential lot on the south side of Shore Drive that is now vacant. There are no freshwater or tidal wetlands in this staging area. There is an existing bulkhead along the south side of this lot and the extent of NYSDEC's tidal wetland jurisdiction most likely ends at the waterward side of the bulkhead. Therefore, there would be no direct wetland impacts or impacts to the NYSDEC-regulated tidal wetland adjacent area in this staging area.

The river crossing itself would not require any in-water work. The sewer line would be installed at least six feet below the river bottom. Based on information provided by the company that conducted the directional drilling for the 2001 water main project that crossed under the Connetquot River, the material identified during the drilling ranged from coarse brown sand and gravel to fine and very fine sand, clay, lignite and mica. No cobble was encountered (P.W Grosser, 2021).

Directional drilling would also be used to install the sewer main under the Grand Canal. The Grand Canal crossing is proposed on the south side of Shore Drive where the waterway is approximately 50 feet wide. The staging area for the directional drilling would be in uplands adjacent to Shore Drive but may be within the NYSDEC-regulated tidal wetland adjacent area. The extent of the tidal wetlands and adjacent area in this area would be determined in the field during the permitting stage of the proposed project.

The construction activities that disturb the ground surface and associated vegetation and expose soils could lead to soil erosion and sedimentation of surrounding wetlands. The use of BMPs would minimize impacts on wetlands from indirect erosion, resulting in indirect, short-term, minor, adverse impacts on wetlands. After construction is completed, the Proposed Action would have indirect, long-term, beneficial impacts on wetlands by reducing pollutant degradation and improving the ability of wetlands to protect the area from waves and storm surges.

5.5.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Installation of the I/A OWTS Alternative on individual lots would require excavation of a pit, vegetation and soil disturbance, and soil compaction that could increase the potential for indirect, adverse impacts on nearby wetlands from soil erosion and sedimentation. Direct impacts on wetlands would be avoided or minimized because construction would likely occur within previously disturbed or landscaped portions of developed lots. Construction in areas adjacent to NYSDEC tidal wetlands would be regulated by the NYSDEC Tidal Wetlands Permit Program.

Soil disturbance of one or more acres would require a SPDES General Permit for Stormwater Discharges from Construction Activity, which would also include an Erosion and Sediment Control Plan and SWPPP. Compliance with these permitting and regulatory requirements, including the use of BMPs, would minimize the potential for adverse impacts on wetlands from erosion and stormwater runoff. Temporarily disturbed areas would be revegetated to avoid long-term, adverse impacts.

Alternative 3 could have beneficial impacts on wetlands over the long term. The installation of I/A OWTS would decrease the discharge of nutrients and pathogens that could degrade local and regional wetlands, especially in the Great South Bay. However, because the I/A OWTS would be installed below grade, the capability of the I/A OWTS to reduce nitrogen would be hindered during flooding and sea level rise, which could result in localized failures and discharges of pollutants. In addition, I/A OWTS do not remove as much nitrogen as a WWTP; therefore, the beneficial effects would be less under Alternative 3 than under Alternative 2. The I/A OWTS alternative would result in indirect, long-term, beneficial impacts on wetlands from reducing pollutant degradation.

5.6 Floodplains, Storms, and Sea Level Rise

5.6.1 Regulatory Framework

5.6.1.1 State and County Guidance

NYS's Community Risk and Resiliency Act, signed in September 2014, provides guidance and requirements for state funding, permits, and regulatory decisions to consider sea level rise, storm surge, and flooding in planning and development. The objective is to enhance the resiliency of the coastal resources of the state and reduce risks to infrastructure, land, the economy, and the public. The Suffolk County Comprehensive Water Resources Management Plan (Suffolk County 2015) and the Long Island South Shore Estuary Reserve Comprehensive Management Plan (South Shore Estuary Reserve Council 2001) contain recommendations to address resiliency in the region.

5.6.1.2 Town of Islip Code

The Town code for the Town of Islip (Chapter 68 Zoning, Article XL Flood Damage Prevention) regulates construction and other development in the towns' special flood hazard areas. All construction and development within the 100-year floodplain requires a permit. Sanitary sewage systems must be designed to minimize or eliminate infiltration of floodwaters and should not increase base flood elevations by more than one foot.

5.6.2 Existing Conditions

FEMA Flood Insurance Rate Map panels 36103C0881H and 36103C0882H (**Appendix A, Figure 5**) effective September 25, 2009, indicate that most of the Oakdale project area is located within the 100-year floodplain (FEMA 2009). Specifically, the 100-year floodplain is Zone AE with most of the project area having a base flood elevation (BFE) of seven feet (North American Vertical Datum of 1988 [NAVD88]).

The Oakdale project area experienced significant surface water flooding during Superstorm Sandy. At the highest point of inundation much of the Oakdale project area was flooded. In addition to surface water inundation by significant storm events because the local water table conditions are shallow, extreme rainfall events sometimes lead to a rise in groundwater elevations and subsequent

impacts on OWTS, including a reduction in hydraulic capacity and treatment capability resulting in contamination. The NYS Coastal Boundary Map indicates that the low-lying portions of the project area are considered a shallow coastal flooding area (NOAA 2012).

5.6.3 Potential Impacts

5.6.3.1 Alternative 1: No Action

Throughout the project area, the predicted trends of increasing groundwater elevations, sea level rise, increased extreme precipitation or storm events, and a greater incidence of coastal flooding and tidal or storm surges would result in increased OWTS failures from flooding and inundation. OWTS failures and associated discharge of nutrients and pathogens would continue to affect water quality and result in coastal wetland degradation, resulting in floodplain impacts that would include decreased wave attenuation and reduced flood protection benefits from regional tidal wetlands. The No Action Alternative would result in short-term, moderate, adverse impacts from the ongoing potential for flood risks associated with discharge from inundated OWTS and long-term, moderate, adverse impacts from the continued degradation of natural tidal wetland functions, including storage of floodwaters and flood and wave attenuation.

5.6.3.2 Alternatives 2A and 2B: Proposed Action

Alternatives 2A and 2B are similar with respect to floodplains, storms and sea level rise impacts. Under the Proposed Action, construction of the expanded sewer collection and conveyance system would temporarily disturb the ground surface in portions of the 100-year floodplain in the project area. The ground surface would be returned to the original grade and no new impervious surfaces are proposed.

Construction of the sewer mains and laterals through directional drilling, the installation of grinder pumps for the low-pressure sewers, and the use of construction staging areas in floodplains would result in short-term, adverse impacts on floodplains from soil compaction and vegetation and soil disturbance. Compliance with an SPDES permit would include implementation of BMPs, stormwater management techniques, and sediment and erosion control plans that would minimize the temporary, adverse impacts on floodplains. The new sewer infrastructure would be buried underground and would be protected from flood damages. Temporarily disturbed floodplain areas would be returned to pre-construction conditions to avoid long-term impacts. Therefore, construction activities could temporarily disturb floodplains resulting in direct, short-term, minor, adverse impacts. Overall, the reduction in pollutant-caused degradation would result in indirect, long-term, beneficial impacts on floodplains.

5.6.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Installation of Alternative 3 would require excavation of a pit on each parcel, including those in the floodplain. The amount of floodplain disturbance from the construction activities would vary depending on the I/A OWTS type selected. However, Suffolk County anticipates that adverse impacts on floodplains from construction activities would be negligible because construction would occur mainly in previously disturbed landscaped portions of developed lots that provide minimal natural floodplain values. Construction and the use and storage of heavy equipment in floodplains could result in short-term, adverse impacts from vegetation and soil disturbance and soil compaction. However, compliance with an SPDES General Permit for Stormwater Discharges

from Construction Activity would include implementation of BMPs, stormwater management techniques, and sediment and erosion control plans that would minimize the temporary, adverse impacts on floodplains. Floodplain areas temporarily disturbed by excavation would be returned to pre-construction conditions to avoid long-term impacts. Therefore, construction activities would result in direct, short-term, negligible, adverse impacts. Alternative 3 would have indirect, long-term, beneficial impacts on floodplains.

5.7 Coastal Resources

5.7.1 Regulatory Framework

5.7.1.1 Federal Regulations

The Coastal Zone Management Act (CZMA), administered by states with shorelines in coastal zones, requires those states to have a Coastal Zone Management Plan to manage coastal development. The Coastal Barrier Resources Act of 1982 created designated areas under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) that are ineligible for both direct and indirect federal expenditures. This act was amended by the Coastal Barrier Improvement Act of 1990, which added a new category of coastal barriers called Otherwise Protected Areas.

5.7.1.2 New York State Regulations

The NYSDOS and NYSDEC have identified and promulgated substantive policies to guide development and resource management within the State's coastal area. A community may develop a Local Waterfront Revitalization Plan (LWRP) in partnership with the NYSDOS. The Town of Islip has not adopted a LWRP. Therefore, activities in the coastal zone are only required to be consistent with the NYSDOS coastal zone policies.

The Coastal Erosion Hazard Law (ECL Article 34) empowers NYSDEC to identify and map coastal erosion hazard areas and to adopt regulations (6 NYCRR Part 505). The Coastal Erosion Hazard Area (CEHA) Permit Program manages regulated activities or land disturbance on properties in coastal erosion hazard areas. The law allows local communities to administer their own CEHA program if they have desire to. The Town of Islip does not have a local CEHA.

5.7.2 Existing Conditions

The entire Oakdale project area is within the boundary of the NYS Coastal Zone (see **Figure 6** in **Appendix A**). The project area is not in a State-designated scenic area or a waterfront revitalization area. The Town of Islip designated the Connetquot River a unique recreational river area from its headwaters to Great South Bay (Town of Islip Town Code, Chapter 67-1). The Oakdale project area is not in or near coastal barrier resources or Otherwise Protected Areas.

The Town of Islip is a NYSDEC regulated CEHA community, but it does not have a local CEHA permit program. Installation of public service distribution systems for wastewater is considered a regulated activity within a structural hazard area and a coastal erosion management permit is required from NYSDEC.

5.7.3 Potential Impacts

5.7.3.1 Alternative 1: No Action

The nature of the impacts on coastal resources in the Oakdale project area for the No Action Alternative would not protect nearby coastal resources, nor would it advance some of the policies of the State's Coastal Zone Management Plan and, as such, would be inconsistent with the Coastal Zone Management Act. The continued release of nitrogen and pathogens from OWTS would continue to harm coastal resources in the Grand Canal, Connetquot River and Great South Bay, including tidal wetlands. Therefore, the No Action Alternative would result in long-term, moderate, adverse impacts on coastal resources.

5.7.3.2 Alternatives 2A and 2B: Proposed Action

Alternatives 2A and 2B are similar with respect to potential impacts to coastal resources. During construction there would be potential direct, short-term, minor adverse impacts on coastal resources from construction-related pollution. After construction, the Proposed Action would have direct, beneficial impacts on coastal resources. Removing OWTS and connecting to the existing WWTP would eliminate discharges of nitrogen and pathogen loads to the shallow groundwater and reduce the pollutants that eventually enter the Connetquot River and tidal wetlands. A reduction in released pollutants would diminish the degradation of coastal resources. The Proposed Action would result in direct, long-term, beneficial impacts on coastal resources within and outside the project area.

5.7.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Impacts on coastal resources would be direct short term, minor, and adverse during construction due to potential construction-related pollution. After construction and during operation of the I/A OWTS, Alternative 3 could have direct, beneficial impacts on nearby coastal resources because the I/A OWTS would reduce the nitrogen and pathogen load discharged to the groundwater and eventually to the coastal waters and wetlands. The I/A OWTS proposed under Alternative 3 would release approximately 21 mg/L less of total nitrogen than that released by the existing OWTS under No Action Alternative. A reduction in released pollutants would diminish the degradation on coastal resources.

5.8 Vegetation

5.8.1 Existing Conditions

The majority of the upland habitats in the Oakdale project area consists of developed land with residential properties along with some commercial properties. Street trees are scattered throughout the developed areas, and the developed areas are landscaped with mowed grass, trees, and shrubs. Undeveloped areas are predominantly wetland habitats that are described in Section 5.5. The upland vegetated communities in the project area are all considered common locally and in New York State. Review of the NYSDEC ERM indicates there are no significant natural communities mapped in the project area.

5.8.2 Potential Impacts

5.8.2.1 Alternative 1: No Action

Sanitary wastewater overflow from future flood events could potentially impact vegetation in the Oakdale project area and continue to degrade nearby vegetated wetlands associated with Grand Canal and smaller tidal creeks. Within these nearby wetlands, any invasive vegetation already present would likely continue to spread to vulnerable areas, particularly weakened wetland edges. Therefore, the No Action Alternative could have minor adverse impacts on vegetation.

5.8.2.2 Alternatives 2A and 2B: Proposed Action

Alternatives 2A and 2B are similar with respect to potential impacts on vegetation. Under the low pressure sewer system option included in the Proposed Action, service lateral and easement alignments would be designed to avoid or minimize disturbance to existing vegetation. No naturally vegetated areas would be disturbed. Construction of the service laterals and most easements would occur within existing street rights-of-ways that have been previously developed and disturbed by the installation of other utilities. Vegetated areas temporarily disturbed during construction would be restored with topsoil and grass seed. Residential landscaped properties, predominately manicured lawns, would be temporarily disturbed during construction activities associated with OWTS abandonments and service lateral connections. Disturbed ground surface would be re-landscaped following construction using species similar to pre-construction conditions. If trees along streets or residences needed to be removed, native tree species would be replanted.

The Connetquot River HDD staging area is proposed to be the same location for Alternatives 2A and 2B on the west side of the river in Great River but differs on the east side of the river in Oakdale. The west staging area is proposed to be in a small Town of Islip park called Great River Dock. Great River Dock consists of a paved parking area, lawn and landscaped areas. The east staging area is proposed within the right-of-way of Shore Drive or on a Town-owned undeveloped parcel for Alternative 2A or within a vacant residential lot on the south side of Shore Drive for Alternative 2B. Disturbed ground surface for the river crossing directional drilling staging areas would be re-landscaped following construction using species similar to pre-construction conditions.

Construction of the low-pressure system option would have a minor temporary adverse impact on vegetative resources within the project area. Once operational, the Proposed Action would have a long-term, beneficial impact on the health of vegetation by preventing sanitary wastewater overflow during future flood events that could affect vegetation within and downstream of the project area.

5.8.2.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Construction of the I/A OWTS Alternative would result in a direct, negligible, adverse impact on vegetative resources in the parcels in the project area. Under Alternative 3, temporary vegetation impacts to mowed lawn and landscaped areas would be required for installation of the I/A OWTS at residences and businesses. Impacts on vegetation would be mitigated by revegetating or re-landscaping following construction and incorporating BMPs to avoid the spread or introduction of invasive plants.

The potential for beneficial impacts under Alternative 3 would be less than under Alternative 2 because Alternative 3 would decommission fewer OWTS and reductions in effluent and pollution would be smaller. Future flood events could still contribute to the escape of untreated sewage in some low-lying areas, and some I/A OWTS could fail due to component failure or maintenance negligence. Overall, Alternative 3 would result in an indirect, beneficial impact on vegetation.

5.9 Wildlife and Fish

5.9.1 Wildlife in Terrestrial and Wetland Habitats

There are no large, naturally vegetated uplands in the project area. Wildlife species that utilize the developed upland habitats in the project area are common species adapted to suburban residential yards and are tolerant of human disturbance. Typical mammals anticipated to occur in the project area include white-tailed deer (*Odocoileus virginianus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), muskrat (*Ondatra zibethicus*) and grey squirrel (*Sciurus carolinensis*), along with other small mammals such white-footed mouse (*Peromyscus leucopus*) and house mouse (*Mus musculus*).

Common backyard birds likely to be found in the developed portions of the project area include blue jay (*Cyanocitta cristata*), northern cardinal (*Cardinalis cardinalis*), house sparrow (*Passer domesticus*), purple finch (*Haemorhous purpureus*), mourning dove (*Zenaidura macroura*), and American goldfinch (*Spinus tristis*). The tidal wetlands and creeks in the interior portion of the project area provide habitats for wading birds such as great egret (*Ardea alba*), snowy egret (*Egretta thula*), and great blue heron (*Ardea herodias*), along with other species that utilize tidal marsh habitats such as red-winged blackbird (*Agelaius phoeniceus*) and marsh wren (*Cistothorus palustris*). An avian study of the habitats along the Grand Canal was conducted as part of the 2016 *Grand Canal Ecological and Public Health Assessment Report* (Suffolk County Department of Health Services, 2016). This survey resulted in identifying 63 species of birds with the most common species observed being red-winged blackbird, common grackle (*Quiscalus quiscula*), and song sparrow (*Melospiza melodia*). Additionally, osprey (*Pandion haliaetus*), common tern (*Sterna hirundo*) and northern harrier (*Circus hudsonius*) were observed foraging over the Grand Canal. In New York, the Northern harrier and common tern are listed as threatened species and osprey is listed as a special concern species. There is no salt marsh habitat along the shoreline of the Connetquot River in the project area. The shoreline along the Connetquot River is entirely developed with residential and commercial properties with bulkheads. However, waterfowl and shorebird species such as gulls and terns use the Connetquot River for foraging habitat.

5.9.2 Fish Species

Surface waters of the Connetquot River drain in the mixing water/brackish salinity zone of Great South Bay. These waters provide habitat for a variety of finfish and are designated as EFH for various life stages of federally managed finfish species. EFH species anticipated to occur in the Connetquot River include Atlantic herring (*Clupea harengus*), bluefish (*Pomatomus saltatrix*), summer flounder (*Paralichthys dentatus*), winter flounder (*Pseudopleuronectes americanus*), and windowpane flounder (*Scopthalmus aquosus*) (NMFS 2021). Other fish species such as striped bass (*Morone saxatilis*), weakfish (*Cynoscion regalis*), Atlantic menhaden (*Brevoortia tyrannus*) and black sea bass (*Centropristis striata*) are likely also occur in the lower Connetquot River on a seasonal basis. Forage species likely to occur in the Connetquot River include mummichog

(*Fundulus heteroclitus*), striped killifish (*Fundulus majalis*), sheepshead minnow (*Cyprinodon variegatus*), Atlantic silverside (*Menidia menidia*) and bay anchovy (*Anchoa mitchilli*).

The Grand Canal and the tidal creeks within the interior of the project area also provide habitat for juvenile fish species that occur in the Connetquot River as well as for the forage species listed above. The Grand Canal was sampled for finfish for the 2016 *Grand Canal Ecological and Public Health Assessment Report* (Suffolk County Department of Health Services, 2016). Finfish documented in the Grand Canal during the 2016 study are listed in **Table 5.9-1**.

Table 5.9-1. Finfish Documented in the Grand Canal

Common Name	Scientific Name
Bay Anchovy	<i>Anchoa mitchilli</i>
American Eel	<i>Anguilla rostrate</i>
Atlantic Menhaden	<i>Brevoortia tyrannus</i>
Sheepshead Minnow	<i>Cyprinodont variegates</i>
Banded Killifish	<i>Fundulus diaphanus</i>
Mummichog	<i>Fundulus heteroclitus</i>
Naked Goby	<i>Gobiosoma bosc</i>
Atlantic Silverside	<i>Menidia</i>
Oyster Toadfish	<i>Opsanus tau</i>
Black Drum	<i>Pogonias cromis</i>
Bluefish	<i>Pomatomus saltatrix</i>
Winter Flounder	<i>Pseudopleuronectes americanus</i>
Atlantic Needlefish	<i>Strongylura marina</i>

Source: Grand Canal Ecological and Public Health Assessment Report, prepared by Cashin Associates, P.C. for Suffolk County Department of Health Services, June 30, 2016.

5.9.3 Potential Impacts

5.9.3.1 Alternative 1: No Action

There would be no construction under the No Action Alternative; therefore, there would be no potential construction-related impacts on wildlife and fish in the project area. The alternative would not reduce the risk of impacts on aquatic species from sewage overflows into waterways during future flood events. Impacts of untreated sewage releases on wildlife and fish species could range from stress on species, degradation of food sources, destruction of breeding grounds, and physical harm. The potential degradation of tidal wetlands and tidal creeks would adversely affect vital foraging and nesting habitat for numerous shorebird and wading bird species, shellfish populations, and nursery functions for larval and juvenile fish. EFH for designated species and their forage species in area waters would continue to be degraded by ongoing water quality impairments from sewage releases under the No Action Alternative, limiting use by these species

and resulting in a continued moderate, adverse impact on EFH. Shellfish habitat would also continue to be adversely affected by water quality impairments, depressing shellfish abundance and diversity. Overall, the No Action Alternative would result in long-term, moderate, adverse impacts on wildlife and fish.

5.9.3.2 Alternatives 2A and 2B: Proposed Action

Alternatives 2A and 2B are similar with respect to potential impacts on wildlife and fish.

Potential Construction-related Impacts

Under the low-pressure sewer system option, service lateral and easement alignments would be designed to avoid or minimize disturbance to naturally vegetated habitats. Construction of the service laterals and most easements would occur within existing street rights-of-ways that have been previously developed and disturbed by the installation of other utilities. Use of directional drilling for the sewer mains would minimize the amount of disturbance along roadways. Minimal tree removal along street corridors or on residential properties might be required. Species that utilize the habitats along the streets and within the residential lots may be temporarily displaced during construction. Vegetated areas along the roadways temporarily disturbed during construction would be restored and replanted with grass and landscape plantings similar to pre-construction conditions. Residential landscaped properties, predominately manicured lawns, would be temporarily disturbed during construction activities associated with OWTS abandonments and service lateral connections. Disturbed ground surface would be re-landscaped following construction using species similar to pre-construction conditions. There is the potential for short-term increases in turbidity and sedimentation to aquatic environments from erosion and transport of excavated soils during construction. However, erosion and sedimentation BMPs would be implemented during construction to minimize the potential for impacts to aquatic habitats.

The staging areas for HDD under the Connetquot River would occur in developed upland habitats. BMPs would be implemented during the HDD under the Connetquot River to minimize the potential for impacts to aquatic habitats.

Potential Operational Impacts

Operation of the sewer expansion will have long-term, beneficial effects on fish and shellfish habitat, including EFH for designated species and their forage species, because the frequency and magnitude of sewage releases would be greatly reduced compared to current conditions. Hypoxic conditions and algal blooms, which can cause fish kills and abandonment of areas of poor water quality, would potentially be less frequent. Fish, benthic invertebrates, and waterfowl that use the Connetquot River and the Grand Canal would benefit from water quality improvements and positive changes to the benthic environment that are expected to result from project implementation.

Overall, the low-pressure system option under the Proposed Action would have short-term, negligible, adverse impacts on wildlife in the project area during construction, but operation would have beneficial long-term impacts on nearby wildlife and fish habitat from reduced pollution in adjacent waterways.

5.9.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

The construction of Alternative 3 would have no impact on aquatic species, and adverse impacts on terrestrial wildlife are expected to be negligible, localized, and limited to temporary displacement on residential properties due to noise and activity during construction. Once installed, the new I/A OWTS could potentially benefit wildlife and fish in nearby aquatic habitats, including EFH for designated species and their forage species, due to the reduction of nitrogen and pathogens in the effluent. However, this alternative would have less potential for beneficial impacts on wildlife and fish habitat than Alternative 2 because the potential reduction in nitrogen releases to groundwater would be much less. In addition, future flood events could still contribute to the escape of untreated sewage in some low-lying areas, and some I/A OWTS could fail due to component failure or maintenance negligence, resulting in a smaller reduction in pollution. However, overall Alternative 3 would result in a beneficial impact on wildlife and fish.

5.10 Threatened and Endangered Species

5.10.1 Regulatory Framework

5.10.1.1 Endangered Species Act (ESA) of 1973

Certain species of animals and plants are given legal protection under Section 7(a)(2) of the federal Endangered Species Act (ESA) of 1973 (ESA [87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.]). Under the ESA, species may be listed as either endangered or threatened. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future. The ESA also provides for the protection of designated critical habitats on which endangered or threatened species depend for survival. Federal agencies with jurisdiction under the ESA include the USFWS and NOAA NMFS.

5.10.1.2 New York State Fish and Wildlife Law (Articles 11 and 13 of the New York State Environmental Conservation Law)

Under provisions of the federal ESA, all states were granted authority to create their own endangered species protection policies. The State of New York has implemented several pieces of legislation for the protection of plant and animal species of state importance (i.e., State-listed “endangered” and “threatened” species). Article 11 Title 5 of the New York State Environmental Conservation Law (ECL) and its implementing regulations protect State-listed endangered and/or threatened plants and animals and their occupied habitat. NYSDEC is the state agency that has jurisdiction for implementing the state protected species regulations.

5.10.2 Existing Conditions

5.10.2.1 Federally Protected Species

The USFWS Information for Planning and Consultation (IPaC) was accessed to obtain a list of federally protected species that may occur in the project area or may be affected by the proposed project (USFWS, 2021). The USFWS IPaC official species list for the project area is included in **Appendix C**. The IPaC report indicates that the Northern Long-eared Bat (*Myotis septentrionalis*, Federal threatened), Piping Plover (*Charadrius melodus*, Federal threatened, State endangered),

Red Knot (*Calidris canutus rufa*, Federal threatened), Roseate Tern (*Sterna dougalii*, Federal and State endangered), Sandplain Gerardia (*Agalinis acuta*, Federal and State endangered) and Seabeach Amaranth (*Amaranthus pumilus*, Federal threatened) should be considered in an effects analysis for the project. The IPaC report also states that there is no designated critical habitat in the project area.

Based on the New York Natural Heritage Program (NYNHP) Online Conservation Guides, NatureServe Explorer, and USFWS Environmental Conservation Online System (ECOS), the habitat requirements of these species include (NY NHP, 2021, NatureServe, 2021 and USFWS ECOS, 2021a):

Northern Long-eared Bat summer habitat includes wooded areas, fencerows, riparian corridors; of trees ≥ 3 inches at diameter breast height with sufficient bark crevices, cavities, or exfoliating bark and snags for roosting.

Piping Plover summer habitat includes wide, flat, open, sandy beaches with limited vegetation and limited human disturbance; foredunes; and sandspits.

Red Knot winter in New York on sandy beaches with gentle slopes and minimal wave action, sand spits, marsh islands, and mudflats with abundant food such as horseshoe crab eggs. They breed in the Arctic in elevated and sparsely vegetated ridges and slopes that are often adjacent to wetlands and lake edges for feeding.

Roseate Tern use open water for fishing, with breeding colonies on islands free of predators and human disturbance.

Sandplain Gerardia habitat is characterized by dry, sandy, poor-nutrient soils on sparsely vegetated sandplain environments, pine barrens grasslands and remnant grasslands.

Seabeach Amaranth habitat includes barrier island beaches between the foredune (i.e., dune closest to the water) and the wrack line (i.e., detritus washed up on beach), and on open overwash areas behind the foredune.

Based on these species habitat requirements, Piping Plover, Red Knot, Roseate Tern, Sandplain Gerardia and Seabeach Amaranth are highly unlikely to occur within the project area. According to the NYNHP list of Northern Long-eared Bat occurrences by town, there are confirmed summer occurrences of this species in the Town of Islip (NYNHP, 2018). The NYNHP response (see Section 5.10.2.2 below) also indicates that the Northern Long-eared Bat has been documented during the summer within 1.5 miles of the project area. Summer habitat for the Northern Long-eared Bat consists of a wide variety of forested habitats where they roost, forage, and travel. There are small patches of forested areas and residential street trees within the project area that could provide summer habitat for the Northern Long-eared Bat. Based on information from the USFWS Long Island Field Office, the nearest known maternity roost is located on Brookhaven National Laboratory property, located approximately 16 miles northeast of the project area.

5.10.2.2 State Threatened, Endangered, and Special Status Species

Based on review of the NYSDEC ERM, the project area is in the vicinity of species listed as endangered or threatened by the State of New York. A database search request was submitted to the NYNHP for known records of state protected species on, or in the vicinity of, the project area. The response letter from NYNHP is included in **Appendix C**. The NYNHP response letter

indicates that the Bald Eagle (*Haliaeetus leucocephalus*, State threatened) has been documented at two locations within 0.25 mile of the project area and the Least Tern (*Sternula antillarum*, State threatened) and Common Tern (*Sternula hirundo*, State threatened) have been documented within 0.5 miles of the project site. The Northern Long-eared Bat has been documented within 1.5 miles of the project area during the summer. The habitat requirements for the Northern Long-eared Bat and whether suitable habitat exists in the project area is discussed in Section 5.10.2.1. The habitat requirements of the three bird species based on the NYNHP Online Conservation Guides, NatureServe Explorer, and USFWS Environmental Conservation Online System (ECOS) include (NY NHP, 2021, NatureServe, 2021 and USFWS ECOS, 2021a):

Bald Eagle nest in forests along shorelines of oceans, lakes or rivers where they can feed on fish in open water.

Least Tern nest on broad, level expanses of open sandy or gravelly beach, dredge spoil and other open shoreline areas with some scattered vegetation or other cover in which chicks can find shelter.

Common Tern nest on open sand of ocean beaches, sand flats, barrier islands and dredges. Common Tern often nest in colonies that include Least Tern.

5.10.3 Potential Impacts

5.10.3.1 Alternative 1: No Action

Under the No Action Alternative, potential habitat for threatened and endangered species near the project area would continue to be at risk of degradation from sewage overflows into the Connetquot River and Grand Canal during future flood events. Threatened or endangered species, such as Piping Plover, Red Knot, and Roseate Tern, while not found within the project area, may use the coastal waters, wetlands, and beaches of Great South Bay for foraging or breeding and could be affected by sewage that is discharged into tributaries that eventually flow into Great South Bay. The continued trend of poor water quality would continue to adversely affect listed species and their habitats in adjacent waters. Therefore, the No Action Alternative would have long-term, minor, adverse impacts on nearby potential habitat for protected species.

5.10.3.2 Alternatives 2A and 2B: Proposed Action

The only protected species that could potentially be present in the project area is the Northern Long-eared Bat. Alternatives 2A and 2B would not result in the removal of forested areas that are potential summer roosting habitat of the Northern Long-eared Bat. However, there may be the need to remove a minimal number of individual street trees or trees on residential lots during construction. The USFWS IPaC determination key was used to determine if the proposed project would have an effect on the Northern Long-eared Bat. Based on this review it was determined that the proposed project would have no effect on this species. Construction of the Proposed Action would have no effect on any other federally or State-listed species identified in the USFWS IPaC and NYNHP database searches because suitable habitat for these species is not present in the project area.

The Bald Eagle nest within the Bayard Cutting Arboretum is located outside the project area, along the west side of the Connetquot River. The USFWS National Bald Eagle Management Guidelines (USFWS 2007) and NYSDEC's Conservation Plan for Bald Eagles in New York State (NYSDEC 2016a) recommend that activities take place outside a 660-foot buffer from a bald eagle nest. All

project-related construction activities are located greater than 660 feet from the bald eagle nest and are also separated by the Connetquot River. The Proposed Action would not affect the known bald eagle nest at Bayard Cutting Arboretum or potential foraging habitat within the Connetquot River. Therefore, no impacts on breeding bald eagles are expected as a result of the Proposed Action.

5.10.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Construction of the I/A OWTS Alternative would have no effect on threatened and endangered species. Under this alternative, I/A OWTS upgrades would primarily occur in residential and commercial areas that have been landscaped or paved. Construction would not affect potential habitat for threatened or endangered species identified within or near the project area because areas of work would be limited to developed properties that do not provide potential habitat for the protected species identified.

5.11 Cultural Resources

5.11.1 Existing Conditions

5.11.1.1 Regulatory Framework

The National Historic Preservation Act (NHPA), as amended and implemented by 36 CFR Part 800, defines a historic property as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register.” Eligibility criteria for listing a property on the National Register of Historic Places (NRHP) are found at 36 CFR Part 60. Information regarding previously surveyed cultural resources is available online via the New York State Historic Preservation Office’s (NYSHPO) Cultural Resource Information System (CRIS).

To be considered significant, a cultural resource must meet one or more of the criteria established by the National Park Service that would make that resource eligible for inclusion in the NRHP. The term “eligible for inclusion in the NRHP” includes all properties that meet the NRHP listing criteria, which are specified in the Department of the Interior regulations Title 36, Part 60.4 and NRHP Bulletin 15. Sites that have not been evaluated at the time of the undertaking may be considered potentially eligible for inclusion in the NRHP and are afforded the same regulatory consideration as nominated properties.

New York State Commissioner Policy, *Contact, Cooperation, and Consultation with Indian Nations* provides guidance to NYSDEC concerning cooperation and consultation with Indian Nations on issues relating to protection of environmental and cultural resources in New York State.

5.11.1.2 Archaeology

The Area of Potential Effect (APE), defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources, includes the right-of-way in which sewer components are constructed and all parcels that are connected to the proposed sewer mains. According to the NYSHPO CRIS, three previously recorded archaeological sites are located within one mile of the APE. All three are historic sites with foundations. One has a poured concrete foundation with whitewashed interior, the second contains a 19th-century brick foundation, and the last one consists of surface traces from a demolished late 19th-century estate.

Approximately 45 percent of the soils mapped within the Oakdale APE are classified as cut and fill land, fill land from dredged material, or tidal marsh. Soils mapped as potentially intact are primarily Riverhead (40 percent) and Walpole (5 percent) soils.

This area was largely undeveloped according to the Smith (1836) map; structures are only depicted along present-day Montauk Highway, which is outside the Oakdale APE. Overall, the area consists of 20th-century residential development. Most of the soils mapped in this location consist of Riverhead sandy soils within the interior and cut and fill lands adjacent to the water. Tidal marsh is mapped adjacent to much of the fill and in the western portion of the APE. Those areas mapped in the Riverhead and Walpole series are considered to have sensitivity for precontact archaeological resources; however, because of the residential development and landscaping in this section of the project area, this area does not likely contain preserved significant intact historical or precontact archaeological deposits and is not considered archaeologically sensitive.

Historical maps from the 18th century or earlier do not show any development within the Oakdale APE. Development within the region was confined primarily to the west and north along present-day NY 27A. Therefore, there is limited potential for historical archaeological resources within the Oakdale APE.

5.11.1.3 Historic Properties

One NRHP-eligible historic district, the Vanderbilt Farm/Artist Colony Historic District, is located within the project area. This district is also locally designated. The Vanderbilt Farm/Artist Colony Historic District is bounded on the north by Hollywood Drive, on the south and west by Featherbed Lane, and on the east by Golden Horn Road. Significant landscape features in the district include granite curbing, fences, hedgerows, brick sidewalks and driveways, brick pillars and walls, and wrought iron gates. A large concrete pond, called the Hog Wallow, is also a contributing structure in the historic district that is in close proximity to Oceanview Avenue. No historic road surfaces, such as brick and cobble stone pavers, are present in the historic district.

There are no individual NRHP-eligible buildings within the project area. However, review of a resource evaluation document on the former Vanderbilt Estate indicates that an additional four properties may be potentially NRHP-eligible (**Table 5.11-1**). The Grand Canal is considered one of the potentially eligible resources.

Table 5.11-1. Summary of NRHP-Eligible Properties in the Project Area

USN	Name	NRHP Status
10305.000365	Formerly Boarding House For Workmen - 41 Shore Dr 11769	Potentially Eligible
10305.000367	Idle Hour - W.K. Vanderbilt Estate: Superintendent's House - 37 Hollywood Dr 11769	Potentially Eligible
10305.000368	Idle Hour - W.K. Vanderbilt Estate: Laundry - 6 Asbury Ave 11769	Potentially Eligible
10305.001648	Idle Hour - W. K. Vanderbilt Estate Grand Canal - Estate and Farm Properties 11769	Potentially Eligible
<i>Vanderbilt Farm/Artist Colony Historic District</i>		

*Negative Declaration
Oakdale Sewer Expansion Project*

10305.000299	Farm Complex Clock Tower - Hollywood Ave 11769	Eligible
10305.000300	Piggery - 34 Princess Gate 11769	Eligible
10305.000301	Duck House - 3 Princess Gate 11769	Eligible
10305.000302	Chicken Coop - 12 Princess Gate 11769	Eligible
10305.000303	Chicken Coop - 14 Princess Gate 11769	Eligible
10305.000304	Chicken Coop - 16 Princess Gate 11769	Eligible
10305.000305	Chicken Coop - 26 Princess Gate 11769	Eligible
10305.000306	Calf House - 33 (35) Princess Gate 11769	Eligible
10305.000307	Piggery - 19 Tower Mews 11769	Eligible
10305.000308	Farm Building - 61 Princess Gate 11769	Eligible
10305.000309	Hog Wallow - Ocean Dr At Tower Mews 11769	Eligible
10305.000310	Piggery - 17 Featherbed Ln 11769	Eligible
10305.000311	Piggery - 31 Featherbed Ln 11769	Eligible
10305.000312	Chicken Tender's House - 49 Featherbed Ln 11769	Eligible
10305.000313	Blacksmith House - 35 Jade St 11769	Eligible
10305.000314	Chicken Coop - 4 Jade St 11769	Eligible
10305.000315	Sheds - 19 Jade St 11769	Eligible
10305.000316	Sheds - 29 Jade St 11769	Eligible
10305.000317	Blacksmith Shop - 31 Jade St 11769	Eligible
10305.000318	East Barn - 3 - 19 Quality St 11769	Eligible
10305.000369	Eagle House - 44 Featherbed Ln 11769	Eligible
10305.001763	21 Princess Gate 11769	Eligible
10305.001764	Formerly a general services and animal hospital building for farm - 17-7 Jade St 11769	Eligible

The Oakdale APE was very sparsely populated in 1947, with only a few residences along Shore Road, Idle Hour Boulevard, Oceanview Avenue and in the Artist Colony. By 1962, residential development increased north and along Middlesex Avenue. The area was developed by 1978. Post-World War II architectural styles and forms that are represented throughout the APE include two-story Colonial Revival and one-story side-gable and cross-gable ranch dwellings. Most of the structures have been altered with replacement vinyl siding and vinyl sash windows. No historic road surfaces, such as brick and cobble stone pavers, are present.

5.11.2 Potential Impacts

5.11.2.1 Alternative 1: No Action

The No Action Alternative would have no impact on cultural resources within the Oakdale APE because there would be no soil disturbance that could potentially affect archaeological resources and no alterations would be made to potentially historic landscape features or other historic

materials of NRHP-eligible or potentially eligible aboveground resources. The No Action Alternative could result in minor, adverse impacts on historic properties that are flooded due to rising groundwater elevations and septic or cesspool failures during natural disasters. These events can be damaging because both single events and multiple events that can cause cumulative damage.

5.11.2.2 Alternatives 2A and 2B: Proposed Action

The Proposed Action would have the potential to impact architectural resources if installation of sewer lines, grinder pump stations or other project activities disturbs existing landscape features, such as fences, walls, and other features, that are contributing to the Vanderbilt Farm/Artist Colony Historic District. Impacts to historic districts would be avoided and/or minimized by using directional boring, minimizing the trench size, or relocating the connection to areas of the property that do not contain significant features. If disturbance of landscaping features cannot be avoided or minimized, all disturbed landscaping material, including fences, walls, hardscaping, and plant materials, should be replaced in-kind.

The majority of the Oakdale APE consists of cut and fill land and tidal marsh. The remainder of the APE consists mostly of residential development and landscaping that has significantly modified the soils of the area. These areas are unlikely to contain intact archaeological resources. Portions of the project area that remain undisturbed near rivers and creeks are sensitive for precontact archaeological resources. Background research did not identify any areas of historic archaeological sensitivity. The Proposed Action as currently planned does not have the potential to affect cultural resources through ground disturbance. If designs change to include ground-disturbing activities within intact soils along archaeologically sensitive waterways, then a Phase IB subsurface survey may be necessary.

5.11.2.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Alternative 3 would have the same impact on historic structures as Alternatives 2A and 2B. Any adverse impacts to above-ground features would be avoided and/or minimized by choosing OWTS sites away from existing landscape features or replacing any damaged features with in-kind materials. Alternative 3 would not have any impacts on archaeological resources if the OWTS sites are located outside of intact soils along archaeologically sensitive waterways.

The area of ground disturbance under Alternative 3 would be larger than under Alternative 2 because of the installation of new I/A OWTS, that would most likely be in a different location than the existing OWTS. As such, the potential for impacts on significant landscape features associated with historic structures would be higher than Alternative 2. The same avoidance and mitigation measures proposed for Alternative 2 would be applicable for Alternative 3.

Phase IB subsurface testing would be required if installation of I/A OWTS or the leaching fields are proposed in areas of identified archaeological sensitivity and outside the previously disturbed areas for this infrastructure. Impacts to archaeological resources are expected to range from no impacts if subsurface testing finds no archaeological resources to long-term, minor, and adverse if archaeological deposits are found during subsurface testing.

5.12 Environmental Justice

5.12.1 NYSDEC Guidance

NYSDEC also provides guidance for incorporating environmental justice concerns for its application of SEQRA and related laws for the state environmental review of the project. This guidance recommends identifying potential environmental justice concern areas in U.S. Census block groups of 250 to 500 households each that meet at least one of the following thresholds: (1) at least 51.1 percent of the population in an urban area self-identifies as a member of a minority group; (2) at least 33.8 percent of the population in a rural area report themselves to be members of a minority group; or (3) at least 23.59 percent of the population in either an urban or rural area have household incomes below the federal poverty level (NYSDEC 2003).

5.12.2 Existing Conditions

Table 5.12-1 presents low income and minority, racial, and ethnic statistics within the Oakdale project area, as well as for Suffolk County and New York State. The project area does not contain a minority or low-income population that meet the thresholds as an environmental justice community of concern under the NYSDEC guidance (U.S. Census Bureau 2019).

Table 5.12-1. Project Area Race, Ethnicity, and Income Statistics, 2014 – 2019

Geography	% of Population that is Low-income	% of Population that is a Minority	Total Population	Not Hispanic or Latino - White Alone	Not Hispanic or Latino: - Black or African American alone	Not Hispanic or Latino: - American Indian and Alaska Native alone	Not Hispanic or Latino: - Asian alone	Not Hispanic or Latino: - Native Hawaiian and Other Pacific Islander alone	Not Hispanic or Latino: - Some other race alone	Not Hispanic or Latino: - Two or more races	Hispanic or Latino - Any Race
New York State	13.61%	44.14%	19,572,319	10,959,534	2,808,679	46,139	1,616,028	5,591	105,302	371,862	3,705,588
Suffolk County, NY	7.15%	31.89%	1,483,003	1,013,391	108,250	2,145	54,714	305	6,011	19,770	281,315
Project Area	1.70%	10.92%	2,327	2,073	54	-	37	-	-	33	130
Block Group 1, Census Tract 1476.01	4.12%	12.26%	1,036	909	54	-	10	-	-	19	44
Block Group 2, Census Tract 1476.01	-	9.84%	1,291	1,164	-	-	27	-	-	14	86

Source: U.S. Census Bureau, ACS 2019

5.12.3 Potential Impacts (all Alternatives)

If adverse impacts on the human environment were identified in other resource topics of the EA, specifically air quality, noise, transportation, or public health and safety, and if an environmental justice community was identified within the project area, this analysis would consider whether the adverse impacts on the environmental justice population would be disproportionately high or adverse. However, there are no environmental justice minority or low-income populations in the project area; therefore, there are no impacts to environmental justice populations for any of the alternatives evaluated.

5.13 Land Use and Planning Policies

5.13.1 Applicable Land Use Policies

The *Framework for the Future - Suffolk County Comprehensive Master Plan 2035* (Suffolk County Department of Economic Development and Planning 2015), the *Long Island South Shore Estuary Reserve Comprehensive Management Plan* (South Shore Estuary Reserve Council 2001), and the *Suffolk County Comprehensive Water Resources Management Plan* (2015) special planning districts are all potentially applicable to the proposed project based on its location. The *Suffolk County Comprehensive Master Plan* recommends supporting existing communities with ample funding for infrastructure. The plan states “the County has many thriving communities that should be supported through infrastructure investments and incentives that encourage additional housing options. Funding needs to be targeted toward existing communities, for multi-family transit-oriented development, expanded wastewater infrastructure, and land recycling to support community revitalization and increase resiliency.” A priority action of the master plan is to “continue coordination between *New York Rising* and the County.” Another priority action area within the plan is to “Build for Resiliency” with actions, including identifying locations for wastewater upgrades and locations for new water/sewer infrastructure. Goals for both the *Long Island South Shore Estuary Reserve Comprehensive Management Plan* and *Suffolk County Comprehensive Water Resources Management Plan* call for the improvement of water quality in the region.

5.13.2 Existing Conditions

Figure 7 in **Appendix A** identifies land uses within the project area. Developed parcels in the project area are primarily medium- and low-density residential together with some small areas of high-density residential. Commercial land uses are clustered along the waterfront in the south part of the project area, including restaurants and marinas. The only parcel that is designated as institutional is the Idle Hour Elementary School. The undeveloped parcels are recreation/open space and surface waters that are primarily tidal marshes and tidal creeks.

5.13.3 Potential Impacts

5.13.3.1 Alternative 1: No Action

The majority of upland area within the project area is fully developed. The capacities of conventional OWTS may limit development potential by constraining land use density and intensity to current levels.

The No Action Alternative would be inconsistent with the goals of the *Suffolk County Comprehensive Master Plan* to provide infrastructure to existing communities and mitigate further degradation of the area's natural resources. Under the No Action Alternative, there would be no progress towards these priority actions. As a result, moderate, adverse impacts would occur.

5.13.3.2 Alternatives 2A and 2B: Proposed Action

Implementation of the Proposed Action would not result in direct impacts on land use or zoning in the project area in that the sewer lines would be installed within the existing street right-of-way and on the currently developed parcels. No zoning changes or redevelopment plans are proposed as part of the Proposed Action. The potential for increased development is low because few parcels in the project area are vacant and the remainder of the undeveloped land primarily consists of tidal marshes. The purpose of the Proposed Action is consistent with the goals of the *Suffolk County Comprehensive Master Plan* to provide infrastructure to existing communities and mitigate further degradation of the area's natural resources. Overall, the Proposed Action would not result in adverse impacts.

5.13.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Construction of the I/A OWTS Alternative would have no impact on land use and would not directly change the function or land use of the parcels in the project area. No zoning amendments or redevelopment plans are proposed as part of Alternative 3. Alternative 3 would be consistent with the goals of the *Suffolk County Comprehensive Master Plan* to mitigate further degradation of the area's natural resources. No adverse impacts would occur.

5.14 Noise

5.14.1 Applicable Regulations

The Noise Control Act of 1972 required EPA to create a set of noise criteria. In response, EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* in 1974, which explains the impact of noise on humans. The EPA report found that keeping the maximum 24-hour day-night noise level (Ldn) value below 70 A-weighted decibels (dBA) would protect the majority of people from hearing loss. EPA recommends an outdoor Ldn of 55 dBA.

5.14.2 Existing Conditions

Noise in a suburban environment can be generated from a variety of sources, including traffic, machinery, HVAC units, landscaping equipment, and commercial/industrial activity. Noise can be temporary or long term and is perceived differently based on its intensity, character, and source. In general, residences, schools, libraries, churches, childcare facilities, hospitals, and nursing homes are areas more sensitive to noise. Commercial and industrial uses are considered to be the least sensitive to noise.

The project area is largely residential with one school along with a commercial area to the south. Noise sources in the project area are typical of suburban environments, including traffic, landscaping equipment, air conditioning units, commercial activity, construction equipment, and emergency vehicles. Ambient noise levels vary across the project area depending on the nature of the land use. Commercial areas, as well as areas near heavily traveled roads, have higher noise

levels than residential areas on tree-lined streets. The only sensitive receptor in the project area is the Idle Hour Elementary School (see **Figure 8** in **Appendix A**).

5.14.3 Potential Impacts

5.14.3.1 Alternative 1: No Action

The No Action Alternative would not involve construction; therefore, there would be no short-term impacts from noise. Because the No Action Alternative would continue to result in potential OWTS failures and backups, noise generated by pumps and other clean-up/repair activities could result in negligible, adverse impacts of short duration that would occur intermittently.

5.14.3.2 Alternative 2a and 2b: Proposed Action

During construction, the Proposed Action would generate localized noise from the locations where the sewer lines are installed. Construction of the Proposed Action would likely require equipment such as jackhammers, excavators or backhoes, trucks with backup warning sounds, and paving machines. In addition, a vacuum truck would be required to remove sludge and wastewater from the existing residential systems.

Once the sewer pipes and appurtenances are installed, they would not generate noise under normal operating conditions, and the flow within the installed underground sewer lines and mains would be silent. Negligible noise impacts would occur from the use of grinder pumps because these devices usually only run for 10 to 20 minutes a day and are barely audible from 15 feet away.

Contractors would be required to comply with Chapter 35 of the Town of Islip Noise Code (Town of Islip 2011). As such, construction would occur between 7:00 AM and 8:00 PM, Monday through Saturday, excluding legal holidays. Therefore, implementation of the Proposed Action would result in localized, short-term, minor, adverse impacts.

5.14.3.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Localized noise impacts associated with installing new I/A OWTS, removing existing OWTS, and (if necessary) installing new leaching fields in the project area could be as high as 85 to 90+ dBA; however, the minor adverse noise impacts would be localized and occur for a short time. Similar to Alternative 2, these temporary noise impacts would result from the use of heavy equipment needed for excavation and/or filling of old OWTS and establishing a system of trenches and distribution pipes partially filled with washed gravel or stone to act as a leaching field. Operation of blowers and/or recirculation pumps within the I/A OWTS tanks themselves would generate negligible noise impacts near residential structures. Contractors installing the I/A OWTS would be required to comply with local noise codes.

5.15 Transportation

5.15.1 Existing Conditions

The Oakdale project area is served by local roads with the closest major road being the Montauk Highway (Route 85) approximately 0.5 miles north of the project area (**Appendix A, Figure 1**). Miami Road, Idle Hour Boulevard and Hollywood Drive provide access to the north portion of the project area and Shore Drive provides access to the south portion of the project area. Shore Drive

follows the south and west sides of the project area. Most of the properties on minor arterials are residential, with a few the few commercial lots in the south portion of the project area on the south side of Shore Drive. These minor arterials have little to no on-street parking.

5.15.2 Potential Impacts

5.15.2.1 Alternative 1: No Action

Under the No Action Alternative, no construction activities would occur, and traffic volumes in the Oakdale project area would not change. On-site systems require periodic pump-out by licensed companies that haul and dispose of the septage at permitted receiving and treatment facilities on Long Island. EPA suggests that septic tanks be pumped out every 3 to 5 years. Under the No Action Alternative, maintenance of OWTS throughout the Oakdale project area would continue to generate truck trips through residential neighborhoods on a regular basis to haul septage waste from each property. Suffolk County does not anticipate damage to local roads from the risk of OWTS failure. However, it is possible that waste haulers responding to backflow issues following flood events could add to congestion on local roads generated by flood response and repair contractors. Therefore, negligible, adverse impacts on transportation would occur.

5.15.2.2 Alternatives 2A and 2B: Proposed Action

Construction under the Proposed Action will begin in 2022 and is expected to take up to 3 years to complete. Because commercial vehicles are not allowed to operate on Southern State Parkway, construction vehicles would primarily use Sunrise Highway to travel east or west to access the project area. Under the Proposed Action, all of the roads in the project area would experience construction activities associated with installation of the sewer main. The use of directional drilling would minimize the construction related impacts from the sewer pipe installation. Minor, short-term, adverse impacts would be associated with partial road closures that could affect local roadways as construction crews park their vehicles and install the new piping. There would also be minor, short-term impacts associated with the daily arrival and departure of construction vehicles to perform drilling and collection vehicles to haul residual debris from the excavation pits. Project-specific provisions would require that police and emergency service providers be given adequate advance notice of any possible short-term street closures and detours. Flaggers might be needed temporarily to direct traffic if only one-way operation is available.

5.15.2.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Under Alternative 3, the project area would experience construction and excavation activity associated with installing new I/A OWTS, removing existing OWTS, and (if necessary) installing new leaching fields. Construction vehicles would arrive and depart on a daily basis during the construction period. Minor, localized, short-term, adverse impacts on traffic would occur as a result of partial road blockages related to construction activity and a slight increase in traffic volumes from construction crews and equipment.

5.16 Public Services and Utilities

5.16.1 Existing Conditions

The Bergen Point WWTP, which was activated in October 1981, serves the SSD #3 and is located in Bergen Point, West Babylon. Wastewater is conveyed to the WWTP by gravity or with the assistance of pumping stations. The Bergen Point WWTP currently operates under SPDES permit number NY0104809, which stipulates a maximum effluent flow of 30.5 mgd from the facility. The Bergen Point WWTP has been expanded to accept an additional 10 mgd. Approximately 74 percent of residential and commercial properties in Suffolk County rely on OWTS (Suffolk County 2015).

SCWA Distribution Area 1 supplies the Oakdale project area with potable water. Electric and natural gas service in the Oakdale project area is provided by Public Service Enterprise Group (PSEG) Long Island. Electrical service to customers is predominantly provided by overhead lines with pole-mounted transformers, although the lines are buried in some areas. Natural gas, water, and sewer lines in the project area are buried. The Bergen Point WWTP is powered by electricity and does not use natural gas in its operation.

5.16.2 Potential Impacts

5.16.2.1 Alternative 1: No Action

Under the No Action Alternative, there would be no impact on the existing sewer service or other public services and utilities from construction activities for the Oakdale project area. The unsewered parcels in the project area would continue to use OWTS and the risk of OWTS failures would persist. There would be a minor, adverse impacts on wastewater utilities and no impact on electric and gas utilities. Under the No Action Alternative, the potential for nitrate contamination of water supplies from local groundwater sources would remain unchanged.

5.16.2.2 Alternatives 2A and 2B: Proposed Action

No disruption of wastewater treatment service is anticipated during construction because the new system would be installed and connected before the OWTS are decommissioned. Contractors selected to construct the project would identify and map the location of underground utility transmission and gas lines prior to trenching to avoid affecting such utilities. Electric, natural gas, and/or potable water service would not be affected by construction or operation of the project, except for the minimal potential for construction equipment to damage overhead electric transmission infrastructure during construction activity.

The Proposed Action would result in the addition of sewage from +/- 468 parcels to the flow at the Bergen Point WWTP. However, the increase in average daily flow of approximately 160,852 gpd of sewage would be accommodated by available surplus capacity at the Bergen Point WWTP. There is a potential that electricity consumption at the Bergen Point WWTP may also increase as a result of the Proposed Action. PSEG Long Island is expected to have the capacity to serve this alternative. Overall, the Proposed Action would expand sewer service and have a beneficial impact on public services with no impact on the transmission or distribution of electricity and a negligible, adverse impact on energy load.

5.16.2.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

All I/A OWTS would require power to operate and would include a control panel and alarm system. Wastewater would typically flow from the building to the I/A OWTS via gravity. Power would generally be required for blowers and/or recirculation pumps within the I/A OWTS tanks themselves and to energize the controls and alarm. A short-term, negligible, adverse impact from interruption of wastewater services to each building is expected during construction, which would generally be completed within one day.

PSEG Long Island is expected to have the capacity to serve this alternative; therefore, this alternative would result in no impacts on the transmission or distribution of electricity and long-term, negligible, adverse impacts on energy load. Similar to Alternative 2, construction of Alternative 3 would be unlikely to affect buried or overhead utility transmission lines.

5.17 Public Health and Safety

5.17.1 Existing Conditions

Wastewater treatment is provided by conventional OWTS throughout the Oakdale project area. Long Island receives its drinking water from sole source aquifers. Other issues that affect public health and safety include police and fire protection. The Oakdale project area is served by the Suffolk County Police Department, 3rd Precinct; SCDHS; Suffolk County Department of Fire, Rescue and Emergency Services; and the Town of Islip Department of Public Safety Enforcement, which encompasses the Divisions of Public Safety, Fire Prevention, Hazardous Materials Response Team, Office of Emergency Management, Parking Violations Bureau, and Harbor Patrol.

5.17.2 Potential Impacts

5.17.2.1 Alternative 1: No Action

No construction-related public health or safety impacts would occur under the No Action Alternative, and occupied parcels would continue using OWTS. However, the No Action Alternative would result in moderate, long-term, adverse impacts on public health and safety associated with OWTS failures resulting in uncontrolled discharges of raw sewage that create pathways for human exposure to harmful pathogens and other pollutants. Public health risks include raw sewage backups into buildings or yards and overflows onto the land or into surface waters; health and safety hazards associated with the cleanup of raw sewage backups; loss of wastewater treatment; and eventually beach closures as a result of non-point source pollution. Releases of raw sewage from failing OWTS during flood events may pollute surface and groundwater, resulting in moderate, long-term, adverse impacts on surface and groundwater quality, with associated impacts on public health.

Chronic releases of raw sewage from failing OWTS would continue to result in excessive nitrogen and pathogen loading that can damage nearby surface waterbodies, including the Connetquot River, the Grand Canal and wetlands and coastal resources associated with Great South Bay. The continued degradation of wetlands could result in increased flood hazards, which would increase impacts on public health and safety. Therefore, the risk of continued OWTS failures and the associated discharge of partially treated or untreated sewage would continue to present a public

health hazard for the Oakdale community. Under the No Action Alternative, future excessive nitrogen loading would continue to have negative impacts on groundwater supply, resulting in moderate, long-term, adverse impacts on public health.

Future damages during storm events could require increased assistance from public health and safety forces because OWTS would continue to be unable to withstand storm-induced floods. This increased demand could affect the ability of medical services to effectively respond to needs elsewhere in the community during storm events. The No Action Alternative would result in moderate, long-term, adverse impacts on public health and safety.

5.17.2.2 Alternatives 2A and 2B: Proposed Action

Construction of the Proposed Action would result in minor, short-term, adverse impacts on public health and safety. To mitigate potential impacts during construction, all construction activities would be performed using qualified personnel and in accordance with standards under the Occupational Safety and Health Act and other environmental and construction regulations. Contractors would adhere to federal, state, and local regulations, including those related to stormwater run-off, air quality, and noise. Appropriate signage and barriers would be in place prior to construction activities to alert pedestrians and motorists of project activities. Traffic controls as described under Section 5.15 would be used to manage traffic around construction zones and allow emergency responders to pass through or access construction zones.

Construction activities would be coordinated with the Town of Islip and Suffolk County emergency service providers to ensure continued function of the roadways and intersections, as well as continued emergency vehicle access to nearby locations. Excavated areas would be backfilled or topped with steel plates once work is complete for the day, and only one travel lane would be closed at a time.

Installation of a new sewer collection system would result in moderate, beneficial impacts on public health and safety under the low-pressure method. The elimination of wastewater to area soils that are characterized by high groundwater conditions would reduce the amounts of nutrients, such as nitrogen from sewage, entering groundwater and surface waterways. By removing sewage from these areas, potentially harmful concentrations of contaminants from pharmaceutical, personal care products, and household chemicals would also be diverted away from local groundwater and surface waterbodies.

5.17.2.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

Similar to Alternative 2, construction of Alternative 3 would result in minor, short-term, adverse impacts on public health and safety during construction. However, Alternative 3 would provide public health and safety benefits by reducing the amount of waste and pollutants (including excess nitrogen from normal operations and untreated sewage during large storm events) that currently reaches adjacent waterbodies. Alternative 3 would result in minor, short-term, adverse impacts during construction but would result in minor, long-term, beneficial impacts due to the operation of the improvements. There would be no impacts on police, fire, or medical services under this alternative because road closures would not be required.

5.18 Hazardous Materials

NYSDEC defines hazardous substances as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that pose a substantial and immediate hazard or potential hazard(s) to human health and the environment (NYSDEC 2017). Hazardous materials and wastes are regulated under a variety of federal and state laws, including EPA's 40 CFR Part 260, the Resource Conservation and Recovery Act of 1976 (RCRA) (42 USC 6901 et seq.), the Comprehensive Environmental Response, the Compensation, and Liability Act of 1980 (42 USC 9601 et seq.), the Solid Waste Act, the Toxic Substances Control Act, and the Clean Air Act of 1970 (42 USC 7401 et seq.). Standards under the Occupational Safety and Health Act seek to minimize adverse impacts on worker health and safety. Evaluations of hazardous substances and waste must consider whether hazardous materials would be generated by the proposed activity and/or already exists at or in the general vicinity of the site (40 CFR 312.10). If hazardous materials are discovered, they would need to be handled by properly permitted entities. The New York Department of Labor permits entities for asbestos waste abatement, and NYSDEC issues permits for transportation and disposal of hazardous waste.

5.18.1 Existing Conditions

EPA's NEPAassist online tool was used with a search radius of 3,000 feet to search four federal databases of hazardous materials and wastes and sites to determine if hazardous materials are potentially present in the project area.

In addition, the NYSDEC Facilities Viewer and NYSDEC's Chemical and Pollution Control Maps were used to determine the locations of sites listed on the NYS Environmental Remediation Database. Records reviewed included those listed under the NYS Superfund Program, Brownfield Cleanup, and Voluntary Cleanup Programs, using a search radius of 3,000 feet. The database also includes a Registry of Inactive Hazardous Waste Disposal Sites.

No EPA-listed Superfund, Toxic Release, or Brownfield sites are within 3,000 feet of the project area. The project area radius contains five Resource Conservation and Recovery Act (RCRA) facilities, including one associated with Dowling College, three associated with the Suffolk County Department of Public Works roadway and bridge maintenance over Grand Canal, and one associated with a car dealership at Sunrise Highway. These facilities generate; transport; or treat, store, or dispose of hazardous (EPA 2021a; 2021b). No land within the project area has been used as a municipal, commercial, or industrial solid waste management facility, nor does it adjoin property that has been used as a solid waste management facility.

A single NYSDEC-permitted bulk storage facility is located within 0.5 mile of the project area, at Dowling College. No NYSDEC remediation sites are located within 0.5 mile of the project area (NYSDEC, 2021).

5.18.2 Potential Impacts

5.18.2.1 Alternative 1: No Action

There would be no impacts related to hazardous materials under the No Action Alternative because there would be no construction and existing conditions would not change.

5.18.2.2 Alternatives 2A and 2B: Proposed Action

Throughout the project area, during construction of the Proposed Action, the contractor would be responsible for worker and public health and safety, and for ensuring that all excavated material and soils are handled, transported, and disposed of in accordance with all applicable regulations. If materials encountered during excavation or any construction activity indicate signs of potential contamination, the contractor would be required to characterize the material and handle it accordingly. Any hazardous waste produced would be managed by NYSDEC-permitted haulers and disposal sites. The contract documents would state that the contractor would comply with all applicable federal, state, and local laws, codes, and regulations, including but not limited to 6 NYCRR Part 375, Environmental Remediation Programs. If fill material were required to backfill trenches, clean fill would be used.

Construction of the Proposed Action would require fuel, oil, solvents, and lubricants for the operation of the construction equipment. Short-term, negligible, adverse impacts are expected from the handling of fuel, excavated soils, and other potentially hazardous materials during construction. The risk for uncovering hazardous materials during excavation for the Proposed Action is considered low because almost the entirety of the project area comprises residential uses, and because construction would consist primarily of closure of septic systems from private properties and installation of a wastewater collection system on public roadways. Nevertheless, the NYSDEC Division of Environmental Remediation database would be reviewed after completion of the final design to ensure proper material handling and disposal protocols are in place to manage potentially contaminated materials. Spill prevention, prompt spill notification and response, and soil handling techniques would be used to reduce the potential for contaminating receiving waters.

Operation of the collection and conveyance system would similarly require the handling of fuel, oil, solvents, and lubricants. Long-term, negligible, adverse hazardous-material-related impacts are expected to result from the operation of the collection and conveyance system. Proper hazardous-material training and spill prevention techniques would be used to reduce the potential for polluting receiving waters with contaminants from operations.

SCDHS would oversee abandonments of commercial cesspools and septic systems, and any contamination in the systems would be remediated. Therefore, the Proposed Action would result in short-term, negligible, adverse impacts related to hazardous materials.

5.18.2.3 Alternative 3: Advanced On-site Wastewater Treatment Systems

During construction of Alternative 3, the use of fuels and lubricants could generate hazardous materials. Similar to Alternative 2, construction activities would have the potential to uncover hazardous materials in excavated soils. However, the potential would be lower because excavation would occur within the confines of residential properties, rather than in public rights-of-way. The contractor would be responsible for handling, transporting, and disposing of all excavated soils and other material in accordance with all applicable rules and regulations. SCDHS would oversee the abandonment/replacement of residential and commercial cesspools and septic systems, and any contamination in the systems would be remediated. Additionally, solids generated by OWTS eventually build up in the septic tank and must be pumped out by a septage hauler. Typically, pump-out would be required annually for I/A OWTS (compared to every 3 to 5 years for conventional OWTS, depending on type and size of household served). This waste is typically

brought to a WWTP for processing and disposal. Therefore, negligible, adverse hazardous material-related impacts would result from Alternative 3.

5.19 Cumulative Impacts

5.19.1 Projects Considered for Analysis of Cumulative Impacts

Projects considered in this analysis include the Suffolk County Coastal Resiliency Initiative, the Resiliency Initiative follow-on Forge River Watershed Phase IV Project, and the Bergen Point WWTP Outfall Replacement.

5.19.1.1 Suffolk County Coastal Resiliency Initiative

As discussed in Section 1.1, Introduction, the Initiative would be accomplished through five projects in areas that are particularly prone to stormwater flooding and storm surge. In addition to the Proposed Action as evaluated in this EA, these projects include the Forge River Watershed Sewer Project that would construct new collection and conveyance systems and a new advanced wastewater treatment facility, and the Patchogue River Watershed Sewer Project that would construct new collection systems.

As the remaining projects in the Initiative are further developed and advance into the environmental review process, the potential for cumulative impacts will be analyzed in each environmental review document to ensure that separate environmental review processes for each project are no less protective of human health and the environment.

5.19.1.2 Forge River Watershed Project Phase IV

This project would extend the Forge River Watershed Project to sewer an additional approximately 1,900 parcels in the Village of Mastic Beach. The additional area where sewers will be installed will extend to Narrow Bay to the south and Great South Bay to the west. The project area is east of Mastic Road and south of Commack Road, Neighborhood Road, and Baybright Drive West. Forge Point would not have sewers installed. Approximately 60 percent of the parcels are in residential use, and 35 percent of the parcels are open space, recreation, or vacant (CDM Smith 2014).

The Phase IV collection system would include 32 miles of gravity sewers, plus 33 miles of high-density polyethylene, low-pressure sewers with associated grinder pumps at each property. The conveyance system would include approximately 4.4 miles of force main and 12 additional pump stations within the Phase IV area. A 2.6-mile force main would convey wastewater up to the gravity collection system in Drainage Zone II. Installation of sewers for Phase IV will add approximately 1.8 mgd of flows to the advanced wastewater treatment facility, for a total flow of 3.2 mgd, which would necessitate expansion of the treatment works and leaching fields. An additional approximately five acres of leaching fields would be required.

5.19.1.3 Bergen Point Wastewater Treatment Plant Outfall Replacement

The Bergen Point WWTP discharges treated effluent through an ocean outfall that passes beneath Great South Bay and underneath Jones Beach Island to the Atlantic Ocean. The 14,200-foot-long segment of the Bergen Point WWTP outfall that extends from the WWTP to the Jones Beach Island, underneath Great South Bay, is in failing condition and needs to be replaced. The

replacement outfall segment would be a 10-foot diameter, 14,200-foot-long tunnel constructed by means of a tunnel-boring machine.

The newly constructed outfall segment under Great South Bay will be connected to the existing outfall segment that extends from Jones Beach Island south into the Atlantic Ocean. This connection will be made just north of Ocean Parkway. A bypass system with line stops will be installed to ensure that operation of the existing outfall would not be interrupted during the construction process. Aboveground construction would include an entry shaft at the Bergen Point WWTP site, and an exit shaft on Jones Beach Island within the existing easement, north of Ocean Parkway. The tunnel-boring machine entry and exit shafts would be constructed using either ground-freezing techniques or by installing secant piles and would extend to a depth of approximately 80 to 100 feet below the existing ground surface.

An estimated 90,000 cubic yards of muck would be removed during the construction of the proposed project, including both tunnel excavation and shaft construction. It is estimated that the daily muck-hauling truck trips to remove this material off-site would be eight to 10 truck trips, with an additional five to seven truck trips for material delivery. Tunneling is projected to take 18 months, with operations running six days per week. The new section of the outfall will connect to the existing ocean portion of the outfall on Jones Beach Island. Treated effluent will then continue to discharge through the outfall to the Atlantic Ocean, as has been the case for more than 30 years. The construction staging area on Jones Beach Island will be approximately 2 to 2.5 acres, and the staging area at the WWTP would be approximately 2.5 to 3 acres. These areas would be restored to pre-construction conditions upon project completion. All disturbed area on Jones Beach Island would be revegetated and restored. Most of the construction would take place well below Great South Bay via the tunnel-boring machine to minimize impacts on the environment.

5.19.2 Potential Cumulative Impacts

Because the Proposed Action will have no measurable impacts or the impacts will be very localized and minor to the following resources, there is no potential for cumulative impacts. Therefore, these topics are not discussed further:

- Soils
- Environmental Justice
- Noise
- Transportation
- Public Services and Utilities
- Hazardous Materials

5.19.2.1 Air Quality and Greenhouse Gases

Construction of the first three phases of the Forge River Watershed Sewer District Project (as a component of the Initiative) and the improvements to the Bergen Point WWTP would result in soils- and muck-hauling trips that are expected to have a minor, adverse impact on air quality and greenhouse gas emissions. Construction emissions would be well below General Conformity *de minimis* thresholds. In the context of the cumulative construction emissions across all projects, the

Oakdale project would make an imperceptible contribution to cumulative impacts. Operation of cumulative projects are expected to result in minor, adverse impacts on air quality.

5.19.2.2 Water Quality

The potential for cumulative impacts from the Proposed Action and the projects proposed for the Patchogue River and Forge River Watersheds were considered for this analysis. The project areas for other cumulative actions are hydraulically disconnected from each other. Because of the distances of these projects (more than six miles from the Oakdale project area), the implementation of these projects would not result in cumulative impacts locally in the watersheds affected by the Proposed Action. Regionally, these projects would cumulatively improve the groundwater quality of the Upper Glacial Aquifer by lowering the total nitrogen load. The Proposed Action would also result in a beneficial impact on groundwater quality. Each of these watersheds contributes independently to the surface water quality in the Great South Bay–Moriches Bay estuarine system. During construction of any of these projects, minor, adverse cumulative impacts on the water quality of the estuarine system are expected, but potential impacts would be mitigated through appropriate BMPs. The projects would result in noticeable beneficial cumulative impacts on the surface water quality of the estuarine system.

Induced growth from the sewer projects could add new impervious surface areas to this geographic area. The added impervious areas would be minimal because only a few undeveloped parcels would be connected to the sewer, so there would be limited, minor, long-term, adverse impacts on stormwater runoff. Impacts from the Proposed Action would be minimized through stormwater management BMPs. Removing existing OWTS throughout the project area would have minor impacts on shallow groundwater recharge. The Proposed Action would potentially make an imperceptible contribution to impervious area and stormwater runoff effects.

5.19.2.3 Wetlands

Construction of related projects could potentially result in minor, adverse, temporary cumulative impacts on wetlands through increased erosion and stormwater runoff during construction. These impacts would be mitigated through implementation of construction BMPs and stormwater management techniques. The Bergen Point WWTP Outfall Replacement would temporarily disturb wetlands for staging areas and site preparation. However, there would be no long-term, adverse impacts because the disturbances would be mitigated. Completion of the Initiative and Forge River Watershed Project Phase IV projects would result in beneficial cumulative impacts on freshwater and tidal wetlands by reducing storm-related sewage discharge and nitrogen concentrations in ground and surface waters and associated tidal wetland degradation. The Bergen Point WWTP Outfall Replacement would have long-term, beneficial impacts on wetlands by reducing the risk to wetlands from failure of the existing outfall. The Proposed Action would not result in the direct impact to wetlands and would make a noticeable contribution to this beneficial cumulative impact.

5.19.2.4 Floodplains, Storms, and Sea Level Rise

Floodplains occur within the project areas of most of the related projects for the Initiative, the Forge River Watershed Project Phase IV, and the Bergen Point WWTP Outfall Replacement. Under these projects, construction activities, including staging areas within floodplains, could result in minor, adverse impacts from temporary soil compaction, vegetation and soil disturbance,

and degradation of floodplain functions. Ground disturbance associated with the construction of related projects would alter existing stormwater runoff and drainage patterns, which would result in temporary minor, adverse cumulative impacts. These impacts on floodplains and stormwater runoff would be mitigated through compliance with permits and implementation of BMPs. Additionally, once construction is complete, temporarily disturbed floodplain would be returned to pre-construction conditions to avoid long-term, adverse impacts.

Operation of the Initiative and the Forge River Watershed Project Phase IV would result in indirect, beneficial cumulative impacts on floodplains. Removing conventional failing OWTS and reducing pollutant and nitrogen loads would reduce regional floodplain degradation and the potential for flood damage and provide climate resilience to sea level rise and increased storm events. Benefits from related sewer and stormwater management projects would also decrease the risk of flood loss and impacts of floods on human life and property. For some projects, including the Patchogue River Watershed Sewer Project, operation of the project would allow existing populations to remain in the floodplain, which could result in sustained risk from flood hazards. However, the risk would be reduced by the long-term, beneficial impacts. The Proposed Action would make a noticeable contribution to the beneficial cumulative impact on floodplains.

5.19.2.5 Coastal Resources

Construction of related projects could potentially result in minor, adverse cumulative impacts on coastal resources in the Oakdale project area through increased erosion and degradation of stormwater runoff. These impacts would be mitigated through implementation of BMPs. Completion and operation of the Initiative and Forge River Watershed Project Phase IV projects would result in beneficial cumulative impacts on coastal resources, including freshwater and tidal wetlands, by reducing storm-related sewage discharge and nitrogen concentrations in ground and surface waters and associated degradation of coastal wetlands. The Bergen Point WWTP Outfall Replacement would consist almost entirely of underground activities; any surface disturbance would be restored to its original condition following construction. Therefore, the project would have no adverse impacts on the coastal zone. The Bergen Point WWTP Outfall Replacement would have long-term, beneficial impacts on coastal resources by reducing the risk from failure of the existing outfall. The Proposed Action would make a noticeable contribution to this beneficial cumulative impact on coastal resources.

5.19.2.6 Vegetation

The Proposed Action would not result in the removal of vegetation in naturally vegetated areas. A limited number of street trees may be removed, and currently landscaped areas would be temporarily disturbed. Operationally, the cumulative projects would result in beneficial impacts on the health of upland and wetland vegetation in the project areas by preventing sanitary wastewater overflows and reducing groundwater nitrogen concentrations. The Proposed Action would make a noticeable contribution to this beneficial cumulative impact.

5.19.2.7 Wildlife and Fish

Vegetation removal for cumulative actions could result in minor, adverse impacts on wildlife. The Proposed Action would not result in the removal of naturally vegetated areas. Removing trees outside of breeding seasons for migratory birds would limit the impacts on migratory bird species. Construction of related projects could result in short-term increases in turbidity and sedimentation

in local surface waters, temporarily affecting water quality conditions for aquatic species. Erosion and sedimentation BMPs would be implemented to minimize these temporary, minor, adverse impacts. Once completed, the Proposed Action and cumulative sewer projects would result in long-term beneficial impacts on fish by improving water quality. The Proposed Action would make a noticeable contribution to this beneficial cumulative impact.

5.19.2.8 Threatened and Endangered Species

Vegetation removal for cumulative actions could result in minor, adverse impacts on Northern Long-eared Bats because of a loss of summer roosting habitat. The Proposed Action would not impact any naturally vegetated areas, however, some trees may be removed during construction. Therefore, the Proposed Action would make an imperceptible contribution to this minor, adverse impact.

5.19.2.9 Cultural Resources

Construction of cumulative projects could result in minor, adverse impacts on archaeological resources, depending on the extent of ground disturbance. Mitigation measures would help to reduce these impacts on areas known for archaeological or historic sensitivity. The Proposed Action would contribute have no contribution to these adverse cumulative impacts. Operation of the projects considered for cumulative impacts listed above would have no impacts on cultural resources because operation would involve no in-ground disturbance or change to significant historic architectural features.

5.19.2.10 Land Use and Planning

While geographically separate from each other, all of the cumulative actions are consistent with the goals of the *Suffolk County Comprehensive Master Plan* to provide infrastructure to existing communities and mitigate further degradation of the area's natural resources, and therefore, result in an overall beneficial cumulative impact on land use and planning.

5.19.2.11 Public Health and Safety

The Proposed Action, when combined with present and future projects would have a noticeable contribution to beneficial cumulative impacts on public health and safety by minimizing the risk of discharging partially treated or untreated sewage into surrounding waterbodies and effectively mitigating the moderate, adverse public health and safety risks that would otherwise persist. The Oakdale sewer project, as well as Patchogue and Forge River Projects, would also directly and indirectly reduce health and safety risks associated with stormwater flooding and storm surge and result in a beneficial cumulative impact on public health and safety.

6.0 PERMITS AND PROJECT CONDITIONS

GOSR and Suffolk County are responsible for obtaining all applicable federal, state, and local permits; reviews and other authorizations for project implementation prior to construction; and adherence to all permit conditions. Any substantive change to the approved scope of work would require reevaluation by GOSR for compliance with SEQRA. The permits, reviews, and approvals required to complete the project are summarized in **Table 6-1**.

Table 6-1. Required and Anticipated Permits, Reviews, and Approvals

Permits, Approvals, and/or Consultation	Agency
State	
Tidal Wetlands – ECL Article 25	NYSDEC
SPDES Discharge Permit	NYSDEC
SPDES General Permit for Stormwater Discharges from Construction Activity / SWPPP	NYSDEC
NYNHP species consultation	NYSDEC
Water Withdrawal Permit for dewatering activities	NYSDEC
Coastal Zone Management – State Coastal Consistency Concurrence	NYSDOS
Section 14.09 New York State Historic Preservation Act	NYSHPO
Road opening permits and/or easements	NYS Department of Transportation
State Highway Access and/or State Highway Road Permit	NYS Department of Transportation
Part 85, Approval of costs ensuring tax impacts on property owners are not increased	Office of the NYS Comptroller
Local	
Suffolk County Article 6 and Article 7	SCDHS
Approval of design and space requirements	SCDHS, SCDPW
Road opening permits	SCDPW
Suffolk County Sanitary Code Article 9 and Article 12	SCDHS

7.0 LIST OF PREPARERS

New York State Governor's Office of Storm Recovery
60 Broad Street, 26th Floor, New York, NY 10004

WSP
48 Wall Street, 16th Floor
New York, NY 10005

FHI Studio
11 Hanover Square
New York, NY 10005

8.0 SUMMARY OF IMPACTS

Table 9-1. Summary of Impacts

Area of Evaluation	Alternative 1: No Action	Alternatives 2A and 2B: Proposed Action	Alternative 3: I/A OWTS Alternative
Soils	Minor adverse impacts in the vicinity of failed OWTS.	Minor adverse impacts during construction.	Short-term, negligible, adverse impacts during construction.
Air Quality and Greenhouse Gasses	No construction-related impacts. Continued long-term, negligible, adverse impact from generated methane emissions and mobile source emissions from trucks servicing the OWTS.	Short-term, negligible, adverse impacts on air quality and greenhouse gases during construction. Long-term, negligible, adverse impacts on air quality and long-term, minor, adverse impacts on greenhouse gases during operation. Emissions associated with construction and operation of the project would result in short- and long-term, negligible, adverse impacts.	Short-term, negligible, adverse impacts on greenhouse gasses during construction. Emissions associated with construction and operation of the project would result in short- and long-term, negligible, adverse air quality impacts.
Water Quality	Long-term, moderate, adverse impacts on water quality during flood events.	Short-term, minor, adverse impacts from soil erosion during construction. Short-term, negligible, adverse impacts from the removal of existing OWTS. Long-term, beneficial impacts on water quality from reduced nitrate loading.	Long-term, beneficial impacts on water quality of surface waters and groundwater in the project area as a result of nitrogen removal and the higher level of treatment achieved by the I/A OWTS. Short-term, negligible, adverse impacts on water quality from soil erosion. Short-term, negligible

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Area of Evaluation	Alternative 1: No Action	Alternatives 2A and 2B: Proposed Action	Alternative 3: I/A OWTS Alternative
			impacts during the construction of the OWTS.
Wetlands	Long-term, moderate, adverse impacts from continued decrease in wetland values and the ability of wetlands to protect the community from waves and storm surge.	Indirect, short-term, minor, adverse impacts on tidal wetlands from sedimentation during construction. Indirect, long-term, beneficial impacts on tidal wetlands from reducing pollutant degradation and improving the functional values of tidal wetlands.	Indirect, short-term, minor, adverse impacts on tidal wetlands from sedimentation during construction. Indirect, long-term, beneficial impacts on wetlands by reducing pollutant degradation and improving the functional values of wetlands. Beneficial impacts would be less than under Alternative 2.
Floodplains, Storms, and Sea Level Rise	Short-term, moderate, adverse impacts from ongoing potential for flooding. Long-term, moderate, adverse impacts from the continued degradation of natural tidal wetland functions.	Direct, short-term, minor, adverse impacts on floodplains from construction activities that disturb floodplains. Indirect, long-term, beneficial impacts on floodplains from a reduction in pollutant-caused degradation.	Direct, short-term, negligible, adverse impacts from construction activities. Indirect, long-term, minor, beneficial impacts on floodplains from a reduction in pollutant-caused degradation.

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Area of Evaluation	Alternative 1: No Action	Alternatives 2A and 2B: Proposed Action	Alternative 3: I/A OWTS Alternative
Coastal Resources	Long-term, moderate, adverse impacts on coastal resources due to continued release of nitrogen and pathogens from OWTS.	<p>Direct, short-term, minor, adverse impacts from potential construction-related pollution.</p> <p>Direct, long-term, beneficial impacts after construction because of the potential for reduced degradation of coastal resources.</p>	<p>Direct short-term, minor, adverse impacts during construction from potential construction-related pollution.</p> <p>Direct , long-term, beneficial impacts after construction because of the potential for reduced degradation of coastal resources.</p>
Vegetation	Minor adverse impacts on vegetation as a result of sanitary wastewater overflow and continued contributions of these overflows to degradation of nearby vegetated tidal wetlands and potential increases in existing invasive species.	<p>Construction of the low-pressure system option would have a minor adverse impact on vegetative resources within the project area.</p> <p>Long-term, beneficial impact on the health of vegetation by preventing sanitary wastewater overflow during future flood events that could affect vegetation within and downstream of the project area.</p>	<p>Direct, negligible, adverse impacts on vegetative resources because there would be minimal vegetation removal at residences and businesses, and no permanent loss of vegetation would occur.</p> <p>Long-term, indirect, beneficial impact on vegetation from reduced potential for wastewater overflows to vegetation within and downstream of the project area.</p>

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Area of Evaluation	Alternative 1: No Action	Alternatives 2A and 2B: Proposed Action	Alternative 3: I/A OWTS Alternative
Wildlife and Fish	Long-term, moderate, adverse impacts on wildlife and fish from continued risk of untreated sewage releases during future flood events.	Short-term negligible adverse impacts on wildlife from disturbance during construction. Long-term, beneficial impacts during operation on nearby wildlife and fish habitat from reduced pollution in adjacent waterways.	No impact on aquatic species during construction. Short-term, negligible, localized, adverse impacts on terrestrial species in residential yards due to noise and activity during construction. Long-term, beneficial impact on wildlife and fish from reduced pollution and improved water quality in adjacent waterways.
Threatened and Endangered Species	Long-term, minor, adverse impacts on nearby potential habitat for protected species from continued risk of degradation from sewage overflows.	No effect on Northern Long-Eared bat or other federally threatened and endangered species.	No effect on the Northern Long-Eared Bat or other federally threatened and endangered species.

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Area of Evaluation	Alternative 1: No Action	Alternatives 2A and 2B: Proposed Action	Alternative 3: I/A OWTS Alternative
Cultural Resources	<p>Minor, adverse impacts on historic properties from continued OWTS failures during storm events and from rising groundwater levels.</p> <p>No impacts on archaeological resources.</p>	<p>No adverse effect on historic structures or archaeological resources.</p> <p>Phase 1B testing would be required if potential for ground disturbance within areas of intact soils.</p>	<p>No adverse effect on historic structures or archaeological resources.</p> <p>Phase 1B testing would be required if potential for ground disturbance within areas of intact soils.</p> <p>Potential for significant landscape features higher than Alternative 2.</p>
Environmental Justice	No impact.	No impact.	No impact.
Land Use and Planning	Long-term, moderate, adverse impacts from the continued degradation of the area's natural resources.	No direct impacts on land use or zoning.	No direct impacts on land use or zoning.
Noise	Negligible, short duration, intermittent, adverse impacts from repairs and maintenance activities.	Localized, short-term, minor, adverse impacts from construction activities and noise.	Localized, short-term, minor, adverse impacts from construction activities and noise.
Transportation	Negligible adverse impacts from increased congestion on local roads from waste haulers responding to	Minor short-term adverse impacts associated with partial road closures and increased traffic.	Minor localized short-term adverse impacts from partial road closures and increased traffic.

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Area of Evaluation	Alternative 1: No Action	Alternatives 2A and 2B: Proposed Action	Alternative 3: I/A OWTS Alternative
	backflow issues following flood events.		
Public Services and Utilities	Minor adverse impact on wastewater utilities from continued use and maintenance of OWTS.	<p>Long-term beneficial impact on public services.</p> <p>No impact on the transmission or distribution of electricity.</p> <p>Long-term negligible, adverse impact on energy load.</p>	<p>Short-term negligible adverse impacts from interruption of wastewater services.</p> <p>No impacts on the transmission or distribution of electricity.</p> <p>Long-term negligible, adverse impacts on energy load.</p>
Public Health and Safety	<p>No impacts on construction-related public health or safety.</p> <p>Moderate, long-term, adverse impacts on public health and safety associated with OWTS failures.</p>	<p>Short-term, minor, adverse impacts on public health and safety due to construction.</p> <p>No impact on response times from emergency personnel.</p> <p>Long-term, moderate, beneficial impacts on public health and safety associated with the installation of a new sewer collection system and closure of OWTS's.</p>	<p>Short-term, minor, adverse impacts on public health and safety from construction of I/A OWTS.</p> <p>No impact on emergency response times.</p> <p>Long-term, minor, beneficial impacts on public health and safety associated with reduced pollutant loading of groundwater.</p>
Hazardous Materials	No impact.	<p>Short-term, negligible, adverse impacts from the generation, handling, and disposal of hazardous materials.</p> <p>Long-term, negligible, adverse hazardous-material-related impacts are expected from</p>	Negligible, adverse impacts from the generation, handling, and disposal of hazardous materials.

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Area of Evaluation	Alternative 1: No Action	Alternatives 2A and 2B: Proposed Action	Alternative 3: I/A OWTS Alternative
		the operation of the collection and conveyance system.	

9.0 REFERENCES

CDM Smith

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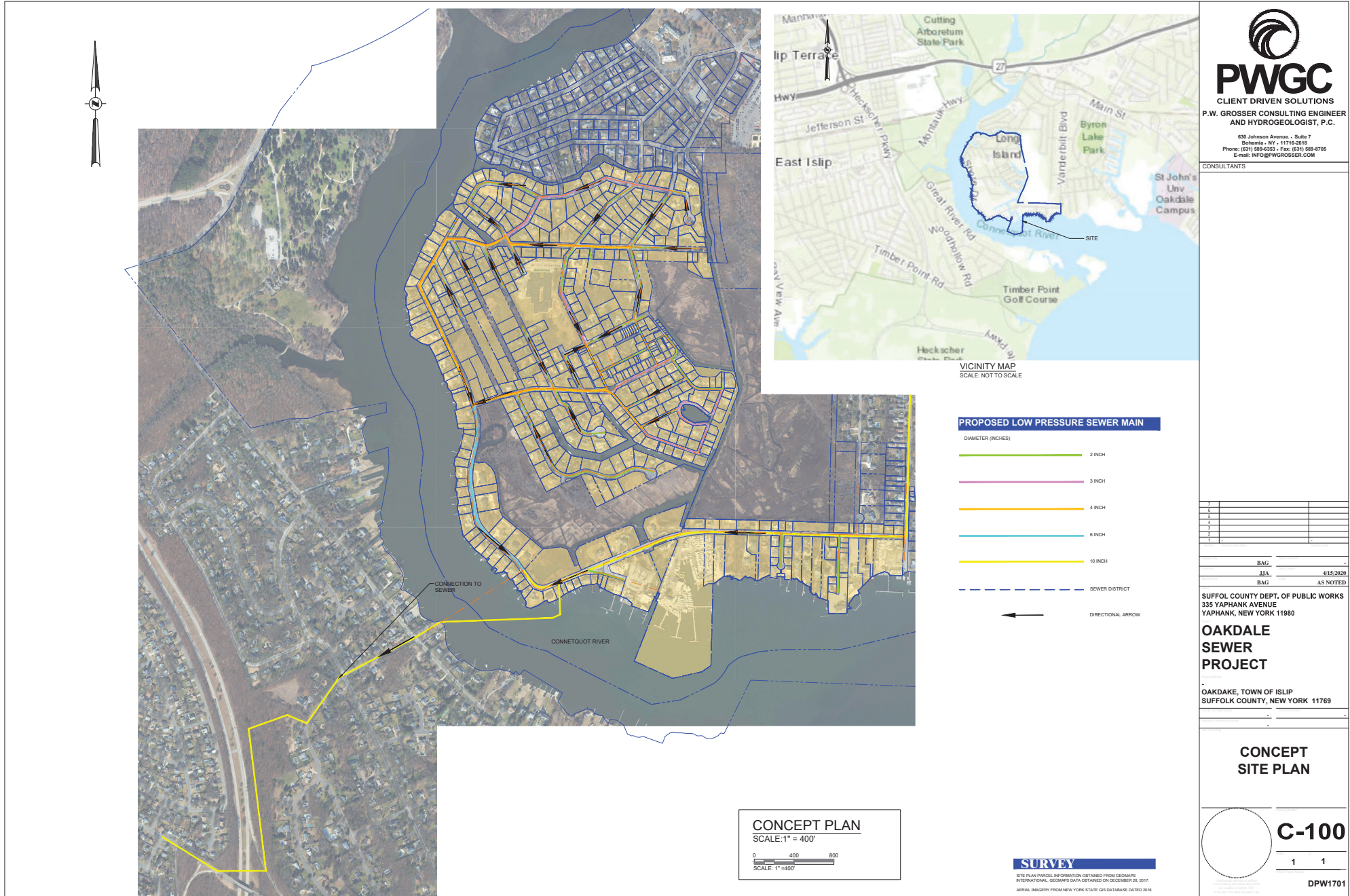
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APPENDIX A: FIGURES

Figure 1: Project Elements



CLIENT DRIVEN SOLUTIONS
P.W. GROSSER CONSULTING ENGINEER
AND HYDROGEOLOGIST, P.C.

630 Johnson Avenue, Suite 7
Bohemia, NY 11716-2518
Phone: (631) 589-6363 • Fax: (631) 589-8705
E-mail: info@pwgros.com

CONSULTANTS

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BAG	
JJA	4/15/2020
BAG	AS NOTED

SUFFOL COUNTY DEPT. OF PUBLIC WORKS
335 YAPHANK AVENUE
YAPHANK, NEW YORK 11980

OAKDALE SEWER PROJECT

OAKDAKE, TOWN OF ISLIP
SUFFOLK COUNTY, NEW YORK 11769

CONCEPT SITE PLAN

C-100

1 1

DPW1701

SITE PLAN PARCELS INFORMATION OBTAINED FROM GEOMAPS INTERNATIONAL. GEOMAPS DATA OBTAINED ON DECEMBER 8, 2017. AERIAL IMAGERY FROM NEW YORK STATE GIS DATABASE DATED 2016.



Figure 3
National Wetlands Inventory Map
Oakdale Sewer Project

Legend

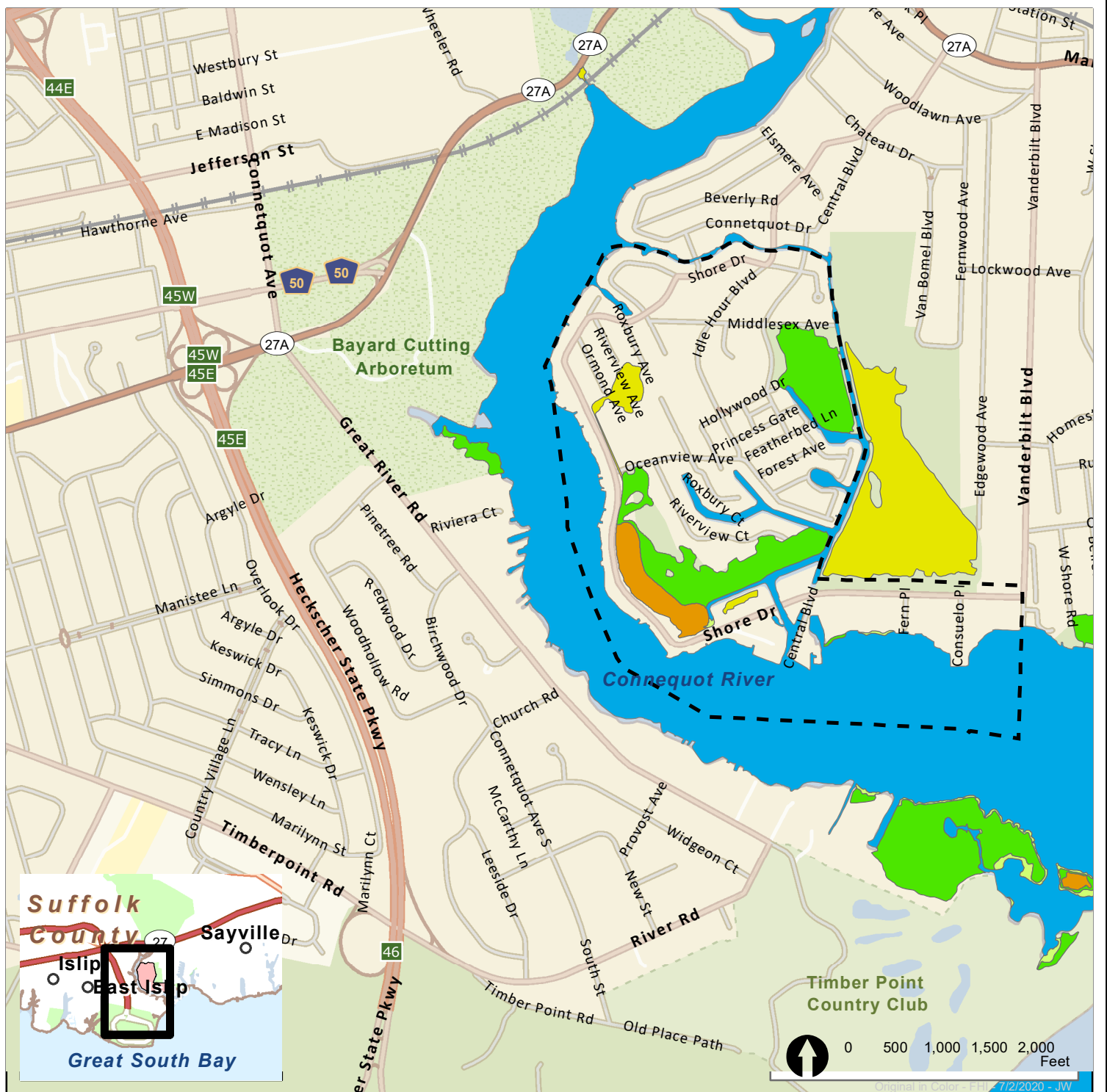
Project Boundary

NWI Classification

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Source: USFWS National Wetlands Inventory 2020





Legend

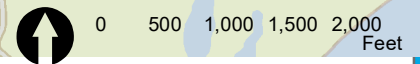
Project Boundary

Tidal Wetland Categories

- Dredged Spoil (DS)
- Formerly Connected (FC)
- High Marsh (HM)
- Intertidal Marsh (IM)
- Littoral Zone (LZ)

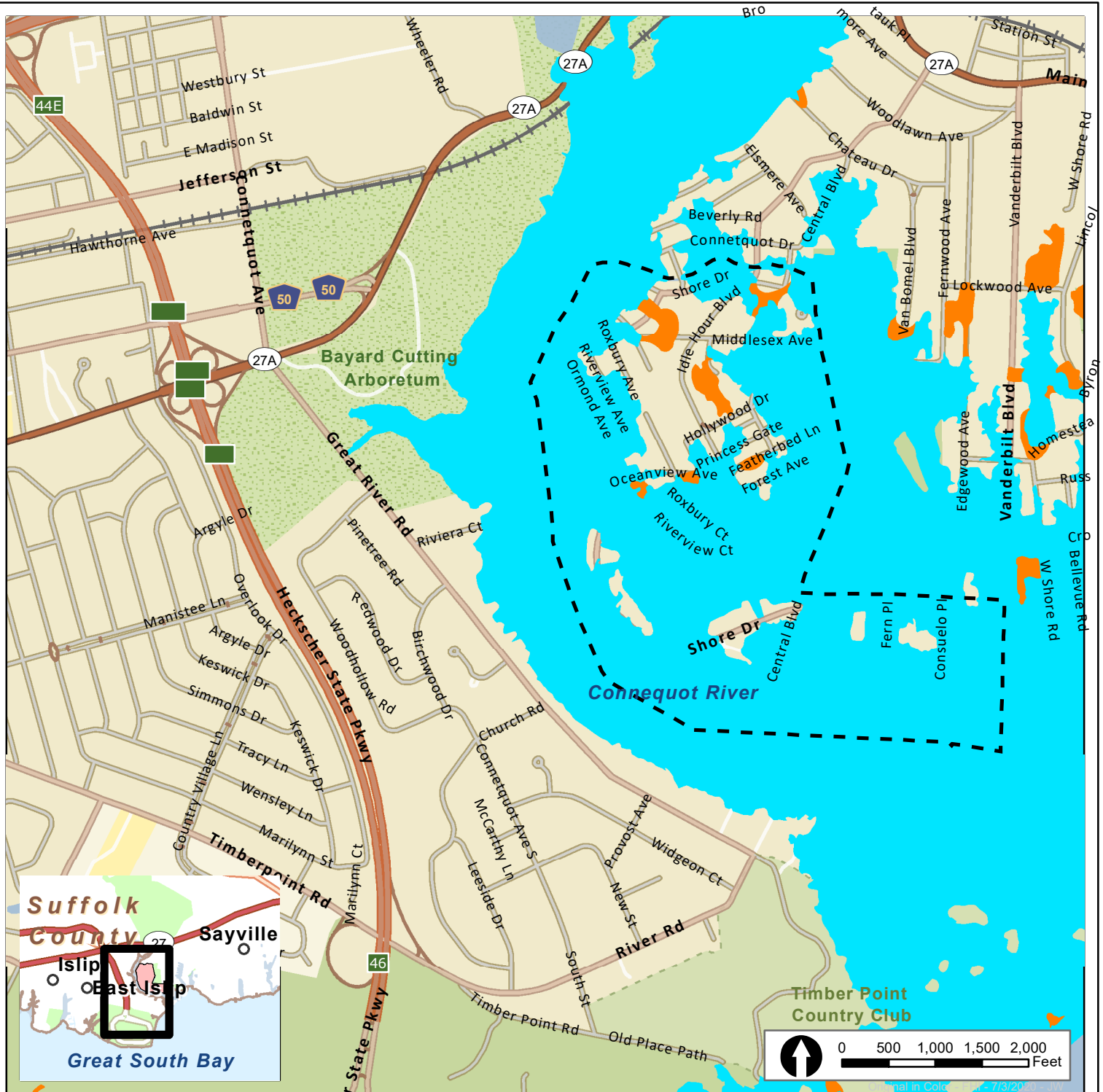
Source: NYS DOS 2020

Figure 4
NYSDEC Tidal Wetlands Map
Oakdale Sewer Project



Original in Color - FHI 7/2/2020 - JW





Legend

Project Boundary

Flood Hazard Zones

Zone Type

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

Source: FEMA 2020

Figure 5
FEMA Flood Map
Oakdale Sewer Project





Legend



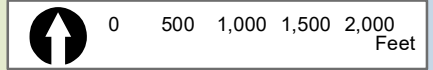
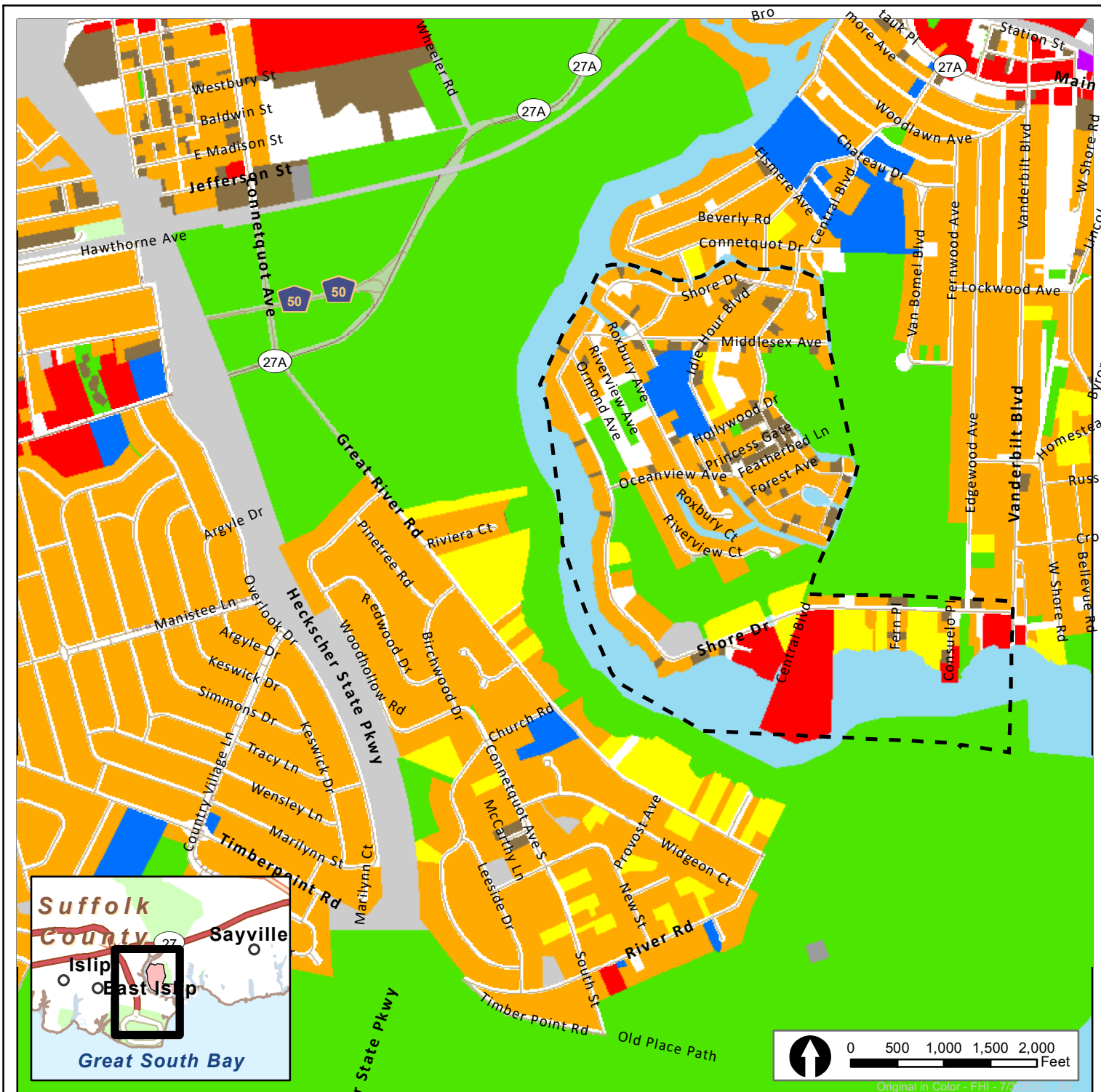
-  Project Boundary
-  Coastal Boundary

Figure 6
Coastal Boundary
Oakdale Sewer Project





Original in Color - FHI - 7/3

Figure 7
Land Use
Oakdale Sewer Project

Legend

- | | |
|----------------------------|-----------------------------|
| Project Boundary | Recreation & Open Space |
| Low Density Residential | Agriculture |
| Medium Density Residential | Vacant |
| High Density Residential | Transportation |
| Commercial | Utilities |
| Industrial | Waste Handling & Management |
| Institutional | Surface Waters |

Source: Suffolk County GIS 2020





Legend

- Project Boundary
- School
- Library
- Hospital
- Church
- Grade School
- Cemetery
- Park

Source: Suffolk County GIS 2020

Figure 8
Sensitive Noise Receptors
Oakdale Sewer Project

Great South Bay



APPENDIX B: AIR QUALITY STANDARDS AND EMISSIONS CALCULATIONS

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The Clean Air Act (CAA) and its amendments led to the creation of National Ambient Air Quality Standards (NAAQS) by the U.S. Environmental Protection Agency (EPA) for six criteria air pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), ozone (O₃), particulate matter (PM), nitrogen dioxide (NO₂), and lead. There are two types of NAAQS—primary standards and secondary standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.¹ Table 1 summarizes the primary and secondary NAAQS for the criteria pollutants. The six criteria pollutants are briefly described below, including a brief discussion of the relevance of each pollutant to the emissions sources involved with the Proposed Project.

Carbon monoxide. CO is a colorless, odorless gas emitted from combustion processes, including engine exhaust. Elevated CO concentrations can cause adverse health impacts by reducing oxygen delivery to vital organs. Very high concentrations can cause death.² CO is primarily a consideration in the vicinity of congested intersections with very high traffic volumes.

Lead. Lead is a toxic heavy metal that can have numerous adverse health impacts, including neurological damage to children and cardiovascular effects in adults.³ Lead emissions can contribute to exposure through the air directly or indirectly by causing soil/water contamination. Prior to the phase out of leaded gasoline, automobiles were a source of lead emissions. According to the EPA, the major sources of lead emissions to the air today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline.⁴ The Proposed Project does not involve lead emissions.

Nitrogen dioxide. NO₂ is one of a group of reactive gases called nitrogen oxides or NO_x. NO₂ forms small particles that penetrate deep in the lungs, and can cause or worsen existing respiratory system problems such as asthma, emphysema, or bronchitis. NO₂ emission sources associated with the Proposed Project include autos and trucks, construction equipment, and natural gas boilers, among others. NO_x are also a precursor to the formation of ozone.⁵

Ozone. Ground-level O₃ is an important component of smog and is formed through reactions of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight. Sources of NO_x and VOC emissions include both mobile and stationary sources. Health effects of O₃ exposure include respiratory irritation, reduced lung function, worsening of diseases such as asthma. People with lung disease, children, older adults, and people who are active outdoors may be particularly sensitive to O₃. Elevated O₃ can also impact sensitive vegetation.⁶ O₃ formation is a regional air quality concern; therefore, the potential impacts in terms of O₃ formation are addressed by quantifying the contribution of the Project to precursor emissions rather than predicting project-specific O₃ concentrations.

Particulate matter. PM is a broad class of air pollutants that exist as liquid droplets or solids, with a wide range of size and chemical composition. Smaller particulates that are smaller than or equal to 10 and 2.5 microns in size (PM₁₀ and PM_{2.5}) are of particular health concern because they can get deep into the lungs and affect respiratory and heart function. Particulates can also impact visibility; damage soil, plants, and water quality; and stain stone materials.⁷ PM emissions are primarily a concern for heavy-duty trucks and other equipment with diesel engines, although PM emissions also occur from gasoline and natural gas combustion.

Sulfur dioxide. SO₂ is part of a group of reactive gases called oxides of sulfur. Health effects of SO₂ exposure include adverse respiratory effects, such as increased asthma symptoms.⁸ The largest sources of SO₂ emissions nationally are from fossil fuel combustion at power plants/industrial facilities, electrical utilities, and residential/commercial boilers. Mobile sources are not a significant source of SO₂ emissions.⁹

Table 1. National Ambient Air Quality Standards¹⁰

Pollutant	Primary/ Secondary		Averaging Time	Level	Form
Carbon Monoxide	primary		8-hour	9 ppm	not to be exceeded more than once per year
			1-hour	35 ppm	
Lead	primary and secondary		Rolling 3-month average	0.15 µg/m ³	not to be exceeded
Nitrogen Dioxide	primary		1-hour	100 ppb	98th percentile, averaged over 3 years
	primary and secondary		Annual	53 ppb	annual mean
Ozone	primary and secondary		8-hour	0.070 ppm	annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate matter	PM _{2.5}	primary	Annual	12 µg/m ³	annual mean, averaged over 3 years
		secondary	Annual	15 µg/m ³	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24-hour	150 µg/m ³	not to be exceeded more than once per year on average over 3 years
Sulfur dioxide	primary		1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	secondary		3-hour	0.5 ppm	not to be exceeded more than once per year

The NAAQS for CO, annual NO₂, and SO₂ have also been adopted as the ambient air quality standards for New York State, but are defined on a running 12-month basis rather than for calendar years only.

Federal ambient air quality standards do not exist for HAP's; however, the New York State Department of Environmental Conservation (NYSDEC) has issued standards for certain non-criteria compounds, including non-methane hydrocarbons, fluorides, beryllium, and hydrogen sulfide. The Project would not involve industrial operations or other potential sources of fluoride

or beryllium emissions. Hydrogen sulfide emissions are a consideration in the odor assessment of the AWTF. The NYSDEC 1-hr hydrogen sulfide standard is 0.01 ppm (14 µg/m³) (6 CRR-NY 257-10.3).

Non-methane hydrocarbons are a concern in terms of contributing to O₃ formation at a regional level and not localized concentrations at sensitive receptors in the vicinity of the Project Site. Therefore, non-methane hydrocarbons are addressed for this DEIS by quantifying the total project-related emissions of hydrocarbon ozone precursors (VOC).

NYSDEC has also developed short-term and annual guideline concentrations (SGCs and AGCs) for numerous non-criteria pollutants.¹¹ The NYSDEC guidance thresholds represent ambient levels that are considered safe for public exposure.

¹ National Ambient Air Quality Standards (NAAQS). Accessed online at:
<http://www.epa.gov/air/criteria.html>.

² Carbon Monoxide, Health. Accessed online at: <http://www.epa.gov/airquality/carbonmonoxide/health.html>.

³ <http://www.epa.gov/airquality/lead/health.html>.

⁴ <http://www.epa.gov/airquality/lead/>.

⁵ <http://www.epa.gov/airquality/nitrogenoxides/health.html>.

⁶ <http://www.epa.gov/airquality/ozonepollution/basic.html>.

⁷ Particulate Matter (PM), Health. Accessed online at:

<http://www.epa.gov/airquality/particlepollution/health.html>.

⁸ <http://www.epa.gov/airquality/sulfurdioxide/health.html>.

⁹ <http://www.epa.gov/ttnchie1/net/2008report.pdf>.

¹⁰ National Ambient Air Quality Standards: <http://www.epa.gov/air/criteria.html>.

¹¹ http://www.dec.ny.gov/docs/air_pdf/agcsgc14.pdf

Operational Emissions Calculations

GHG Total Emissions

totals	
Wastewater Treatment (Methane)	-95.2
Fuel Consumption (Backup Generators)	173.6
Electricity Consumption	934.07
Net Change CO2e	1,012.51

GHG Treatment Emissions

	parcels (households proxy)	
	ACS 5-year estimates	
	metric tons per Tg	
	population	

	2012 U.S. Pop
Total	
Central Treatment	
Septic Treatment	

Total Emissions 2012 (Domestic) in Tg of CO2e		Per Capita Tg	Per Capita Metric Tons	
CH4				
	Centralized			
	Septic			

**Percent Reduction- Septic to
Centralized**

-86.27%

(95.19)

Electricity, Proposed Action Total

WWTP Energy Demand (kWh)	1,526,485
Grinder Pump Energy Demand (kWh)	93,600
Pump Station Energy Demand (kWh)	44,247.13
Total kWh	1,664,333
lbs CO2e per MWh	1,237.300
MT CO2e per Mwh	0.561
CO2e Total	934.07

[per EPA EGRID](#)

WWTP Energy Demand Increase

factor		source
daily kWh per 1,000 gallons	26.00	22 to to 30, per Forge EA
annual kWh per 1,000 gallons	9,490	
net project flows (gpd)	160,852.00	map and plan
annual kWh	1,526,485	

Grinder Pump Energy Demand Increase

annual Kwh per household grinder pump	200	Citizens Energy Group 2013
Grinder Pumps	468	total assumed grinder pumps
annual kWh	93,600	

Pump Station Electricity Use

assumes:

Pump Stations	1
Horsepower	25.00
% Run Time	25.00
Run Time Hours Per Day	6.00
Watts	18,650.00
General Operating Power	111.90
Startup Power per Hour	12.00
Startup Power kWh/day	9.33
Total kWh per day	121.23
Total kWh per year	44,247.13

hp mechanical; 746 watts equivalent

assumes 2 starts per hour

1000% startup power consumption for direct over line start

Low Pressure Sewers Backup Generators + Pump Stations diesel emergency backup generator

Horsepower		1 Pump Station		500 hrs/year			
402	Pollutant	Emission Factor (lbs/hp-hr)	Source	Emissions @500 hrs/year (lbs)	Annual Emissions in Tons	1 pump stations in tons	1 pump stations in metric tons
	NOx	0.00881849	CAT C9 spec sheet, converted to lbs	1772.51649	0.89	0.89	0.80
	VOC	0.0025141	AP-42 Table 3.3-1 (TOC- exhaust plus crankcase)	505.3341	0.25	0.25	0.23
	SOx	0.00205	AP-42 Table 3.3-1	412.05	0.21	0.21	0.19
	PM	0.0022	AP-42 Table 3.3-1	442.2	0.22	0.22	0.20
	CO2	1.15	AP-42 Table 3.3-1	231150	115.58	115.58	104.85

Horsepower		468 Grinder Pumps		20 hrs/year			
15	Pollutant	Emission Factor (lbs/hp-hr)	Source	Emissions @20 hrs/year (lbs)	Annual Emissions in Tons	468 grinders	20 grinders in metric tons
	NOx	0.11	AP-42 Table 3.3-1	33	0.02	7.72	7.01
	VOC	0.01985	AP-42 Table 3.3-1 (TOC- exhaust plus crankcase)	5.955	0.00	1.39	1.26
	SOx	0.000591	AP-42 Table 3.3-1	0.1773	0.00	0.04	0.04
	PM	0.000721	AP-42 Table 3.3-1	0.2163	0.00	0.05	0.05
	CO2	1.08	AP-42 Table 3.3-1	324	0.16	75.82	68.78

horsepower assumption from DEK model #6500 spec sheet, 8,130-watt, 6,500 continuous watt, 420 cc, 15 HP portable generator
 assume generator operates 1 hour per day during power outages

Totals

Pollutant	MT
NOx	7.81
VOC	1.49
SOx	0.22
PM	0.25
CO2	173.63

I/A OWTS Electricity Demand

980	kWh per year	Reclaim Our Water Initiative
468	parcels	
458,640	total kWh per year	
1,237.300	lbs CO2e per MWh	
0.561	MT CO2e per Mwh	
257.40	CO2e Total	

APPENDIX C
AGENCY CORRESPONDENCE FOR PROTECTED
SPECIES



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Long Island Ecological Services Field Office
340 Smith Road
Shirley, NY 11967-2258
Phone: (631) 286-0485 Fax: (631) 286-4003

In Reply Refer To:
Consultation Code: 05E1LI00-2021-SLI-0437
Event Code: 05E1LI00-2021-E-01597
Project Name: Oakdale Sewer Project

July 01, 2021

Subject: Updated list of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Long Island Ecological Services Field Office

340 Smith Road

Shirley, NY 11967-2258

(631) 286-0485

Project Summary

Consultation Code: 05E1LI00-2021-SLI-0437

Event Code: 05E1LI00-2021-E-01597

Project Name: Oakdale Sewer Project

Project Type: WASTEWATER PIPELINE

Project Description: The Oakdale Sewer Improvement project is for constructing a new low pressure sewer collection system to connect parcels to existing conveyance systems via extended interceptors in the Town of Islip, within the southwestern portion of the hamlet of Oakdale. The FEMA funded project is part of the Suffolk County Coastal Resiliency Initiative. The information requested is for NEPA/SEQRA review.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.732689449999995,-73.1508564789803,14z>



Counties: Suffolk County, New York

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Roseate Tern <i>Sterna dougallii dougallii</i> Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Flowering Plants

NAME	STATUS
Sandplain Gerardia <i>Agalinis acuta</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8128	Endangered
Seabeach Amaranth <i>Amaranthus pumilus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8549	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program

625 Broadway, Fifth Floor, Albany, NY 12233-4757

P: (518) 402-8935 | F: (518) 402-8925

www.dec.ny.gov

May 8, 2021

Ron Gautreau
FHI Studio
416 Asylum Street
Hartford, CT 06103

Re: Oakdale Sewer Improvement Project
County: Suffolk Town/City: Islip

Dear Ron Gautreau:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 1 Office, Division of Environmental Permits, at dep.r1@dec.ny.gov.

Sincerely,



Heidi Kraehling
Environmental Review Specialist
New York Natural Heritage Program



The following state-listed animals have been documented
in the vicinity of the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed.

For information about any permit considerations for the project, please contact the Permits staff at the NYSDEC Region 1 Office at dep.r1@dec.ny.gov, 631-444-0365.

The following species has been documented at **two locations within 1/4 mile of** the project site.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	FEDERAL LISTING
Birds			
Bald Eagle Breeding	<i>Haliaeetus leucocephalus</i>	Threatened	14980

The following species have been documented within **1/2 mile** of the project site.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	FEDERAL LISTING
Birds			
Least Tern Breeding	<i>Sternula antillarum</i>	Threatened	4007
Common Tern Breeding	<i>Sterna hirundo</i>	Threatened	3438

The following species has been documented at multiple locations within 1.5 miles of the project site. Individual animals may travel 1.5 miles from documented locations. The main impact of concern is the cutting or removal of potential roost trees.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	FEDERAL LISTING
Mammals			
Northern Long-eared Bat Non-winter location -- acoustic detector	<i>Myotis septentrionalis</i>	Threatened	Threatened 15067

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.



The following rare plants, rare animals, and significant natural communities have been documented at the project site, or in its vicinity.

We recommend that potential impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following animals, while not listed by New York State as Endangered or Threatened, are rare in New York and are of conservation concern. They have been documented just north of the project site in the Connetquot River.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	HERITAGE CONSERVATION STATUS
Fish			
Inland Silverside	<i>Menidia beryllina</i>	Unlisted	Imperiled in NYS
Connetquot River Oakdale, 2010-08-26.			15313
Atlantic Silverside	<i>Menidia menidia</i>	Unlisted	Imperiled in NYS
Connetquot River Oakdale, 2010-08-26.			15578
Eastern Pirate Perch	<i>Aphredoderus sayanus sayanus</i>	Unlisted	Critically Imperiled in NYS
Connetquot River and Tributaries -- Rattlesnake Brook, 2010-08-26.			15623

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage’s Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA’s Plants Database at <http://plants.usda.gov/index.html> (for plants).