

APPENDIX A

PROJECT DESCRIPTION

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Introduction

The New York City Department of Environmental Protection (NYCDEP) is proposing the Gowanus Facilities Upgrade, referred to as the “proposed action” throughout this Environmental Assessment Statement (EAS), to improve the capacity, function, efficiency, and reliability of the Gowanus Canal flushing tunnel system and wastewater pumping station with the aim of improving the water quality in the Gowanus Canal over the long term. The proposed construction period is expected to be approximately 4 years.

The Gowanus Facilities property (0.69 acres) is located at 201 Douglass Street, south of Butler Street and northwest of the head of the Gowanus Canal in Brooklyn, New York (see Figure 10: Vicinity Aerial Map of Existing Facilities and Infrastructure, Figure 11: Aerial Location Map of Proposed Work Locations, and Figure 12: Aerial Location Map of the Gowanus Facilities Site in Appendix C). The Gowanus Canal was constructed in the early 1860’s as a means of improving industrial commerce in southwest Brooklyn. The Gowanus Facilities were constructed over the last century to improve the water quality in the Gowanus Canal. The Gowanus Facilities buildings associated with the proposed action are the flushing tunnel system building, the service building, the wastewater pumping station building, and the gate house.

To address water quality problems, the Gowanus Canal flushing tunnel system was originally constructed in the early 1900s to provide flushing of the Canal by withdrawing water from the head of the Canal, conveying it through a 1.15-mile tunnel, and discharging at Buttermilk Channel. Currently, the Gowanus Canal flushing tunnel system carries water from Buttermilk Channel to the head of the Gowanus Canal. The Gowanus Canal flushing tunnel system building is currently eligible for listing on national and state registers of historic places and New York City Landmarks. The proposed action for the Gowanus Canal flushing tunnel system incorporates significant modifications to increase the peak flow and the average daily flow of the existing system, and includes the construction of a reinforced concrete intake chamber and discharge channel; installation of three submersible, vertical, axial flow pumps; installation of a hoisting system and associated electrical and heating, ventilation and air conditioning (HVAC) work; reconstruction of the existing static bar screen at the Buttermilk Channel inlet structure; and installation of a new static bar screen within the portion of the Gowanus Canal flushing tunnel beneath the Butler Street site. In addition, the proposed action would include the installation of a temporary interim canal centralized oxygen transfer system (OTS) to help maintain acceptable dissolved oxygen (DO) levels in the Gowanus Canal during the construction period for the proposed action.

The Gowanus wastewater pumping station was constructed in 1947 to further improve the water quality in the Gowanus Canal by eliminating dry weather sanitary sewage discharges. The Gowanus wastewater pumping station pumps wastewater through a force main to the Bond-Lorraine Sewer, which begins at Butler street and conveys the flow to the Red Hook Water Pollution Control Plant (WPCP) for treatment (see Figure 10: Vicinity Aerial Map of Existing Facilities and Infrastructure in Appendix C for the direction of wastewater flow). The Gowanus wastewater pumping station is housed within the Gowanus Facilities wastewater pumping station

building. The proposed action of the Gowanus wastewater pumping station includes mechanical upgrades to increase the flow capacity of the station and upgrades and enclosure of the influent chamber. In addition, the Gowanus wastewater pumping station building and the service building would be replaced by the proposed combined Gowanus Facilities service building/wastewater pumping station building and include the removal and replacement of all mechanical, electrical and HVAC equipment. The proposed action also includes the installation of a combined sewer overflow (CSO) screening system, the replacement of the wastewater force main and the construction and operation of an interim Gowanus wastewater pumping system and force main to maintain wastewater flow throughout the duration of construction.

While the majority of the proposed action would take place within the boundaries of the Gowanus Facilities property between Butler and Douglass Streets, off-site work associated with the proposed action would be required adjacent to Butler Street, at the intersection of Tompkins Place and Degraw Street, and at the property adjacent to and at the intersection of Degraw and Columbia Streets (including a portion of the Port Authority of New York and New Jersey property and at the Buttermilk Channel bulkhead).

Purpose and Need

The proposed upgrade of the Gowanus Canal flushing tunnel system and wastewater pumping station are both vitally important in the effort to improve the water quality in the Gowanus Canal over the long term. Currently, the Gowanus Canal is listed as impaired on the New York State Department of Environmental Conservation (NYSDEC) 303(d) list for Dissolved Oxygen/DO Demand as a result of CSO/stormwater/urban runoff. CSOs have resulted in low DO concentrations, exposed CSO sediments, odors, visible floatables, oils/grease, discoloration and elevated bacteria levels in the Gowanus Canal. The proposed action would reduce the frequency and intensity of CSOs to the Gowanus Canal by 34%, increase the reliability of the flushing tunnel pumping system, preserve DO levels at NYSDEC standards, reduce the frequency of nuisance odors, reduce the amount of floatables and reduce the rate of sedimentation in the Gowanus Canal.

Under the Clean Water Act, NYSDEC and NYCDEP have entered into an agreement that requires NYCDEP to prepare a CSO Long-Term Control Plan (LTCP) to attain the highest reasonable water quality standards for New York City's harbors. These waterbody/watershed assessment plans are to be consistent with State-designated uses and water quality standards. The NYSDEC surface water classification for the Gowanus Canal is "SD," which has a DO Standard of 3.0 mg/l. SD classification is given to waters that, because of natural or man-made conditions, cannot meet the requirements for primary and secondary contact recreation and fish propagation. NYCDEP is preparing 18 specific LTCPs, tailored to the individual conditions of each specified waterbody, prior to the development of a citywide LTCP to be submitted to NYSDEC in 2017. The LTCP specific to the Gowanus Canal will include the proposed action, scheduled to commence construction in July 2009 and be completed by March 2013, as well as additional recommendations which are expected to be completed by September 2014. The proposed action, along with the expected recommendations of the LTCP, is expected to continue to improve and maintain water quality in New York City's harbors through the elimination of odors, reduction of floatables and improvement of DO levels.

Periodic shutdowns of the Gowanus Canal flushing tunnel system have been required to repair failures resulting from corrosion of the submerged components or other issues and have caused DO levels to drop sharply and quickly after the shutdown. This has led to short-term recurrences of water quality problems, odors and ecological effects in the Gowanus Canal. The persistence of these failures, along with the lack of redundancy in the Gowanus Canal flushing tunnel system, necessitates a complete upgrade of the Gowanus Canal flushing tunnel system to improve and maintain water quality and the ecology in the Gowanus Canal.

In addition, the existing Gowanus wastewater pumping station would be reconstructed to reduce the number and volume of combined sewer overflows into the Gowanus Canal from the Bond-Lorraine Sewer. The equipment installed during the mid-1980's upgrade has been in service for more than 20 years and is approaching the end of its useful life. Therefore, an upgrade of the Gowanus wastewater pumping station to increase the system capacity and discharge location, and the installation of a CSO screening system to reduce the discharge of solids and floatables to the Gowanus Canal during CSO events, are warranted.

Existing Conditions

Gowanus Canal Flushing Tunnel System

To remedy the pollution of unregulated discharges, the Gowanus Canal flushing tunnel system was constructed in 1911 to simulate tidal activity by transporting polluted water from the head of the Gowanus Canal to Buttermilk Channel, the body of water between Governors Island in the East River and the Red Hook waterfront in Western Brooklyn, and pump fresh water from the Channel back into the Canal. The Gowanus Canal flushing tunnel system incorporated a propeller pump designed to pump water from the head of the Gowanus Canal at 325 mgd through a 6,070 linear-foot, 12-foot diameter brick tunnel (see Figure 10: Vicinity Aerial Map of Existing Facilities and Infrastructure in Appendix C for the direction of water flow). The Gowanus Canal flushing tunnel system eventually failed in the late 1960s and was abandoned.

In 1999, the Gowanus Canal flushing tunnel system was rehabilitated to pump at a designed flow of 300 mgd from Buttermilk Channel to the Gowanus Canal through the existing Gowanus Canal flushing tunnel. The rehabilitated Gowanus Canal flushing tunnel system dramatically improved the water quality and reduced odors in the Gowanus Canal. However, flow studies revealed that the actual flow rates are 195 mgd at high tide and 154 mgd average daily flow, which are considerably less than the design flow of 300 mgd.

The existing Gowanus Canal flushing tunnel system is located within the flushing tunnel system building and consists of the motor pit with the electric motor drive for the propeller wheel and connection with the Gowanus Canal flushing tunnel. The sluice gates for isolating the propeller wheel and associated equipment are located in the Gowanus Canal flushing tunnel system building gate chamber and in the gate house gate chamber. Dewatering of the Gowanus Canal flushing tunnel system section between the sluice gates is achieved by the centrifugal pump located within the drainage well when both sluice gates are closed. The shaft drive from the motor pit to the propeller is sealed within the interconnecting shaft tunnel. The electrical

equipment and variable speed drives are located above the motor pit on the entry level floor of the Gowanus Canal flushing tunnel system building.

Within the Gowanus Facilities site, the Gowanus Canal flushing tunnel exists below the service building, the flushing tunnel system building and the gate house, and exits the site from the gate house to the head of the Gowanus Canal.

Gowanus Wastewater Pumping Station

In the mid 1980s, the Gowanus wastewater pumping station was upgraded with new submersible pumps and a new wastewater force main that was placed within the Gowanus Canal flushing tunnel system. The 30-inch diameter wastewater force main exits the Gowanus wastewater pumping station on its southeast side, runs through the meter vault, located on the westerly side of the pumping station, and then splits into two separate wastewater force mains (i.e., the primary and secondary force mains). The primary wastewater force main is installed within the Gowanus Canal flushing tunnel and discharges into the Columbia Street Interceptor, which is part of the Red Hook WPCP collection system. The secondary wastewater force main was installed within Butler Street during the construction of the original Gowanus wastewater pumping station in 1947, discharges into the Bond-Lorraine Sewer at the intersection of Bond Street and Butler Street, and is also part of the Red Hood WPCP collection system.

After several failures of the primary wastewater force main, it was abandoned in favor of the secondary wastewater force main (see Figure 10: Vicinity Aerial Map of Existing Facilities and Infrastructure in Appendix C for the direction of wastewater flow). The combined sewage overflow (CSO) from the Bond-Lorraine Sewer is designed to be directed to the Gowanus Canal in wet weather conditions, and as such, the flow from the wastewater pumping station results in additional CSO discharges to the Gowanus Canal.

The submersible pumps in the Gowanus wastewater pumping station were eventually replaced to accommodate the change in discharge conditions. The estimated capacity of the existing Gowanus wastewater pumping station is 28 mgd based on the current installed pumps and hydraulic conditions.

Proposed Action

The proposed action would include the rehabilitation/upgrade of the existing Gowanus Canal flushing tunnel system, wastewater pumping station, and replacement of the existing service building. Other aspects of the proposed action include the replacement of the existing wastewater force main within the Gowanus Canal flushing tunnel system, and installation of a CSO screening system and installation of the aforementioned interim canal centralized OTS and interim Gowanus wastewater pumping system and force main.

Virtually all rehabilitation, reconstruction, and upgrade work associated with the Gowanus Canal flushing tunnel system, wastewater pumping station, and the service building would take place within the boundaries of the Gowanus Facilities property between Butler and Douglass Streets. Major elements of the proposed action and reconstruction work at the Gowanus Facilities are

summarized below. Additionally, off-site excavation work associated with the proposed wastewater force main installation would be required at the following locations: north of the Gowanus Facilities adjacent to Butler Street for the interim Gowanus wastewater force main, the intersection of Tompkins Place and Degraw Street for Gowanus Canal flushing tunnel system access, and within City-owned and Port Authority leased property adjacent to the intersection of Degraw and Columbia Streets for the installation of the Gowanus wastewater force main, cleanout chamber and discharge chamber (see Figure 13: Tompkins Place and Degraw Street Work Site, and Figure 14: Degraw and Columbia Streets Work Site in Appendix C).

A more detailed description of the work to complete each part of the proposed action follows.

Gowanus Canal Flushing Tunnel System Elements

The proposed action is currently designed to increase the peak flow of the Gowanus Canal flushing tunnel system to 252 mgd at high tide and the average daily flows to 215 mgd from the estimated current flow of 195 mgd at high tide and 154 mgd average daily flows. The proposed action would not affect the existing direction of the water flow through the Gowanus Canal flushing tunnel system (see Figure 10: Vicinity Aerial Map of Existing Facilities and Infrastructure in Appendix C for the existing direction of water flow).

The existing Gowanus Canal flushing tunnel system would be replaced with a redesigned system incorporating significant modifications to the existing Gowanus Canal flushing tunnel system and motor pit within the Gowanus Canal flushing tunnel system building. The proposed Gowanus Canal flushing tunnel system would require the construction of a reinforced concrete intake chamber connecting the tunnel to the existing motor pit, which would be structurally upgraded for use as the pump pit. Three submersible, vertical, variable speed, axial flow pumps would be installed within concrete tubes in the pump pit and would discharge to a 12-foot wide reinforced concrete discharge channel that would return the flow to the Gowanus Canal flushing tunnel. A hoisting system would be installed to facilitate pump removal and installation during periodic maintenance or pump replacement or repair.

Electrical work would include the installation of three variable frequency drives and a pump control panel. HVAC work would include the installation of a heating and ventilation system for the pump room. Plumbing work would include the addition of two bathrooms within the pump room. The roof of the Gowanus Canal flushing tunnel system building (on the south side) would be washed with fluorescent uplighting located behind the cornice.

Gowanus Wastewater Pumping Station Elements

The Gowanus wastewater pumping station elements upgrades would include the replacement of the existing failed wastewater force main located within the Gowanus Canal flushing tunnel and upgrades to the pumping station building at the Butler Street site. The purpose of the new wastewater force main would be to convey combined sewage from the Gowanus wastewater pumping station to the existing 78-inch diameter interceptor located adjacent to the Columbia and Degraw Streets intersection and to eliminate existing wastewater flows from the pumping station to the Bond-Lorraine Sewer (see Figure 11: Aerial Location Map of Proposed Work

Locations in Appendix C for the location of the force main). It would consist of approximately 4,950 linear feet of 33-inch diameter, fiberglass-reinforced polyester pipe. This new wastewater force main, combined with the new Gowanus wastewater pumping station, would increase the design flow of the system from 22 mgd to 30 mgd.

The Gowanus Canal flushing tunnel provides an unobstructed path for the installation of the proposed 33-inch diameter force main pipe. Due to the structural considerations of the existing solid brick Gowanus Canal flushing tunnel, the proposed continuous reinforced concrete encasement for the 33-inch diameter wastewater force main is designed to restrain the pipe and eliminate any pipe buoyancy condition without relying on the flushing tunnel structure.

The wastewater force main would exit the Gowanus Canal flushing tunnel approximately 100 linear feet east of the Columbia Street Interceptor to prevent any hydraulic restriction at the intersection of the Gowanus Canal flushing tunnel and the Columbia Street Interceptor. The final 500± linear foot section of the wastewater force main would be outside of the Gowanus Canal flushing tunnel, installed via a combination of trenchless and open cut methods and ultimately discharges to an existing 78-inch interceptor manhole located on Port Authority of New York and New Jersey property. The 78-inch interceptor conveys flow to the Red Hook WPCP.

The proposed upgrade of the Gowanus wastewater pumping station building would include the removal and replacement of all mechanical, electrical and heating, ventilation and air conditioning (HVAC) equipment. In order to accommodate all equipment proposed as a result of the increased capacity of the Gowanus wastewater pumping station, the electrical distribution scheme would involve the installation of Con Edison transformers/network protectors. A standby emergency generator would be installed in the reconstructed Gowanus Facilities service building to provide backup in the event of power failures. Structural and architectural upgrades of the influent chamber and the superstructure would enclose the influent chamber. Mechanical upgrades of the Gowanus wastewater pumping station would include the installation of three grinders, four variable speed submersible pumps, a hoist system, and new valves and piping.

Other Elements of the Proposed Action

Interim Canal Centralized Oxygen Transfer System

During the construction phase of the proposed action, it would be necessary to temporarily shut down the existing Gowanus Canal flushing tunnel system, which would temporarily stop the flushing of the head of the Gowanus Canal with water from Buttermilk Channel. In order to maintain DO within the Gowanus Canal at levels high enough to both sustain aquatic life and mitigate the generation and release of odors, the interim canal centralized oxygen transfer system (OTS) would be installed and operational during the flushing tunnel system shutdown. The interim canal centralized OTS would be comprised of two self-priming pumps; intake systems; stainless steel oxygenation cone; oxygen generating system; and discharge piping. The interim canal centralized OTS equipment would be located at New York City Department of Transportation (NYCDOT) owned property at the east end of Douglass Street, adjacent to both the Gowanus Canal and the Gowanus Facilities property.

While in operation, the interim canal centralized OTS would continuously intake water from the Gowanus Canal at a rate of approximately 6,750 gpm and mix it with pure oxygen, which would be generated on-site within the stainless steel oxygenation cone located adjacent to the Gowanus Facilities property at the end of Douglass Street. The intake manifold would be located in the area of the existing Gowanus Canal flushing tunnel system discharge, where the depth of the Canal is greater than 10-feet, allowing for adequate submergence of the intake manifold under all tidal conditions. The highly oxygenated discharge flow from the oxygenation cone, having a DO concentration of 30 to 60 mg/l, would be transported down the Gowanus Canal for approximately 2,500 linear feet along a distribution pipe and discharged to mix with the water at 50-foot intervals. To maintain a minimum DO concentration of 3.0 mg/l in the Gowanus Canal, the proposed interim canal centralized OTS would be designed to provide oxygen to the Gowanus Canal at a rate based on the estimated oxygen supply requirement of 3,250 lbs/day. While operating the proposed interim canal centralized OTS, DO level is expected to be maintained between 1 mg/l and 3 mg/l in the Gowanus Canal. Figure 17: Centralized Oxygenation Transfer System Location Plan in Appendix C presents the proposed extent of the distribution pipe adjacent to the east bulkhead of the Gowanus Canal.

Interim Wastewater Pumping Station

During construction, an interim Gowanus wastewater pumping system would be constructed on-site and an interim Gowanus wastewater force main would be constructed within Butler Street to provide for maintenance of flow during construction at a design flow of 22 mgd, which is equivalent to the current design flow. Construction related to the interim Gowanus wastewater pumping system would involve pipe excavation work within the Butler Street right-of-way, beyond the north property line of the Gowanus Facilities. The proposed piping would be for connecting the interim Gowanus wastewater force main and the proposed permanent wastewater pumping station to the existing wastewater force main located within Butler Street. An interim emergency generator would be installed to provide intermittent power to the interim wastewater pumping station but would not remain after construction of the proposed action is completed. The interim Gowanus wastewater force main buried piping would remain for later use by NYCDEP to maintain service during repair or maintenance of the new force main.

Gowanus Facilities Service Building/Wastewater Pumping Station Building

The existing Gowanus wastewater pumping station building would be replaced by the proposed combined Gowanus Facilities service building/wastewater pumping station building. The existing Gowanus Facilities service building, currently houses the incoming electrical service, crew quarters facilities and garages. The proposed Gowanus Facilities service building would be designed and constructed on the existing foundation system and constructed to be integrated with the proposed Gowanus wastewater pumping station building. The proposed Gowanus Facilities service building would be designed to house the new incoming electrical service, including the network protection equipment required by Con Edison, as well as the standby generator, pump drives, motor control centers and miscellaneous electrical equipment. A consistent architectural design would be present throughout.

Although the current Gowanus Facilities service building contains crew quarters, the Gowanus wastewater pumping station is no longer permanently staffed. Upon completion of the construction for the proposed action, and similar to other wastewater pumping stations in New York City, there would not be a permanent staff presence at the Gowanus wastewater pumping station, and therefore, no crew quarters. The Bureau of Wastewater Treatment (BWT) would dispatch field personnel to the Gowanus Facilities to complete regularly scheduled visits and evaluate equipment operations as follows:

- Site visits to check operation of the Gowanus wastewater pumping station. Major components would include submersible pumping units, control and blocking valves, level controls, grinders, surge valve, lighting and electrical and HVAC equipment.
- Site visits to check operation of the Gowanus Canal flushing tunnel system. Major components would include the axial flow pumping units, level controls, corrosion protection system, lighting and electrical and HVAC equipment.
- Periodic site visits to test standby generator system and check product delivery monitoring equipment for subsurface fuel tank.
- Site visits to check operation of the CSO equipment. Major components would include the tipping bucket, tide gates, bending weir assemblies and horizontal mechanical screens.
- Site visits to check operations within the Gowanus Canal service building, which houses major electrical and HVAC equipment.
- Site visits to maintain landscaping, perform general cleaning, snow removal and general maintenance.
- The Supervisory Control and Data Acquisition (SCADA) system would alert BWT personnel to emergencies at the Gowanus Facilities at the Butler Street site.

Lighting

Exterior lighting improvements (illustrated in Figure 15: Proposed Lighting Upgrade for the Gowanus Facilities in Appendix C) within the Gowanus Facilities boundaries and along the exterior façade on Butler Street is required to enhance security. The Gowanus Facilities service building would be lit by shielded, low wattage floodlights mounted on the perimeter fence, on other Gowanus Facilities buildings and on an existing cobra-head light pole, all aiming within the property lines to minimize light trespass offsite. The existing bollards and light poles within the site (if it is determined that they are in serviceable condition) would be retrofitted with energy-efficient long-life lamp sources. The flagpoles would be lit by direct burial metal halide in-ground uplights. For visual representation of the proposed action compared to existing conditions, please refer to Figure 16: Existing Gowanus Facilities and Proposed Post-Upgrade Rendering in Appendix C.

Bar Screen System

To address floatables control during CSO events, the existing tide gate chamber below the CSO chamber area would be upgraded by installing a horizontal raked bar screen system with automatic screenings, raking and grinding within the Gowanus Facilities service building. The bar screen system would span the existing dry weather flow influent channel and remove floatables and solids greater than 10 mm from CSOs to the Gowanus Canal up to 200 mgd, retaining them within the Gowanus wastewater pumping station influent flow for ultimate transport to the Red Hook WPCP. As part of the CSO screening system, a flow diversion chamber and a system of mechanical overflow weir would be installed.

Construction Schedule

The overall construction of the proposed action would take approximately 3 years and 9 months. The entire duration of construction for the proposed action would be expected to start approximately in July 2009 and end in March 2013. Construction activities would be of shorter duration at Degraw and Columbia Streets and Tompkins Place and Degraw Street sites (see Figure 11: Aerial Location Map of Proposed Work Locations for the locations of the three work sites). Contractor mobilization would occur during the first 2.5 months. Appendix D provides the summary and detailed graphical representation of the approximate expected dates for the proposed construction activities.

A more detailed description of the construction schedule for the proposed action elements at each of the three work sites is provided below.

Butler Street Site

The construction of the proposed action at the Butler Street site would take the entire 3 years and 9 months of the overall construction period, which includes design services and contractor mobilization through the start up and acceptance period of all the proposed elements.

The installation of the interim canal centralized OTS is expected to begin in November 2009 and be completed in mid-April 2010. The interim canal centralized OTS would then be operational in mid-April 2010 for 26 months to coincide with the 25 month deactivation and upgrade of the Gowanus Canal flushing tunnel system, which is expected to be complete in May 2012. The stop log chamber would be rehabilitated during February through June 2010. The Gowanus Canal flushing tunnel system would be isolated and dewatered from April through June 2010. The Gowanus Canal flushing tunnel system would be scheduled for reactivation in May 2012.

Construction of the interim Gowanus wastewater pumping system and force main is proposed to begin in September 2009 and continue through June 2010 at and adjacent to the Butler Street site. The reconstruction of the Gowanus wastewater pumping station would occur from June 2010 through February 2012, during which the interim wastewater force main would be operational. The construction of the CSO screening system would occur from September 2011 through September 2012.

June 2010 through February 2012 is proposed for the reconstruction and commissioning of the Gowanus Facilities service building. Site improvements would be scheduled for June 2012 through November 2012.

Tompkins Place and Degraw Street Site

The construction of the proposed action at the Tompkins Place and Degraw Street site would take approximately 2 years and 2 months beginning in April 2010, which includes the expected duration of lane or partial street closures. The intersection of Tompkins Place and Degraw Street will provide access to the Gowanus Canal flushing tunnel for the construction of the wastewater force main.

Degraw and Columbia Streets Site

The construction of the proposed action at the Degraw and Columbia Streets site would take approximately 2 years and 4 months beginning in February 2010, which includes the expected duration of lane or partial street closures. The Gowanus Canal flushing tunnel system exit chamber in Degraw Street near the intersection with Columbia Street would be under subsurface construction for 9 months starting in February 2010. November 2010 through May 2012 would be scheduled for the subsurface installation of the 33-inch diameter wastewater force main within the Gowanus Canal flushing tunnel. The subsurface installation of the 33-inch wastewater force main outside of the Gowanus Canal flushing tunnel, the construction of the clean out and dissipation chambers, microtunneling, and the construction of the gravity sewer would be scheduled to begin in May 2010 and continue through February 2011.

Required Permits and Approvals

The following is a list of federal, state and City permits, approvals, and certifications required as part of the proposed action.

Agency/ Authority	Permit/Approval/Review	Regulated Activity
USACE	Section 10 - Dredge & Fill	Construction in the Waters of the U.S. (anchoring for interim canal centralized OTS distribution pipe)
USACE	Nationwide Permit 5 - Scientific Measurement Devices	Use of devices to measure and record scientific data
USACE	Nationwide Permit 33 - Temporary Construction, Access and Dewatering	Construction of temporary structures, work and discharges construction activities
USCG	Review of USACE submittal for potential impacts on navigable waters	Approval of potential markers for objects in navigable waters
NYSDEC	Part 608 - Protection of Waters	Excavation/fill (interim canal centralized OTS anchors) in waters of the State
NYSDEC	Part 661 - Tidal Wetlands	Construction in Tidal Wetlands Littoral Zone (LZ)
NYSDEC	Long Island Well/Dewatering Permit	Construction in Tidal Wetlands Littoral Zone (LZ)

Agency/ Authority	Permit/Approval/Review	Regulated Activity
NYSDEC	Part 401 - Water Quality Certification	Discharge into water body
NYSDOH	Backflow Prevention Device Approval	Connection to public water supply system
NYSDOS	Federal Coastal Consistency Certification	Construction in Coastal Management Zone
NYSOPRHP	State Historic Preservation Act Cultural Resources Consultation	Eligibility for listing under New York State or National Registers of Historic Places
FDNY	Petroleum Fuel Equipment Approval	Installation of underground tanks, underground spill containment devices, leak detection devices.
FDNY	Fire Alarm Inspection Letter of Approval	Installation of fire alarm system
FDNY	Compressed Gases	Storage of compressed gases for interim canal centralized OTS
NYCAC	Art Commission Approval	Architectural Design Approval
NYCBSA	Welding Permit	Welding, flame cutting and/or soldering processes
NYCDEP	Dewatering Permit	Temporary discharge of groundwater into public sewers
NYCDEP	Permit to Install Catch Basin and Basin Connection	Installation of a catch basin and connection to sewer
NYCDEP	Permit to Install Manhole	Installation of manhole
NYCDEP	Trailer Connection Permit	Construction trailer connection to public sewers
NYCDEP	Approval of Backflow Prevention Devices (Form GEN 236)	Connection to water main
NYCDEP	Hydrant Permit	Use of a hydrant
NYCDEP	Permit for Tap, Plug, Wet Connection, Repair/Relay of Water Service Line	Repair and relay and/or wet connection to water service line
NYCDEP	Asbestos Inspection Report Asbestos Project Notification (Form ACP7)	Demolition of premises containing ACM
NYCDEP	Air Pollution Control Operation Certificate	Use of fuel burning equipment
NYCDEP	Fuel Oil Burning Notice of Application/Plans Approval and Certificate of Operations	Installation of new oil-burning equipment
NYCDOB	Electrical Permit (Form ED-16A)	Electrical work
NYCDOB	Crane/Derrick/Mobile Work Platform Approval and Operation Application/Certificate (Form CD-2 or Form CD-3)	Use of construction equipment (cranes, derrick, mast climber, multi-point suspension and multi-platform scaffold and angular scaffold) regulated by NYCDOB
NYCDOB / NYCSBS	Equipment Use Permit	Use or operation of air-conditioning, ventilating systems, fuel-burning, fuel-oil storage equipment, refrigeration systems, heating systems
NYCDOT	Construction Activity Permit	Placement of material, equipment, temporary pedestrian walks; temporary closing street or sidewalk
NYCDOT	Sidewalk Construction Permit	Repair of sidewalk

Agency/ Authority	Permit/Approval/Review	Regulated Activity
NYCDOT	Sidewalk, Curb and Roadway Permit	Repair of sidewalk, curb and roadway in front of New York City property
NYCDOT	Street Opening Permit	Installation of water, sewer, curbs, manholes, test pits, conduits and pavement
NYCDOT	Revocable Consent	Installation of structures on, under New York City-owned streets or sidewalks
NYCDPR	Tree Work Permit	Activities on or in proximity to a New York City street trees
NYCDPR	Tree Planting Permit	Planting of trees
NYCLPC	Landmarks Commission Permit	Activities on a designated landmark or on a property in a designated historic district
NYCSBS	Work Notice/Permit	Construction and alteration of waterfront properties
NYCSBS	Affidavit for Certificate of Completion	Construction or alteration of new or existing buildings on waterfront properties
NYCSBS	Certificate of Completed Inspections	Alteration on waterfront properties