

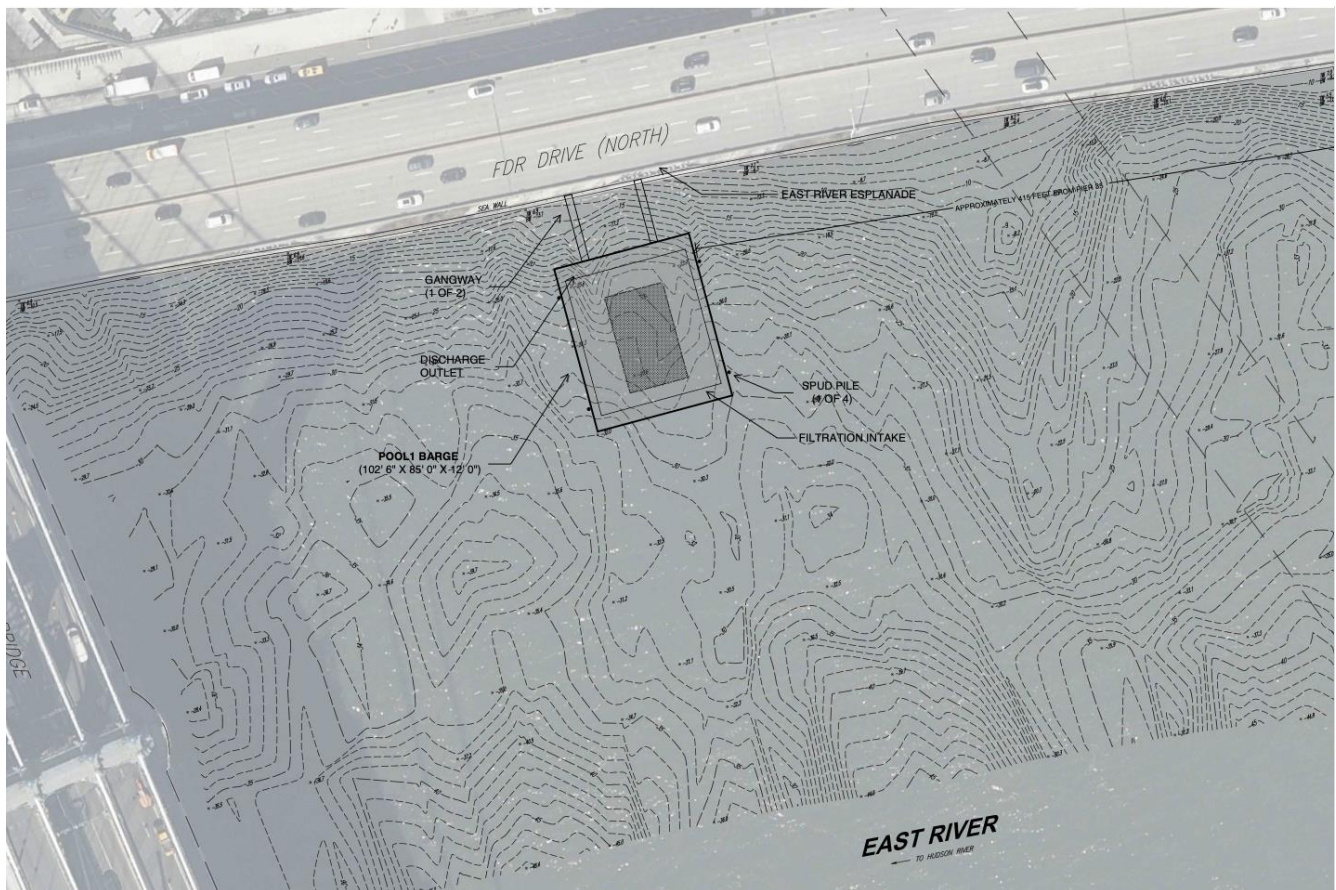
+Pool

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Phase 2A: Waterbody Feasibility Assessment

Reference: 308854-00

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1. Introduction

The “POOL1” project seeks to install a temporary floating steel barge between the Manhattan Bridge and Pier 35 along the East River Esplanade of Manhattan which would contain an area of swimmable water and a scaled filtration system embedded in the structure’s hull. The facility has been submitted for approval to the New York City Department of Health and Mental Hygiene (NYCDOHMH) to undergo phased construction to demonstrate the filtration system at full-scale to meet the city's protocol requirements for an in-water demonstration of the treatment process in Summer 2026. Pending pre-qualification approval, POOL1 will file a Bathing Establishment Permit, with the intention to open as a public swimming facility in Summer 2027.

Phase 2 of the Site Assessment Protocol for Non-Traditional Recreational Water Projects (“the Protocol”) focuses on source water characterization. The Phase 2A Waterbody Feasibility Assessment is a review of existing water quality data and hydrodynamic modeling of the proposed waterbody to broadly screen the pattern and frequency for when the waterbody will meet recreational water quality criteria.

The report aligns with the four core objectives set out in the Phase 2A Waterbody Feasibility Assessment Protocol:

- **Screen the proposed waterbody for feasibility and predictability in meeting recreational water quality criteria under both dry and wet weather conditions.**

The report utilizes extensive historical data (from NYC DEP station E2 over 15 years) and recent site-specific data (2022–2025 IEC monitoring) to characterize water quality. This data confirms that water quality frequently exceeds the stringent regulatory thresholds during wet weather. However, the report establishes feasibility by confirming that the treatment system is designed to handle the maximum observed bacterial concentrations and providing a >4-log reduction in bacteria, which is expected to reduce exceedances to levels well below the swimming/pool criteria.

- **Provide an initial characterization of water quality data.**

Sampling results for chemical contaminants, including Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), pesticides, PCBs, and Dioxins/Furans, yielded almost entirely non-detects. Metals and PFAS were detected at low levels, but the overall analysis suggests they are currently not significant concerns.

- **Research of historic and current site use to identify and characterize the possible presence of physical, chemical, or biological contaminants or substances that may potentially present a public health risk.**

The historical overview identified the primary contamination sources as Combined Sewer Overflows (CSOs), stormwater outfalls, and wastewater treatment plant discharges (Red Hook WPCP) located in proximity to the site. The proximity of these sources confirms that episodic bacteriological degradation is the primary public health consideration. Research into prior environmental impacts identified limited subsurface contamination risks

- **Identify data gaps for known and emerging contaminants of concern, including an independent third-party subject-matter expert (SME) assessment: The project acknowledges that evaluating threshold concentrations for newly detected contaminants (such as PFAS and metals) requires further regulatory review.**

The SME, LimnoTech, has submitted its credentials to perform an independent assessment and evaluate these findings.

The Phase 2A submission requirements, as outlined in the Protocol, are addressed in the following sections of the report:

Table 1 Summary of Phase 2A requirements and status

Phase 2A Submission Requirement	Report Section	Compliance Status
Summary of existing WQ data (most recent 15-year period)	Section 4.8 (Appendices B1 – 2)	Data reviewed, utilizing DEP historical monitoring (E2 proxy data) and extensive recent site-specific data (2022–2025 IEC monitoring).
A map	Section 2.1 (Appendices A1 – 10)	Maps provided showing site location, bathymetry, sampling points, and pollution sources (CSOs/WWTPs) within 10,000 ft.
Raw data in spreadsheet format (parameter, concentration, analytical method)	Appendices B1– B28, C5 - 6	Raw data submitted in spreadsheet format covering biological (Enterococcus, FC) and initial chemical sampling data (Eurofins reports listed in Appendix B).
Trend analysis between FIB concentrations and rainfall intensity and duration	Section 5	Analysis provided using 2024 and 2025 site data, detailing the direct correlation between precipitation and Enterococcus exceedances of the STV and geometric mean criteria.
Raw data organized by categories (physical, chemical, biological)	Appendices B1– B28, C5 - 6	Raw data, including physical parameters (Turbidity, DO, pH), chemical contaminants (Metals, VOCs, PFAS), and biological indicators (Enterococcus, FC), is submitted by category.
Third-party SME credentials/independent certification	Introduction, Section 8, Appendix C1	SME (LimnoTech) qualifications were provided in C1. Independent certification and memo review of the Phase 2A submission will be issued separately by the SME.

The overall findings support the project’s determination of feasibility, anticipating that although the source water does not consistently meet swimming standards due to wet weather events, the required treatment train is engineered to consistently meet the geometric mean and single sample maximum thresholds using advanced filtration and disinfection.

This report reflects the collaborative contributions of several firms, including Arup, +Pool and IEC.

2. Location

The site is currently vacant, open water, and offshore of the East River Esplanade (northeast waterside of 260 South Street, Manhattan, NY 10002). The POOL1 facility will be accessed from East River Greenway. The site is owned by the New York City Department of Small Business Services (DSBS) in Tax Block 241, Lot 13, and operated by the New York City Economic Development Corporation (NYEDC) on behalf of DSBS. The site is in-water and within Tax Block 241 Lot 10 owned by NYC Department of Small Business Services. The area is located in Manhattan Community District 3 and adjacent to Community District 1.

Water depths in the project vicinity range from 20 to 35 feet. A Bathymetric Survey is provided as an appendix (see Drawing 1). The East River is a tidal estuary and experiences currents, tidal fluctuations and wakes from the high volume of vessel traffic. There is no public access from the East River Esplanade to the river nor is there any commercial use of the waters within the pier line in this area.

The East River Esplanade is currently a public open space amenity, managed by the NYC Department of Parks and Recreation (NYC Parks) and used by the community and its visitors for passive recreation, sport and leisure. The newly developed park called Pier 35 offers an immersive experience of its nautical environment, celebrating the biodiversity of the waterfront city, with striking views of the East River, Lower Manhattan and Brooklyn. Designed by the architectural firm SHoP in collaboration with landscape architects Ken Smith Workshop, the park at Pier 35 is the final piece in the redevelopment of the East River Waterfront Esplanade, a 2-mile-long stretch of gathering space, walkways, bikeways and other amenities.

A NYC Department of Sanitation (DSNY) facility that is currently operational is on Pier 36, adjacent to the east of the newly developed park. The DSNY operations are gated, and the public is safe from those operations. A public open space along the waterside apron of Pier 36 (separate from the DSNY facility) contains a station. The docking station is managed by the NYCEDC and operated by DockNYC.

2.1 Maps

Enclosed, please find a project site maps for the city-identified site.

Table 2 List of Maps Appended

Appendix	Title	Description
A1	Site and Structure Map (Bathymetry)	Site location bathymetry indicating POOL1 structure and ancillary and supporting structures.
A2	Water Quality Sampling Locations Map	Water sampling locations (including Historical Data Harbor Monitor).
A3	New York City Harbor Water Quality Survey Stations 2016	DEP water sampling locations (additional site map indicating location of Harbor Monitor E2).
A4	Adjacent Land Use Map	Map identifying adjacent land use and neighboring sites such as DSNY facility, EDC docking station, and other sites from Phase 1A submission.
A5	EDR Radius Map Report with GeoCheck - Overview	Overview map from EDR report identifying locations of prior environmental impacts including former remediation areas within up to a one-mile radius. Map includes areas that may have runoff impacting water quality such as landfills, commercial or industrial

		drainage, or other facilities and major physical contour, highways, etc., that impact runoff.
A6	EDR Radius Map Report with GeoCheck - Detail	EDR report to identify known and potentially contaminated sites within up to a one-mile radius.
A7	CSO, Stormwater and Other Pollution Point Source Map	CSO and storm water outfalls and wastewater treatment plant discharge points within 10,000 ft of the project area. Inclusive of other potential sources of pollution and wastewater discharge points from the health risk assessment.
A8	EPA Hazardous Cleanup Mapper	Registered EPA Hazardous Cleanup sites within 10,000 FT
A9	POOL1 Navigation Ways Map	Map identifying marine navigation ways that may result in wave impacts to the project area.
A10	POOL1 Nautical Chart	Custom Nautical Chart of the proposed project site from NOAA Geospatial Database

3. Historic and Current Site Use

NYCEDC issued a Request for Expressions of Interest (RFEI)^[1] for an East River Swim Facility (ERSF) and + POOL responded to the call with a proposal for its water-filtering floating swimming pool. The goal of the RFEI was “to be able to provide the public with a swim facility which is capable of filtering the water of the East River to enable safe recreational access to clean water. In doing so, the Project will restore a lapsed tradition of river swimming dating back to the late 1800s of the first floating bathing areas in the East River, and further the City’s goal of improving access to recreational waterfront space.” (RFEI, p. 3) The RFEI identified a “Potential Project Area” (RFEI, p. 4) which included the waters located between Pier 35 and the Manhattan Bridge.

In 2024 the Governor of New York announced, together with the Mayor of New York City, plans to advance water-filtering floating swimming pool concept and fund a pilot facility in a to-be-determined location within New York City. The Mayor’s Office of New York City assessed sites and ultimately determined that the site identified in the 2019 RFEI (the proposed site) was the most suitable site for the project. NYCEDC’s issuance of an RFEI for a self-filtering floating swim facility at the designated location is evidence that the proposed location is the agency’s preferred one and, further, that the project would serve a public purpose.

The following outlines site conditions requested in the Protocol for Permit Modification in order for the agency to deny or accept the project location.

3.1 Historic Site Use

The land adjacent to the project area (Rutgers Slip) was originally inundated by marshland and the East River, and was gradually expanded through landfilling over former marshland and the East River between the late 17th century and the mid-19th century, utilizing wharves, piers, and bulkheads to extend the shoreline out to the modern location of South Street. By 1850, the slip was entirely filled in as far south as South Street. During the 19th century, the newly filled streetbed was lined with residential and commercial structures and the slip and pier were part of New York City's working waterfront, used for shipping and commerce as part of the East River's industrial activities.

In the early 1930s, a subway tunnel was constructed beneath Rutgers Slip by the shield tunneling method which involves the use of a tunnel boring machine that can excavate tunnels many feet below grade without disturbing the soil levels between the tunnel and the ground surface. Because of the shield method, the construction of the subway is not believed to have affected the surface of Rutgers Slip or Rutgers Park. Beginning in the 1950s, the lots adjacent to the Rutgers Slip streetbed were cleared and redeveloped with larger structures.

The South Street Viaduct, the elevated structure of the FDR above South Street that runs past Pier 35 and Rutgers Slip, was completed in 1954.

The land adjacent to Rutgers Slip and Pier 35 is not listed on the EPA National Priorities List (Superfund sites), and there are currently no active brownfield sites on the land immediately adjacent to Rutgers Slip or Pier 35 in Manhattan. This specific stretch of the East River Waterfront Esplanade is classified as completed parkland or active municipal utility space (such as the adjacent Department of Sanitation facility).

3.2 Ownership

The site (northeast waterside of 260 South Street, Manhattan, NY 10002) and the POOL1 facility will be accessed from East River Greenway. The site is owned by the New York City Department of Small Business Services (SBS) in Tax Block 241, Lot 13, and operated by the New York City Economic Development Corporation (NYEDC) on behalf of SBS.

3.3 Property Access

+ POOL is currently in active and ongoing discussion with NYCEDC to secure the access license to the site from for the duration of the POOL1 testing phase (CY 2026). + POOL was provided with an access license for a 2024 Filtration Pilot, and a new access license is in development with NYCEDC for the next phases of the project.

+ POOL has concurrently established an access agreement (“Revocable Use License Agreement”) with NYCEDC to access a small portion of the East River Esplanade between the Manhattan Bridge and Pier 35, near to the proposed POOL1 installation site, in order to install and operate a water quality testing sonde. The period of this active access agreement dates from July 25, 2025, to December 31, 2025.

+ POOL currently has a Consulting Agreement with NYCEDC in place and any questions about the access license in development for the next phase of the project can be directed to Max Taffet at NYCEDC (mtaffet@edc.nyc). Additional information on access for patrons can be provided upon request once this lease has been negotiated.

3.4 Current Site Use

The project area is currently vacant, open water, as shown in Figure 1, offshore of the East River Esplanade located between Pier 35 and Manhattan Bridge on the East River, see Figure 5. Water depths in the project vicinity range from 20 to 35 feet. The East River is a tidal estuary and experiences currents, tidal fluctuations and wakes from the high volume of vessel traffic. Currently, there is no public access to the East River adjacent to the East River Esplanade and no current use of the waters within the pier line in this area.

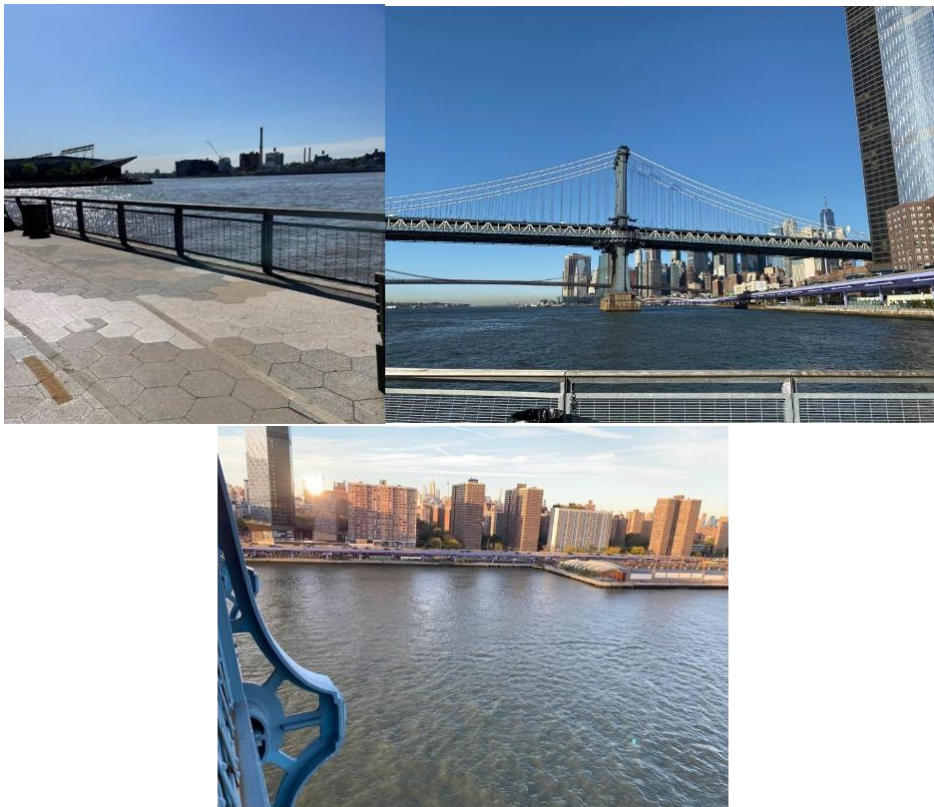


Figure 1 Site Location - Open water

The esplanade between Pier 35 and the Manhattan Bridge is currently a public open space amenity, managed by the NYC Department of Parks and Recreation (NYC Parks) and used by the community and its visitors for passive recreation, sport and leisure. The newly developed park at Pier 35 offers an immersive experience of its

nautical environment, celebrating the biodiversity of the waterfront city, with striking views of the East River, Lower Manhattan and Brooklyn. Designed by the architecture firm SHoP in collaboration with landscape architects Ken Smith Workshop, the park at Pier 35 is the final piece in the redevelopment of the East River Waterfront Esplanade, a 2-mile-long stretch of gathering space, walkways, bikeways and other amenities.

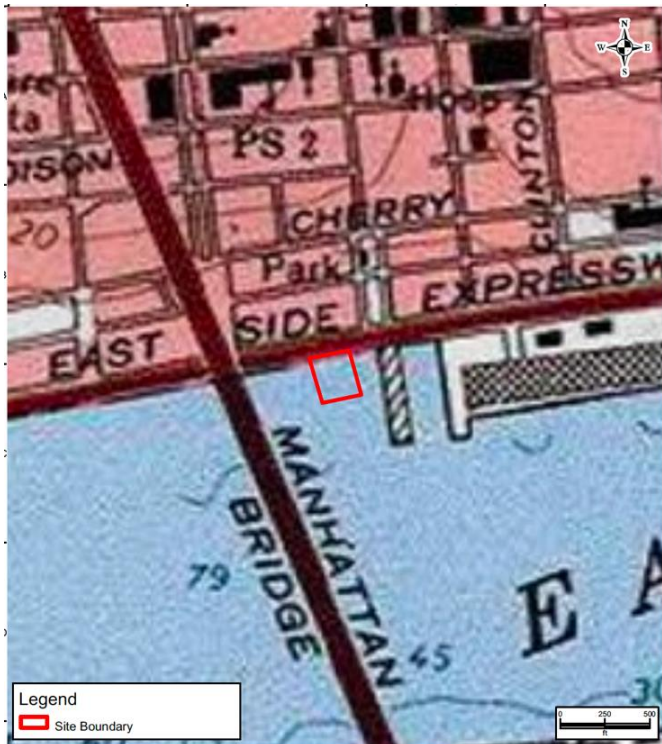


Figure 2 Site Location - Overview map

To the east of the open space, on the pier, is a NYC Department of Sanitation Garage (DSNY), a facility that is currently operational. The DSNY operations are gated, and the public is safe from those operations. The DSNY garage at Pier 36 (Garage M3) is at South Street between Montgomery and Jefferson Streets. The M3 garage is a land-based facility used to house, repair, and maintain the sanitation trucks that collect sanitation waste. There are no marine operations at this DSNY facility, as is not an MTS (Marine Transfer Station), wherein collected waste is consolidated and loaded onto barges or rail containers for transport out of the city.

3.5 Surround Site and Land Uses

South of the open space, along the apron of Pier 35 and behind gates that separate the public open space from the DSNY facility, is the NYC EDC Pier 36 docking station, located at the intersection of South Street and Montgomery Street, off the FDR Drive (40.709467, -73.985238).

Pier 36 can accommodate excursions, mega yachts, tugs and barges, community events, historic and educational boats, as well as transient docking. The docking station is leased by the NYCEDC and operated by DockNYC, a vendor for the EDC site.

In addition to the DSNY facility and the EDC docking station at Pier 36, there are five NYC ferry landings located within an approximate one-mile radius to the proposed site, see Figure 3. They include the Pier 11/Wall St Ferry, DUMBO Ferry, South Williamsburg Ferry, Brooklyn Navy Yard Ferry, Corlears Hook Ferry stations.

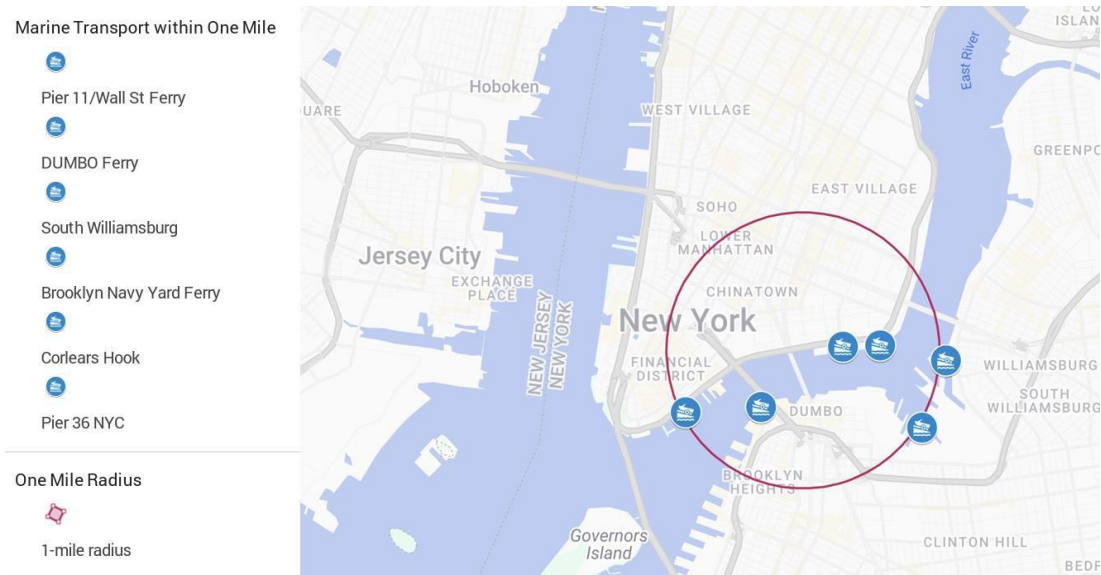


Figure 3 NYC Ferry Landings

The DSNY Manhattan 3 Garage is a NYC sanitation facility that handles the storage and maintenance of the DSNY fleet for that area. The facility currently stores maintenance oils (motor oil, lube oil and used oil) in three above ground tanks (ASTs) under Petroleum Bulk Storage registration # 2-604678. North of the Site on South Street includes mixed commercial and residential buildings, multi-family buildings, commercial and office buildings, and parking facilities. Rutgers Park, an outdoor recreational space, is also situated north of the Site on South Street.

Pier 35, which is located directly adjacent to the proposed Site, has recently undergone a large-scale redevelopment. The redevelopment included construction of a series of outdoor green spaces for recreational activities as well as providing a unique panoramic view of the city. Additionally located on the pier is the “Eco Park.” The “Eco Park” is a man made inter-tidal zone that provides habitat for aquatic species and a tidal landscape to be utilized for educational purposes. Additional landscaped amenities provided on Pier 35 include lawns, dunes and terraced plantings.

All these features have been designed to highlight NYC’s commitment to sustainability. As the Pier 35 redevelopment is now complete and prioritized sustainability and protection of natural resources through use of stormwater management systems, it is not expected that the project has or will have a negative influence on the water quality of the Site.

Figure 4 shows the surrounding land use. Further information can be found in the Sanitary Survey, issued to DOH on March 18, 2025. See section 4.2.2 – Sanitary Survey for additional details.

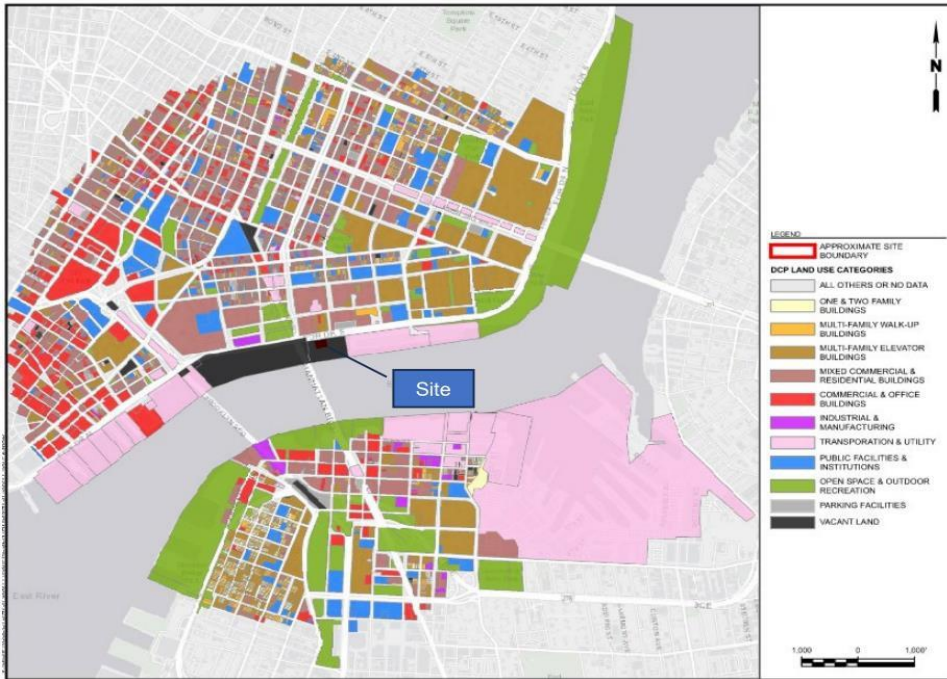


Figure 4 Surrounding Land Use

3.6 Zoning and Building

The project area is in-water and currently not mapped with a zoning district. Waterfront zoning regulations, subject to Article VI, Chapter 2, of the NYC Zoning Resolution, would typically apply to development in waterfront adjacent blocks, upland of the project area.

Per Article VI, Chapter 2, Section 62-11 of the NYC Zoning Resolution, POOL1 should be deemed a "temporary floating structure." This is defined as any water-supported structure, other than a navigational vessel, docked for not more than 180 consecutive days for a purpose other than navigation or accessory to a WD [Water-Dependent] use. Figure 5 shows the site within the context of the NYC Zoning Map.

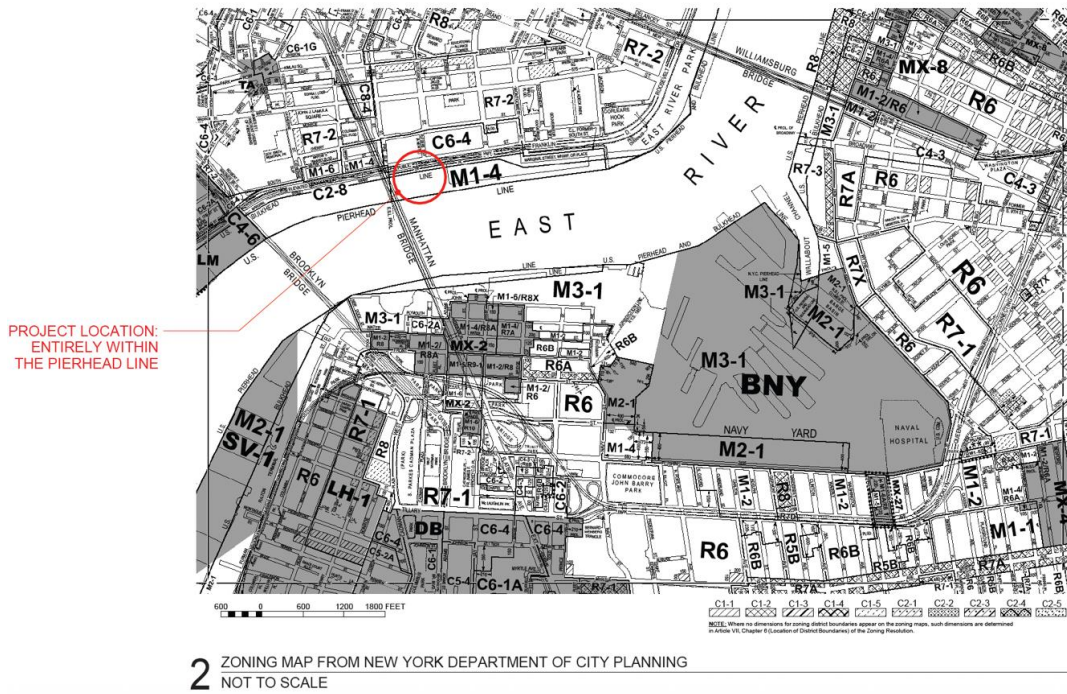


Figure 5 Zoning Map

Nearby zoning uses to the north and east of the project area, include M1-4 (manufacturing), C6-4 (commercial), and R7-2 (residential) districts. The M1-4 district encompasses Pier 36, which includes a DSNY garage, Fire Department of New York (FDNY) EMS Station, and various recreational facilities, as well as Pier 35, the newly developed waterfront public park adjacent to the project area.

The C6-4 district is mapped north of the project area, and includes multiple residential buildings, recreational spaces, and surface parking lots. The R7-2 district is mapped north of the C6-4 district and includes the Henry Rutgers Houses, a New York City Housing Authority (NYCHA) housing. The Brooklyn Waterfront is mostly mapped as Open Space & Outdoor Recreation (see [Figure 6](#)), Mixed Commercial and Residential Buildings at Pier 1 and Industrial and Manufacturing to the north of Pier 1, under Brooklyn Bridge. To the north of the Manhattan Bridge, by the Brooklyn Waterfront and within 1 mile of the site, there is a portion of land mapped as Transportation in Utility.

3.7 Urban Development

3.7.1 Lower Manhattan Coastal Resiliency

The LMCR (Lower Manhattan Coastal Resiliency) is the overarching strategy for a comprehensive flood defense project for Lower Manhattan, encompassing several specific projects, such as the ESCR (East Side Coastal Resiliency) and BMCR (Brooklyn Bridge-Montgomery Coastal Resilience) projects.

The project area is west of the East Side Coastal Resiliency (ESCR) project, which begins on Montgomery Street and FDR Drive, and ends at the Solar One Environmental Education Center on East 25th Street. The ESCR project is divided into two phases. The phase nearest to POOL1 is “Project Area 1 (PA1)”, which is 0.29 miles from POOL1, and which spans from Montgomery Street and FDR Drive to East 15th Street. Construction of PA1 started in 2022 and is still under construction today. Figure 6 shows the boundaries of the LMCR master plan.



Figure 6 LMCR Master Plan, with ESCR and BMCR Project Boundaries (Source: NYCEDC)

The project area is adjacent to the Brooklyn Bridge-Montgomery Coastal Resilience (BMCR) project. The BMCR project is in Manhattan’s Two Bridges neighborhood between Montgomery Street and the Brooklyn Bridge under the FDR Drive. The BMCR project aims to reduce flooding risk (from both sea level rise and storm surge) for thousands of residents, while preserving views and access to the waterfront. NYCEDC completed design in fall 2021 and the New York City Department of Design and Construction (DDC) is now managing the construction of the BMCR project. The BMCR project is anticipated to be completed sometime after October 2026.

The POOL1 project team has been coordinating closely with NYCEDC, NYCDDC and City Hall regarding the construction of any necessary upland utility infrastructure, access, and any interfaces.

3.7.2 The Pier 35/36 Rehabilitation Project

Piers 35 and 36 are currently in the second year of a four year, three phase, rehabilitation project to reinforce and repair structural pilings and substructure of the pier. The Pier 35/36 Rehabilitation Project encompasses a multi-phase initiative designed to revitalize and fortify the structural integrity of the Piers 35 and 36 facilities. There are three distinct phases to this project, beginning with Phase 1 in Spring 2024 and concluding with the final phase by the end of Fiscal Year 2028.

The project is currently in Phase 1, which in addition to priority pile rehabilitation, includes the repair of topside concrete and the clearing of drainage on the parking area, which are vital components of the phase. Priority pile rehabilitation involves encasing steel H-piles and pipe piles with severe condition ratings and replacing partial-length encasements with full-length structural encasements at specific steel H-piles.

The majority of work will be completed above the water line however it is expected that part of the repair work will take place in- water. The in-water work will include installation of watertight forms for structural concrete encasements. All work is and will continue to be performed in accordance with all applicable rules and regulations as well as in accordance with all sediment and erosion controls necessary to protect the adjacent waterway.

Additional water quality influences outside of what has already been experienced are not expected during the remainder of the Pier 36 project.

Phase 2 focuses on substructure rehabilitation at the City Department of Sanitation facility on a portion of the piers, featuring the structural encasement of unprotected H-piles and the rehabilitation of pile caps, beams, and the under deck, alongside the replacement of a damaged timber fender system. Phase 3 centers on the

substructure rehabilitation in the eastern half of the pier's facility, including structural encasement of H-piles and the rehabilitation of pile caps, beams, and the under deck.

4. Environmental Studies, Site History and Historic Water Quality Data

4.1 Prior Environmental Studies

According to NYSDEC's DEC info Locator, the closest remediation parcel is located 0.25 miles west of the project area at 286 Water Street. This property was part of the Voluntary Cleanup Program (VCP) (Site Code V00527) and was a former Con Edison Manufactured Gas Plant (MGP), known as Cedar Street Works. A Site Characterization Workplan was completed by Con Edison for the former MGP in 2009, and a recommendation for no further action was approved by NYSDEC and NYSDOH in 2010.

4.2 Environmental Records Search

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527 - 21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E2247 - 16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E1528 - 22) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate. federal and state environmental database listings were identified within 1 mile of the POOL1 area.

EDR detailed map and summary findings can be found in Appendix D. The entirety of the report consists of 44,465 pages and is not entirely relevant to the Phase 1A submission. Upon request, the POOL1 team can submit the full report as a separate, supplemental appendix.

4.3 Environmental Records Search – Overview

NY UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database. A review of the NY UST list, as provided by EDR, has revealed that there are 246 NY UST sites within approximately 1 mile of the target property.

NY AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database. A review of the NY AST list, as provided by EDR, has revealed that there are 822 NY AST sites within approximately 1 mile of the target property.

Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

A review of the SEMS-ARCHIVE list, as provided by EDR, and dated 06/26/2025 has revealed that there are 16 SEMS-ARCHIVE sites within approximately 1 mile of the target property.

RCRA-SQG: RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. A review of the RCRA-LQG list, as provided by EDR, and dated 06/02/2025 has revealed that there are 61 RCRA-LQG sites within approximately 1 mile of the target property.

Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. A review of the RCRA-SQG list, as provided by EDR, and dated 06/02/2025 has revealed that there are 93 RCRA-SQG sites within approximately 1 mile of the target property.

Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. A review of the RCRA-VSQG list, as provided by EDR, and dated 06/02/2025 has revealed that there are 96 RCRA-VSQG sites within approximately 1 mile of the target property.

A review of the NY DRYCLEANERS list, as provided by EDR, and dated 03/05/2025 has revealed that there are 34 NY DRYCLEANERS sites within approximately 1 mile of the target property. A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there are 125 EDR Historic Cleaner sites within approximately 1 mile of the target property. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

The environmental database listings were reviewed to evaluate if the properties identified in the database report are suspected to represent an environmental concern for the POOL1 site area. No violations related to petroleum bulk storage or RCRA facilities and no releases related to the identified auto repair or dry-cleaning facilities were reported.

With the exception of one spill site, all spill incidents have been remediated to the satisfaction of the New York State Department of Environmental Conservation (NYSDEC) and have been closed. The single active spill listing within 1/8 mile (Spill No. 2101584) was reported on 18 May 2021, when contaminated soil was encountered in a soil boring that was suspected to be residual material from a previously remediated and closed spill (NYSDEC Spill No. 0802596). At the time of this report's submission, the incident record status for Spill No. 2101584 remains "Not Closed".

4.4 Environmental Records Search – Summary

Based on the limited volume of impacts described in the open spill listing, the remediation of other spill incidents to the satisfaction of NYSDEC, and lack of violations for nearby RCRA and petroleum bulk storage facilities, it is unlikely that subsurface contamination in the area poses an environmental concern to the site. If any unreported releases were to have occurred at these listed facilities, the migration pathway to surface water would be via contaminated groundwater entering the East River. The flowing water of the East River would disperse contaminants, making their static accumulation in the vicinity of the site unlikely.

4.5 Prior Water Quality Assessments

As has been reported by the New York City Department of Environmental Protection (DEP), New York's rivers and harbors are the cleanest they've been in years. The average fecal coliform and Enterococcus levels have dramatically decreased over the last three decades, due in large part to the cessation of raw sewage dumping through the full build-out of New York City's Wastewater Resource Recovery Facilities, the elimination of illegal discharges into the water body and the reduction of CSOs. The cleanliness of the East River and its ability to regularly meet a threshold for swimming are detailed in the DEP's most recent New York Harbor Water Quality Report.

+ POOL has been collecting water quality samples analyzed by the Interstate Environmental Commission for the past several summers to collect site-specific water quality data at the location. IEC provides sampling equipment, analytical services, training and QA/QC oversight to monitoring groups that collect and transport samples to IEC's NYSDOH ELAP-certified laboratory in Brooklyn, New York (ELAP ID 10437) for analysis. IEC's staff analyzes the submitted samples for Enterococcus, Fecal Coliform and Turbidity using EPA and NYSDOH ELAP approved methods. In addition, IEC maintains certification through the New Jersey Department of Environmental Protection for the monitored field parameters (NYSDOH ELAP does not offer

certification for field parameters). This effort is supported through IEC’s Clean Water Act §106 assistance agreement through EPA Region 2 and conducted under the EPA approved Quality Assurance Project Plan (QAPP): Interstate Environmental Commission Coordinated Volunteer Water Quality Monitoring Program, v. 5, effective date May 12th, 2023.

Additional water sampling for the beach season 2025 began in June 2025 as per DOH request for water source characterization as existing water quality data, previously collected, is sufficient to continue the design efforts of the water treatment system.

Figure 7 shows the water sampling locations from DEP (location A) and IEC (location B, C and D).



Figure 7 East River Water Sampling Locations

Water sampling for the summer of 2025 started at the beginning of June 2025 and will be taken for the entire beach season of 2025. Sampling locations from 2025 were discussed and agreed with DOH by email and the coordinates are 40.70950 -73.98950, by pier line, and 40.70844 -73.98970, by mid-channel.

4.6 2024 Filtration Pilot

With regard to any additional bench or demonstration-scale testing to support capability and integrity of the structure and filtration system, a filtration pilot testing study (2024+POOL Pilot) was performed at scaled version of the proposed POOL1 filtration system on a barge in the East River at the proposed site for POOL1. Water testing was conducted between August to November 2024, over a period of 92 days.

The pilot study consisted of a fully contained system with the goal of demonstrating how the POOL1 filtration system would perform under similar conditions. The 2024 Filtration Pilot showed the quality of the water abstracted and then treated with a scaled equivalent treatment process compliant with the water standards (i.e., the 30 MPN/100 mL geomean and 60 CFU/100mL single sample maximum criteria for Enterococcus). The treatment process will be demonstrated at full-scale POOL1 in Summer 2026 as per NYCDOHMH’s request.

The results of the 2024 Filtration Pilot were submitted to NYSDOH and NYCDOHMH on February 6, 2025, including details the water quality and filtration system target metrics, confirming the performance of the proposed treatment system at a scaled version. This testing has helped the POOL1 project team to take any lessons learned and apply them to the POOL1 project.

Contrary to previous expectations, an addendum was not issued for the 2024 Phase 1A Filtration Pilot Report. The virus analyses, which were pending, took significantly longer than anticipated. This delay was primarily due to the unavailability of the required tests in most laboratories, coupled with the need to import reagents from Europe, which resulted in some importation challenges.

During this waiting period, all samples were meticulously refrigerated to maintain their integrity. However, when the lab results arrived, the majority indicated a value of 0. We believe these results may not be accurate and we did not utilize them for any feedback on the pilot due to the prolonged refrigeration period and informed DOH about this matter. With a new prototype planned for testing and approval in the summer of 2026, it has been decided to conduct new sampling.

In accordance with the detailed Action Items List critical for the Phase 1A submission, provided in a letter to the POOL1 project team, issued by NYCDOHMH and NYS DOH on July 3, 2024, this submission excludes all documentation for the 2024 Filtration Pilot, as it was explicitly deemed to not pertain to POOL1 permit approval when the NYCDOHMH and NYS DOH requested a full-scale demonstration be performed.

4.7 Sanitary Survey

Roux Environmental Engineering and Geology, D.P.C. (“Roux”), a third-party engineering firm, has prepared a “Novel Bathing Facility Sanitary Survey” for the project in accordance with the New York State Department of Health Framework for Submittal to Demonstrate Acceptable Water Quality and Design of a Novel Bathing Facility. The Sanitary Survey was submitted to the city and state DOH on 03/18/25 and is re-submitted for reference in this report as Appendix E

Roux Environmental has been previously referred to in submission and communication as the “outside Health Risk Assessor.” To clarify, the Sanitary Survey itself was considered the assessment provided by the outside Health Risk Assessor. There was not a separate “original report” apart from the 03/18/25 deliverable.

The NYC DOHMH and NYS DOH (the Health Agencies) provided comments on the Novel Bathing Facility Sanitary Survey report on 5/6/25. Comments from Roux Environmental were submitted to the Health Agencies via email on 06/02. The comments submitted to the Health Agencies have been re-submitted with updates/additional notes with the Phase 1A report submission.

The sanitary report has been provided to Limnotech as supplemental reference material for their Phase 2a report review, in order to thoroughly certify that the POOL1 team has accurately summarized the environmental studies, site history, and water quality data to identify and evaluate the pattern and frequency of contaminants of concern at the proposed location.

4.8 Historical Data

The POOL1 project team has performed a comprehensive review of the available historic environmental data and records for the East River at the project location from the most recent 15-year period and has collected and reviewed water quality data from the most recent 3-year period for the East River at the project location.

DEP has a Harbor Survey Monitoring Station, E2, (refer to [Figure 8](#)) where historical data was collected and combined with IEC sampling water data from 2022 to 2024. This historical data was also sourced and used in the attached Climatology study. All data available is provided in Appendices B1 and B2. IEC historical sampling data is organized by categories, physical, chemical and biological, as requested.

4.9 Other Sources of Contamination

The anticipated discharges that may impact the project area near Pier 35 include sources from

Combined Sewer Overflows (CSOs), stormwater outfalls, and Wastewater Treatment Plants (WWTPs). The closest stormwater outfall (NCM-2700) is located at Pier 35/36, approximately 900 feet away from the project area. Additionally, the FDR Drive is located just north of the project area.

4.10 NYS DEC Use Classification

According to NYSDEC, the East River is classified as a Class I saline water, which is best suited for fishing and secondary contact recreation and is suitable for fish propagation and survival.

4.11 Combined Sewage Overflows

The project area is approximately 500 feet away from the closest combined sewage overflow (CSO Outfall NCM-063), approximately 0.5 miles from the closest wastewater treatment plant across the river, Red Hook Wastewater Treatment plant in Brooklyn Navy Yard, and approximately three miles away from the Newtown Creek Wastewater Treatment Plant in Greenpoint, Brooklyn.

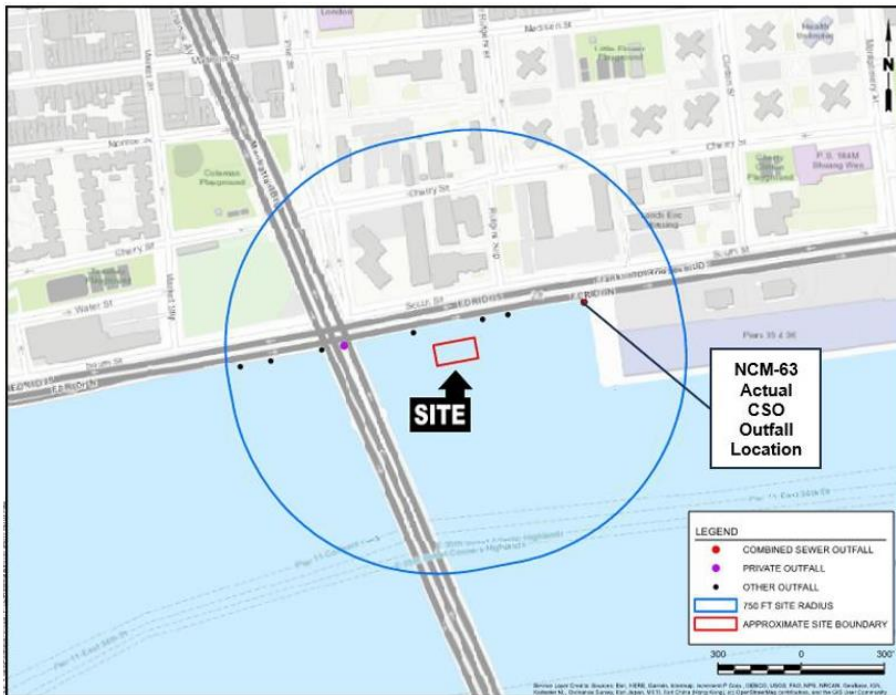


Figure 8 Site Vicinity Outfalls (Citywide Outfalls | NYC Open Data)

The Red Hook Wastewater Treatment Plant has an NPDES permit (NY0027073) that monitors the discharge of Ammonia, Chlorine, Nitrogen, Nitrates, Nitrites, Phosphorus, Metals, Fecal Coliform, Enterococcus as well as Acute and Chronic WET testing. There are twelve registered outfalls within the Red Hook WPCP property included in this permit in the 10,000-foot radius surrounding the site, see Figure 9.

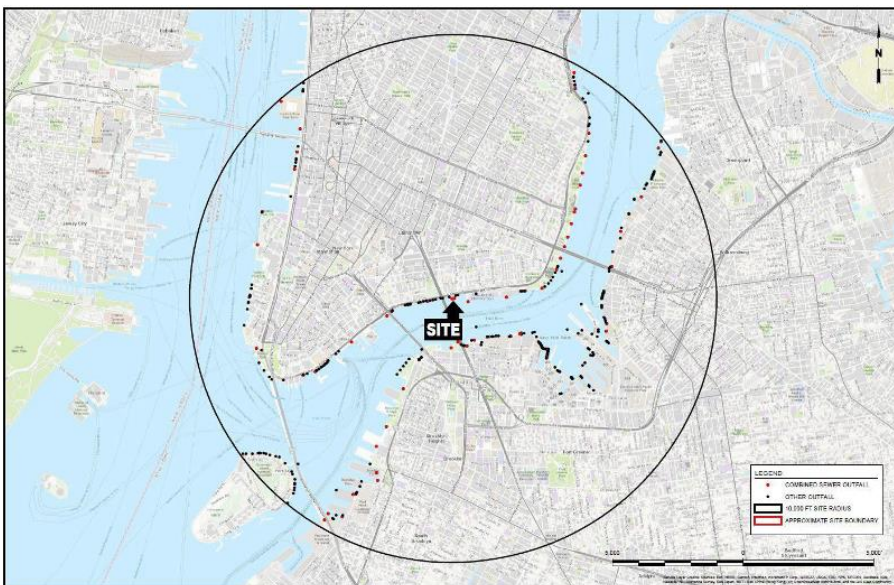


Figure 9 Combined Sewer Outfalls within 10,000-ft Radius Outfall Map

4.12 Marine Traffic

The proposed POOL1 location is approximately 180 feet from the federal navigation channel and approximately 600 feet from the closest docking area at Pier 35/36. The project area is approximately 500 feet away from the Highlands and East River Ferry routes. The closest ferry station is at Corlears Hook Ferry Terminal, which serves the NYC Ferry Service. As POOL1 will be located outside of the federal navigation channel, interference with vessel traffic will not impact operation of the pool system.

The vessel traffic required for transportation and installation of POOL1 will be limited. As proposed, the barge will be delivered to the site from Kill Van Kull to the site at Pier 35, led by 1-2 tugboat operators and licensed pilots with experience navigating New York City waters. The delivery is expected to take place within 1-2 hours, factoring in advance of coordination with EDC and submission of all standard notifications for harbor operations.

This process is not anticipated to have a notable impact to the local marine vessel traffic. Details in number of vessels required during transportation and installation will be coordinated with NYCEDC at the time of installation.

The East River, including areas near the Manhattan Bridge, experiences wakes from various types of vessel traffic, including large commercial vessels with tugs and large power boats. These wakes can range from smaller ripples to substantial waves, depending on the vessel's size, speed, and type and the specific conditions of the river at that moment.

The vessel traffic wakes cause a localized turbulence and culminate with the East River currents, tides and narrow channels can make wake patterns unpredictable; however, the effects from the wakes would dissipate as they travel toward the shoreline. Furthermore, within 100 feet of any New York State waterway shoreline, no vessel may exceed 5 mph so that only flat water is present not even a ripple trails the vessel.

See Section 5.3.1 for further details regarding Barge Stability.

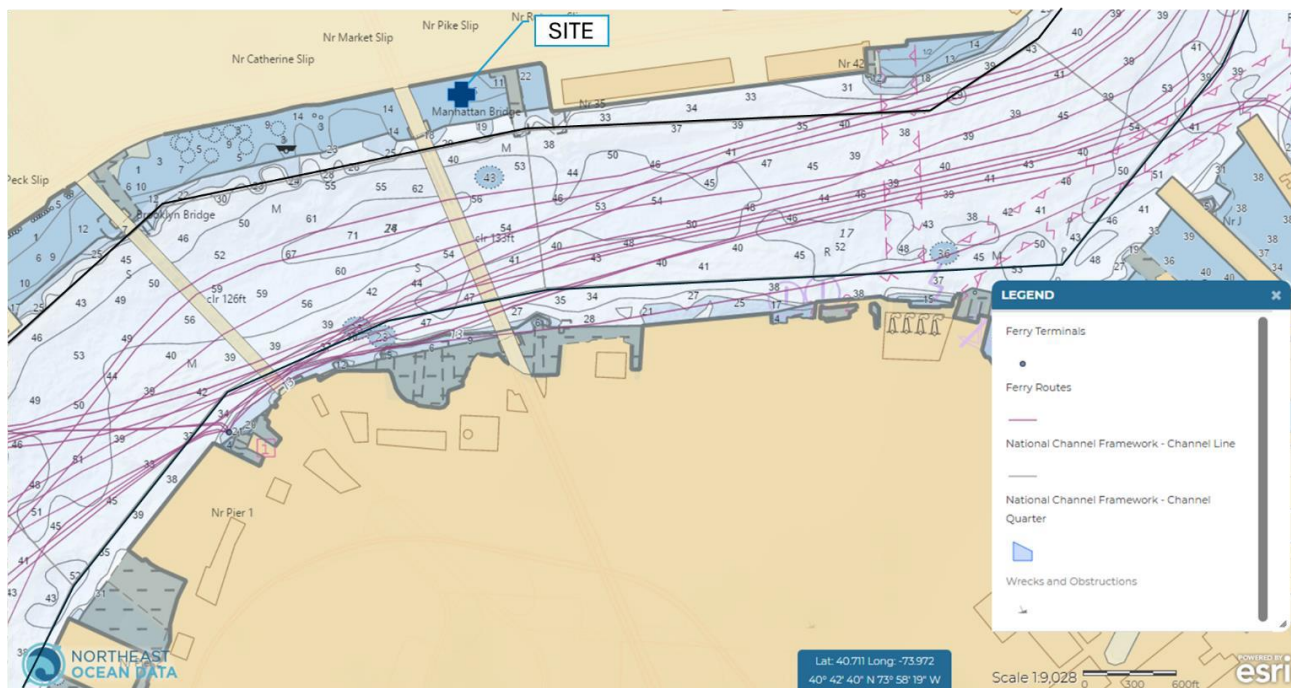


Figure 10 East River Navigation Channel (Northeast Ocean Data)

4.13 Hydrology

The East River is a tidal strait that connects Upper New York bay with the Long Island Sound. As a tidal strait, its flow direction and speed are highly variable, changing with the tides approximately every six hours. The flow

is primarily driven by the difference in tidal heights between the Long Island Sound at its northern end and the Upper New York Bay at its southern end. Incoming flood tides flow North, upstream from New York Bay toward the Long Island Sound, and outgoing ebb tides flow South (downstream from the Long Island Sound toward New York Bay and the Atlantic Ocean). There is a brief period of weaker current, or "slack" as the flow changes direction.

Freshwater inputs into the East River from the Upper New York Bay consists of several systems: the Bronx River, Westchester Creek, and the Hudson River. The East River currents are a result of the channel width, hard engineered shoreline, bottom topography, and the influence of tidal water from the Hudson River, Harlem River, and Long Island Sound. Ebb tides are particularly powerful. A large difference in water surface elevation from the Long Island Sound to The Battery also contributes to the strong currents (Blumberg and Pritchard, 1997). The water current speed ranged from 0.0 to 2.6 kt (mean = 1.3 kt, n = 334) over the full bathing season (May 1 through September 30) based upon data collected by NOAA station E2 between the years 2004-2023.

The following table summarizes the anticipated discharges from sources identified in proximity to the project area offshore of the East River Esplanade between Pier 35 and Manhattan Bridge. Discharge volumes cannot be anticipated unless the CSOs are monitored.

Table 3 Summary Table of Anticipated Discharges

Discharge Source	Approximate Distance to Pier 35	Type	Mean Current (ft/s)	Approximate Travel Time to Pier 35 (mins)
CSO Outfall NCM-063 (Jefferson Street)	300 to 500 feet	Combined Sewer Overflow (CSO)	2.19	3.04 (At 400 ft distance)
Stormwater Outfall NCM-2700	900 feet (located at Pier 35/36)	Stormwater Outfall	2.19	6.84
Red Hook Wastewater Treatment Plant (WPCP)	0.5 miles (across the East River in Brooklyn Navy Yard)	WWTP (NPDES Permit NY0027073)	2.19	20.05 (at 2,640 ft distance)

To convert the mean East River current speed from knots to feet per second, the speed in knots was multiplied by the conversion factor: 1 knot = 1.68781 ft/s. Therefore, 1.3 knots × 1.68781 = 2.19 ft/s.

These travel time estimates are limited by the highly variable tidal currents of the East River, which change direction and speed and can briefly halt during slack tides, leading to potential periods of no downstream transport. The actual path and speed of water movement are further influenced by engineered shoreline, channel shape, local topography, and episodic conditions like vessel movements or weather. These above estimates assume continuous, unidirectional flow at typical velocities; real-world travel times may vary significantly outside these conditions.

These sources have the potential to affect the water quality that will need to be treated by the POOL1 filtration system but are not expected to hinder the system's ability to filter the source water to meet water quality standards as the treatment system is designed for a range of raw water quality data including the highest recorded level of enterococci. Further information can be found in the enterococcus data trend analysis in Section 6 of this report.

A number of scenarios will be included in the engineering controls for the treatment system, that will be automated through its control panel based on raw water quality data. This will allow the treatment system to treat raw water to standards, even with fluctuations in its quality. In events where the raw water quality becomes a challenge due to a CSO event or other unexpected spills, the raw water pump will stop, and the facility will be

closed. Specific engineering controls designed to counter the effects of CSO will be included with the relevant protocol submissions (and are outside the scope of this report).

4.14 Geology

The following has been provided from the East Side Coastal Resiliency EIS Natural Resources Assessment: “The native surficial geology of Manhattan consists of unconsolidated glacial deposits made up of sand, gravel, clay, and boulders ranging from 0 feet below land surface to greater than 250 feet below land surface. This unconsolidated material was deposited as a result of the Pleistocene glaciation (Perlmutter and Theodore, 1953; Stumm et. al., 2007). The island of Manhattan is underlain by metamorphic bedrock consisting of Harrison/Ravenswood Gneiss (Baskerville and Mose, 1989). The surficial soils in the study area consist of highly modified urban soils. The Manhattan shoreline has been subject to intense anthropogenic modification, including the filling of coastal areas, to expand usable land surface.”

POOL1 will have minimal impacts on the geology as the proposed swimming facility will be a floating deck and secured to a series of steel piling pinned into the riverbed. This approach is based on marine engineering standards for a typical “spud pile” system, commonly used in the maritime industry for mooring floating structures that are semi-permanent in nature.

The spud piles function as vertical steel members with pointed ends which are gravity-set into the riverbed using a barge crane. As such, spuds are typically more substantial and heavier than conventional pilings. Once lowered, the spuds rest in steel collars or guide sleeves integrated into the barge hull, allowing the barge to remain fixed in position while accommodating minor vertical movement due to tide.

The current plan anticipates four spud piles, one near each corner of the hull. This is two more than is typical for a floating barge of this size to allow for a redundancy of stability. The spud piles are removable and repositionable, which aligns with the project’s requirement for a temporary mooring solution.

Though the vessel is not regulated by the US Coast Guard, stability and motions for the floating structure have been analyzed based on the same standards and guidelines as a ferry or passenger vessel operating in the same region and environmental conditions.

The barge design and stability documentation have been issued to LimnoTech as supplemental information to their review of the Phase 2A submission, as it relates to the general physical containment of the pool water.

The information presented above provides an overview of the historic and current site uses. Based on this overview, we provide the following conclusions about the presence of physical, chemical, or biological contaminants or substances that may potentially present a public health risk:

Physical: The project is located in a dynamic urban estuary, subject to currents, tidal fluctuations, and vessel traffic. However, physical health risks associated with the water quality are mitigated through the pool’s design and operational procedures. The containment of the pool structure itself (situated within the hull of the steel barge) isolates the pool water and provides a significant barrier against physical contaminants.

The facility will also employ a perimeter overflow system designed to remove floating debris and surface dirt, a core sanitation requirement per NYCHC 165.25. Physical contamination risks on the bottom and sidewalls, such as algae or sediment accumulation, will be addressed through daily manual and automated cleaning protocols, using non-toxic solutions to prevent slippery conditions and filter clogging. Turbidity will be addressed by the treatment system, which is designed to reduce turbidity in the pool treatment tank to less than 3 NTU.

Chemical: Based on sampling data shared in this report, the public health risk from organic chemical contaminants is low. Testing for Volatile Organic Compounds (VOCs), pesticides, PCBs, and Dioxins/Furans yielded almost entirely non-detects. However, samples consistently detected a range of metals (including Aluminum, Arsenic, Barium, Copper, Iron, Lead, Manganese, and Sodium) and several Per- and Polyfluoroalkyl Substances (PFAS) below reporting levels. Chemical contaminant concentrations are currently under regulatory review to determine acceptable thresholds and human health risks. Any risks identified are addressed by the pool’s design, which uses a filtration system (polymeric ultrafiltration) followed by high-dose UV treatment.

The treatment system is designed to achieve the necessary removal of chemical contaminants to ensure safe recreational water.

Biological: The primary public health concern is the episodic degradation of bacteriological water quality associated with rainfall, driven by Combined Sewer Overflows (CSOs). Although overall Inner Harbor water health has significantly improved, site-specific testing shows a strong correlation between precipitation and spikes in Enterococcus concentrations, sometimes exceeding recreational safety limits for primary contact. This biological risk is addressed by implementing a treatment train designed to address fluctuations in raw water quality. The system employs polymeric ultrafiltration coupled with high-dose UV disinfection, targeting a 4-log removal. Additionally, operational protocols mandate immediate pool closure and halting raw water intake during CSO events or unexpected spills that compromise the treatment system's ability to maintain standards. The system also includes internal recirculation protocols utilizing filtration and UV to manage contamination events (fecal, vomit) within the pool itself.

5. Data Collection Activities

5.1 Summary of Data Collection Activities

The POOL1 project team has performed a comprehensive review of the available historic environmental data and records for the East River at the project location from the most recent 15-year period and has collected and reviewed water quality data from the most recent 3-year period for the East River at the project location.

The water quality testing relevant to the Phase 2A assessment draws from several distinct data collection programs, ranging from long-term, harbor-wide monitoring to recent, highly localized sampling efforts at the proposed project site. The Phase 2A assessment itself is a review of existing data intended to screen the proposed waterbody for its feasibility and predictability in meeting recreational water quality criteria and to identify potential contaminants and data gaps. In our collection and submission of comprehensive data, and in concurrent assessment of the pool filtration system as it has performed in previous pilots, and as currently designed, the + POOL team believes the data will support that in-water testing can meet or exceed recreational water criteria. This review is supplemented by an independent, third-party subject matter expert (SME), LimnoTech.

5.1.1 Water Quality Standards and Criteria

NYSDEC has adopted the EPA recommended enterococci criteria for coastal marine waters, adopting the following recreational water quality criteria (RWQC) to protect the primary contact best use of Class SA and SB waters during the period of May 1st to October 31st.

Note, although the Pier 35 site is in a waterbody classified as SCI, with intended use of fishing (while being protective of secondary contact recreation), the data collected in 2024 and 2025 to date have been assessed and compared below to the more stringent primary contact recreation standards applied to Class SA and SB waters.

The relevant water quality standards and criteria for the project are generally determined by adopting conservative metrics such as primary contact recreation or drinking water criteria. Although the East River location near Pier 35 is designated as a Class I saline waterbody intended for fishing and secondary contact recreation, the project aims to meet the more stringent standards applied to bathing facilities, as outlined in the NYC DOH Protocol for Non-Traditional Recreational Water Projects.

The recommended applicable Water Quality Standards and Criteria (WQS/WQC) address all identified pollutant categories (bacteria, organics, metals, PFAS). Sources include:

Primary Data Collection Activities

- [New York City Department of Health and Mental Hygiene, Site Assessment Protocol for Non-Traditional Recreational Water Projects Pre-Qualification Process for Permit Modification Office of Public Health Engineering March 13, 2024](#)
- New York City Division Of Water Technical And Operational Guidance Series (1.1.1) [Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations](#) (1998 Re-Issue)
- New York State Department of Environmental Conservation [Water Quality Standards and Criteria, Water Quality Guidance Values to Regulate PFOA, PFOS, and 1, 4-Dioxane](#)
- [6 CRR-NY 703.4 703.4 Water quality standards for coliforms, enterococci, and E. coli.](#)

Table 4 Water Quality Criteria

Parameter	Criterion (Units)	Criterion Rationale
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Bacteria (Enterococcus)	35 MPN/100 mL or CFU/100ml (30-day geometric mean)	Primary Contact Recreation, Coastal recreation waters of the following classes: SA and SB
Bacteria (Enterococcus)	60 CFU/100ml (Single Sample Maximum)	Required threshold for acceptable water quality in a Novel Bathing Facility.
Bacteria (Enterococcus)	130 MPN/100 mL or CFU/100ml (Statistical Threshold Value - STV)	Primary Contact Recreation criteria for coastal recreation waters (Class SA and SB); no more than 10% of samples in a 30-day period can exceed this (6 CRR-NY 703.4)
Organics (VOCs, SVOCs, Pesticides, PCBs, Dioxins/Furans)	From WQS (Varies)	Based on New York State Water Quality Standards (WQS) for Source of Drinking Water (surface water) (Class A, A-S, AA, AA-S H(WS)).
PFOA	10 ppt (Parts per trillion)	NYS DEC Guidance Values (Human Health)
PFAS	10 ppt (Parts per trillion)	NYS DEC Guidance Values (Human Health)
1,4-Dioxane	1 ppb (Parts per billion)	NYS DEC Guidance Values (Human Health)
Metals	From WQS (Varies)	Based on New York State Water Quality Standards (WQS) for Source of Drinking Water (surface water) (Class A, A-S, AA, AA-S H(WS)).

5.1.2 Primary Data Collection Activities

NYC DEP Harbor Survey Program

Included as reference document is the comprehensive, long-term monitoring program that has been tracking the health of New York Harbor's waterways for over a century. The program has expanded from five water quality parameters in 1909 to 27 at present, measured at 89 monitoring stations.

For the Phase 2A assessment, historical data from the last 15 years at station E2, located on the East River at E. 23rd Street, has been used as a proxy to understand long-term trends in the vicinity of Pier 35. The DEP monitors key indicators including fecal coliform, enterococcus, dissolved oxygen, chlorophyll 'a', Secchi transparency, and nitrogen. This data is included in the raw spreadsheet format as part of this submission.

Interstate Environmental Commission (IEC) Site-Specific Monitoring (2022-Present)

The IEC, a NYSDOH ELAP-certified laboratory, has been conducting intensive, site-specific water quality monitoring at and around Pier 35. Friends of +Pool began participating in the IEC's collaborative monitoring program in 2022. This has included several distinct initiatives:

- Weekly sampling in 2022 and 2023 for fecal indicator bacteria (Enterococcus and Fecal Coliform) and other parameters.
- Daily sampling in 2024 at the raw water intake of a filtration pilot system.
- Ongoing weekly sampling in 2024 and 2025 at a mid-river location off Pier 35 as part of a NYSDEC-funded Harbor Monitoring Survey.
- Volunteer-led weekly sampling in 2025 along the Pier 35 esplanade.
- Comprehensive Chemical Contaminant Sampling (2025)

To address an NYC Health Department request for a full health risk assessment, additional baseline samples were collected at Pier 35 on several dates in July and August 2025. These samples were analyzed by Eurofins Edison and Eurofins Lancaster Laboratories Environment Testing, LLC, for a wide array of potential contaminants including Volatile Organic Compounds (VOCs), pesticides, PCBs, metals, and Per- and Polyfluoroalkyl Substances (PFAS).

5.1.3 Historical Context and Long-Term Trends (NYC DEP Data)

The NYC DEP's 2018 Harbor Water Quality Report provides crucial historical context, indicating significant long-term improvements in the overall health of New York Harbor, including the Inner Harbor where the project is located. This progress is largely attributed to major investments in wastewater resource recovery facilities (WRRFs) and the reduction of illegal discharges.

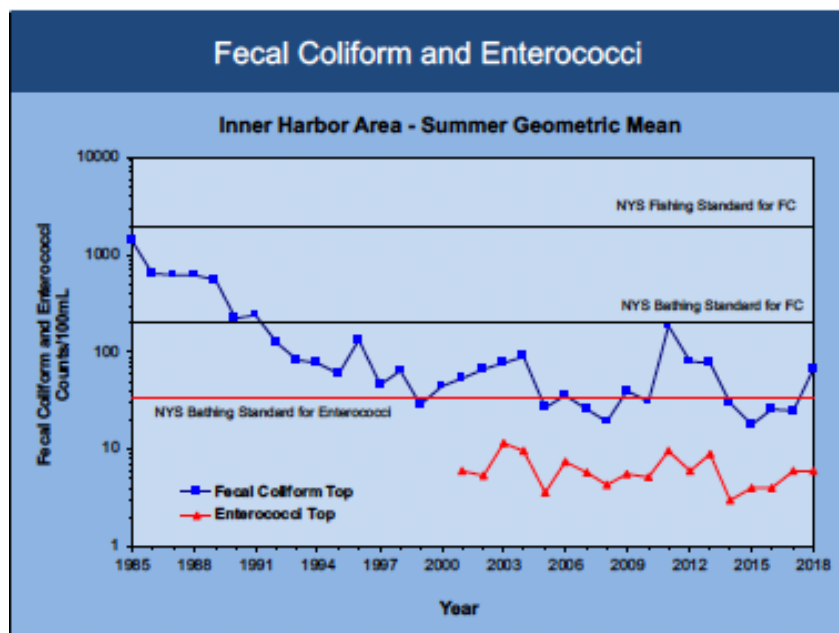


Figure 11 2018 New York Harbor Water Quality Report, Inner Harbor Area Summary

According to the 2018 New York Harbor Water Quality Report, the Inner Harbor region show that summer geometric means for fecal coliform have dramatically declined over the last three decades, consistently remaining well below the NYS bathing standard since 1992.¹ Similarly, Enterococcus averages have been consistently well below the bathing standard since monitoring began in 2001.

Combined Sewer Overflows (CSOs): Despite these improvements, the primary remaining challenge to water quality is Combined Sewer Overflows (CSOs), which occur during and after intense precipitation when stormwater runoff exceeds the capacity of the city's sewer system. The DEP report explicitly notes that the Inner Harbor is prone to "episodic degradation following rain events" due to CSOs.

This is supported by the attached Climatology Study commissioned by + POOL, as well as the Trends Analysis of site specific water quality data. IEC has indicated a correlation between Enterococcus values above the STV and precipitation. All but one of the measurements that are above the STV were associated with significant precipitation in the previous 48 hours (August 13th, 2025). IEC is investigating the presence of a localized thunderstorm that was not registered in Central Park, or if the was a local stormwater bypass that might have affected this collection date. This is the only instance of this lack of direct correlation in the data since 2022.

¹ 2018 New York Harbor Water Quality Report, Inner Harbor Water Quality, Bacteria, Page 11

5.1.4 Site-Specific Bacteriological Findings (IEC Data)

The intensive sampling conducted by the IEC at Pier 35 from 2022 to 2025 provides a detailed, recent picture of water quality. The data have been assessed against the stringent NYSDEC primary contact recreation standards (30-day geometric mean ≤ 35 MPN/100mL; Statistical Threshold Value (STV) ≤ 110 MPN/100mL), even though the site is in a Class I waterbody designated for secondary contact. A consistent and critical finding across all years of site-specific data is the strong correlation between rainfall and elevated bacteria levels, which corroborates the historical observations from the DEP Harbor Report.

- 2022 Data: 10.8% of samples exceeded the primary contact STV, just over the 10% threshold. All of these exceedances occurred after significant rainfall (>0.31 inches).
- 2023 Data: This year saw a higher percentage of exceedances, with 32% of samples over the primary contact STV. These samples were linked to rainfall, and extreme storm events in September 2023 resulted in highly elevated Enterococcus measurements (e.g., 10,462 MPN/100mL) that significantly skewed the rolling 30-day geometric mean calculations for that period.
- 2024-2025 Data: Multiple sampling programs in 2024 and early 2025 showed that during dry weather, the water quality generally met primary contact standards. Both daily and weekly sampling confirmed that nearly all exceedances of the STV were associated with measurable precipitation in the preceding 24-48 hours.

5.1.5 Initial Chemical and Physical Contaminant Analysis

Based on the 2025 chemical and metals sampling, a broad suite of analytes was detected.

Samples consistently detected a comprehensive range of metals. Highly concentrated components reflecting the marine environment, such as Sodium (reaching up to 80,700,000 μ g/L) and Magnesium (reaching up to 9,840,000 μ g/L), were quantified well above reporting limits,. Other metals, including Aluminum, Barium, Copper, Iron, Lead, and Manganese, were also consistently detected.

Initial contaminant screening also detected several Per- and Polyfluoroalkyl Substances (PFAS), including PFBA, PFPeA, PFHxA, PFOA, PFBS, and PFOS,. These PFAS compounds, along with certain trace metals such as Arsenic and Copper, were frequently found at low concentrations identified as approximate levels ('J' qualified), meaning the result was less than the analytical Reporting Limit (RL) but greater than or equal to the Method Detection Limit (MDL).

It should be noted that here are no specific baseline water quality criteria for sodium or magnesium concentrations in natural saline waters for primary contact recreation established by the U.S. Environmental Protection Agency (EPA) or related bodies. Water quality standards for swimming primarily focus on pathogen indicators (bacteria), not major mineral constituents like sodium or magnesium, which are inherent to saline water.

Also, none of the screened contaminants approached or exceeded the standard thresholds or guideline values indicated in the New York State Water Quality Standards.

Identification of any data gaps in known and emerging contaminants of concern will be included in the report/assessment by the independent third-party subject matter expert (LimnoTech).

5.1.6 Summary Conclusion

The data collected for the Phase 2A indicates that public health consideration for recreational use at Pier 35 remains the episodic, but predictable, degradation of bacteriological water quality following rainfall due to CSOs.

Testing for a wide range of other chemical contaminants has not revealed significant concerns to date. This entire body of data is part of an ongoing regulatory review process with the NYC Health Department to

determine the threshold concentrations of PFAS, metals, and other parameters not referenced in City, State, and Federal recreational water quality standards as the feasibility of the proposed project.

POOL1 is designed to effectively manage the anticipated worst-case contaminant levels. The maximum recorded concentrations used to set the treatment targets were for Enterococcus and for Fecal Coliform.

The filtration system is engineered to achieve a >4-log reduction for bacteria. By applying this treatment standard to the maximum recorded historical concentrations, the post-treatment water quality is modeled to result in levels that fall significantly below the criteria for novel bathing facilities.

Regarding other contaminants, initial chemical analysis indicates that testing for a wide range of organic compounds (including VOCs, SVOCs, Pesticides, PCBs, and Dioxins/Furans) yielded almost entirely non-detects, suggesting the filtration and UV disinfection processes are effective or the ambient concentrations are low. This capability confirms that the POOL1 filtration technology will reduce exceedances of criteria to levels that fall well below required swimming/pool criteria, thereby addressing the primary public health consideration of episodic bacteriological degradation following rainfall.

6. Trend Analysis

Regulatory Background

This trend analysis follows the requirements of NYCDOH, Site Assessment Protocol for Non-Traditional Recreational Water Projects, Phase 2A: “Trend analysis between fecal indicator bacteria concentrations and rainfall intensity and duration.”

NYSDEC has adopted the EPA recommended enterococci criteria for coastal marine waters, adopting the following recreational water quality criteria (RWQC) to protect the primary contact best use of Class SA and SB waters during the period of May 1st to October 31st:

Table 5 EPA recommended enterococci criteria

Enterococcus	
For Waterbodies Supporting Primary Contact Recreation	
Geometric Mean	Statistical Threshold Value
35	130

For waterbodies supporting primary contact recreation (including Class SA and SB), the geometric mean should not be greater than **35** CFU or MPN/100ml in any 30-day interval and no more than 10% of measurements should exceed the **130** CFU or MPN/100 ml STV in the same 30-day interval.

Note, although the Pier 35 site is in a waterbody classified as I, with intended use of fishing (while being protective of secondary contact recreation), the data collected from 2022 and 2025 to date have been assessed and compared below to the more stringent primary contact recreation standards applied to Class SA and SB waters.

At the request of Friends of +Pool the data for each year was also evaluated against the Single Sample Maximum (SSM) of 60 cfu/100mL listed in the “[Framework for Submittal to Demonstrate Acceptable Water Quality and Design of a Novel Bathing Facility](#)”, which outlines a swimmer risk assessment that demonstrates water circulation or other treatment will reduce contaminants introduced into the containment area by bathers

and the environment and will meet beach water quality thresholds, (i.e., below a single sample Enterococci threshold of 60 cfu/100 mL and an Enterococci geometric mean of 30 cfu/100 mL.)

2025 Enterococcus Data Summary

In 2025, IEC collected samples in the vicinity of the proposed site in conjunction with a NYSDEC-funded Harbor monitoring survey. Sampling in 2025 commenced in April, with weekly sampling at the Pier 35 mid-river site beginning on April 2nd, 2025. From April 2nd through September 24th, 2025, 27 (no data for enterococci 6/16/2025) weekly samples at the site were collected and analyzed. Rolling 30-day geometric means have been calculated weekly since May 28th 2025 (once sufficient data were obtained to generate a 30-day geometric mean). Calculated 30-day geometric means to date have ranged between 10 MPN/100 mL to 82 MPN/100mL. Three (3) measurements (11%) exceeded the statistical threshold value of 130 MPN/100ML: 158 MPN/100ML on 7/2/2025, 354 MPN/100ML on 7/16/2025 and 134 MPN/100ML on 8/13/2025. Two out of three of these measurements correlated with precipitation in excess of 0.41 inches in the preceding 48 hours. The three measurements above the statistical threshold resulted in six (6) calculated 30-day geometric means above the 35 MPN/100ML threshold: 41MPN/100ML on 7/2/2025, 66MPN/100ML on 7/9/2025, 82 MPN/100ML on 7/16/2025, 65 MPN/100ML on 7/23/2025, 57 MPN/100ML on 7/30/2025 and 39 MPN/100ML on 08/13/2025. Raw data is included as **Appendix B7**. Sampling is scheduled to continue weekly through October 2025. Additional enterococcus data may be requested as they become available. Data will be uploaded to the Water Quality Portal at the conclusion of the sampling season, when final quality assurance review is completed.

When evaluated against the 60 CFU/100 SSM outlined in the novel bathing facility framework, three (3) additional samples exceeded the SSM (6 out of 28 points or 21%).

Pier 35 - Enterococci vs Rain (24 and 48 Hour) 2025

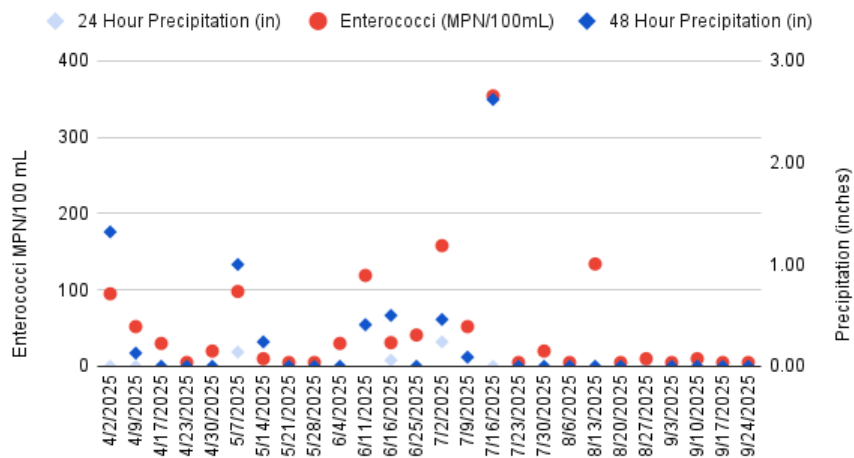


Figure 12 Scatter plot of Pier 35 2025 weekly Enterococci vs. Precipitation (24 hours and 48 hours)

Pier 35 - Enterococci vs Rain (24 and 48 Hour) 2025

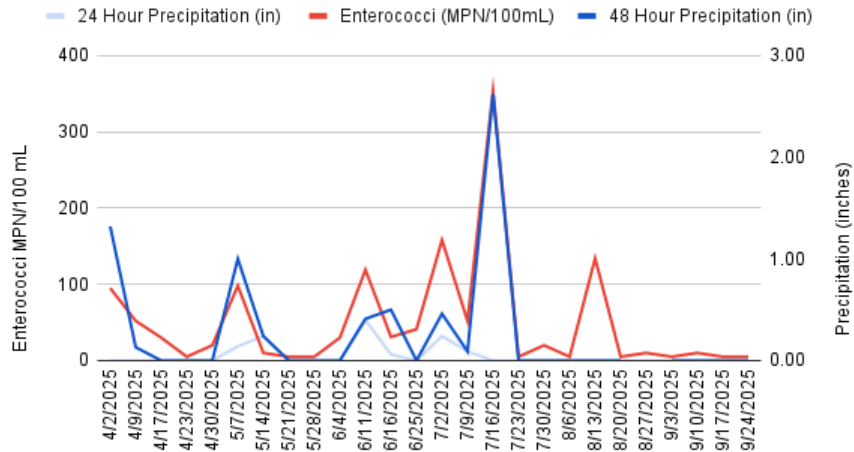


Figure 13 Line graph of Pier 35 2025 weekly Enterococci vs. Precipitation (24 hours and 48 hours) note: Line graph provided to assist with data visualization. Samples are discrete samples taken weekly on the dates indicated. Data are not a continuous data set.

Coordinated Volunteer Water Quality Monitoring Data at Pier 35 Esplanade Summer 2025

Since 2017, with support provided through an assistance agreement with the US EPA, IEC has coordinated a volunteer monitoring program in New York Harbor and its tributaries. This collaborative effort emphasizes the need for synergy and efficiency, as well as the desire of the public for consistent efforts in near-shore shared waters. Participants in the program include Friends of Plus Pool, Freshkills Park Alliance, Billion Oyster Project, Lower Raritan Watershed Partnership, Hackensack Riverkeeper, Gowanus Canal Conservancy, Hudson River Park Trust, and the Rahway River Watershed Association. Though this program, volunteers are trained by IEC staff on appropriate sample collection, preservation and transport protocols that are outlined in an EPA-approved Quality Assurance Project Plan (QAPP). Samples are collected by trained volunteers and transported to the IEC’s ELAP-approved laboratory for analysis of pathogen indicators (e.g. Enterococcus and Fecal Coliform) by IEC staff. In addition to being shared with the volunteer monitoring groups, all data are uploaded to the Water Quality Portal (upon completion of QA/QC review), where they are available to the public and regulatory agencies to assist with water quality assessments.

In 2025, volunteers with Friends of +Pool collected weekly samples along the East River Esplanade at Pier 35 through this program from May 8th, 2025 through September 25th, 2025 (sampling is ongoing weekly through November 2025). Raw data are attached as **Appendix B8**. Figure 14 depicts the weekly Enterococcus results along with precipitation totals for the preceding 24 hour and 48 hour periods, as measured by the NWS weather station in Central Park, NY. Figure 15 depicts a line graph of Enterococcus results and Daily Precipitation. Rolling 30-day geometric means have been calculated weekly since June 5th, 2025 (once sufficient data were obtained to generate a 30-day geometric mean). Calculated 30-day geometric means to date have ranged between 12 MPN/100 mL to 98 MPN/100mL. Data collected at the Esplanade @Pier 35 site showed a similar trend as the data collected off-shore. Five (5) samples (23%) yielded Enterococcus results above the statistical threshold value of 130 MPN/100 ML: 292 MPN/100 ML on 5/15/2025, 373 MPN/100 ML on 5/22/2025, 158 MPN/100 ML on 5/29/2025, 313 MPN/100ML on 8/14/2025 and 247 MPN/100ML on 8/21/2025. All five of the measurements exceeding the STV correlated with precipitation in excess of 0.49 inches in the preceding 48 hours. The five measurements above the statistical threshold resulted in nine (9) calculated 30-day geometric means above the 35 MPN/100ML threshold: 98 MPN/100ML on 6/5/2025, 88 MPN/100ML on 6/12/2025, 59 MPN/100ML on 6/17/2025, 38 MPN/100ML on 6/26/2025, 53 MPN/100ML on 8/14/2025, 76 MPN/100 ML on 8/21/2025, 76 MPN/100 ML on 8/28/2025, 52 MPN on 9/4/2025, and 38 MPN/100ML on 09/11/2025. Sampling and analyses will continue into November. Raw Data to date is included in Appendix E, along with

results of weekly samples collected for additional pathogen indicators (Fecal Coliform, Total Coliform, and E.Coli). Note results should be considered preliminary as they are pending QA/QC review.

When evaluated against the 60 CFU/100 SSM outlined in the novel bathing facility framework, one (1) additional sample exceeded the SSM (6 out of 21 points or 28%).

Pier 35 - Enterococci (MPN/100mL) vs Daily Precipitation

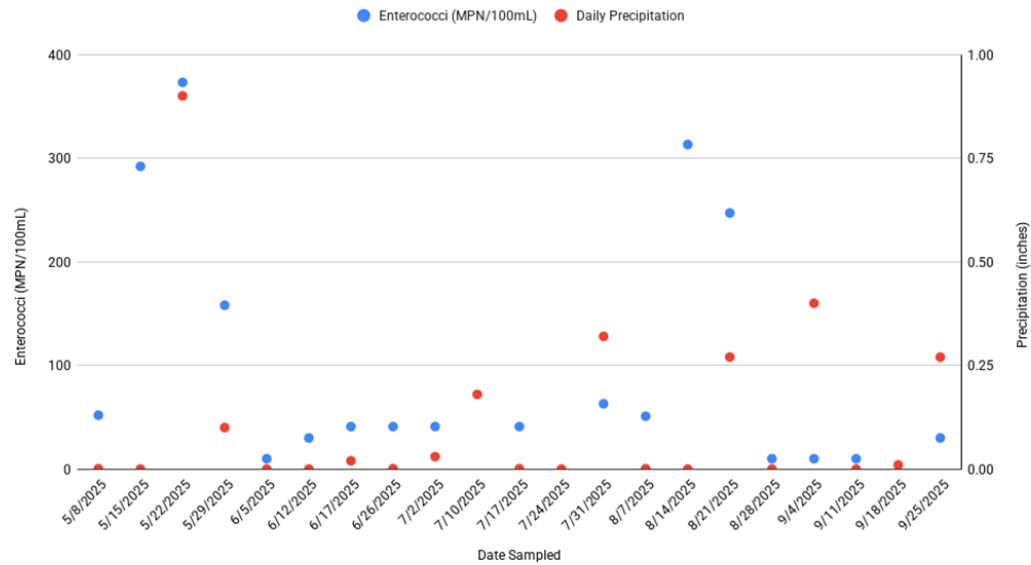


Figure 14 Scatter plot of Esplanade @Pier 35 2025 weekly Enterococci vs. Precipitation (24 hours and 48 hours)

Pier 35 - Enterococci (MPN/100mL) vs Precipitation (24 and 48 hour)

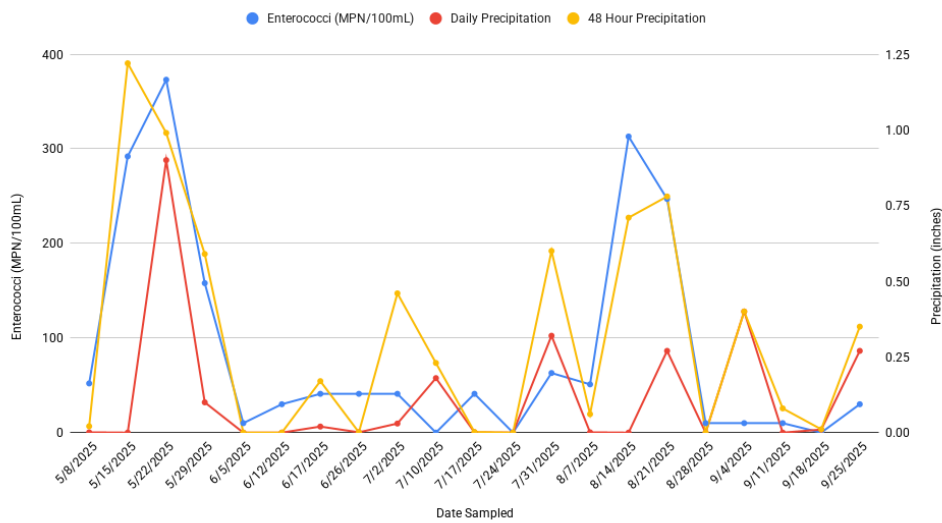


Figure 15 Line graph of Esplanade @Pier 35 2025 weekly Enterococci vs. Precipitation (24 hours and 48 hours) Note: Line graph provided to assist with data visualization. Samples are discrete samples taken weekly on the dates indicated. Data are not a continuous data set

2024 Enterococcus Data Summary

In 2024, IEC performed daily sampling at the Phase 1A Filtration Pilot each day the plant was in operation, from August 10th through November 7th, 2024. Sampling points included SP1, which was the raw (East River) water

intake to the filtration system. 55 enterococcus samples were collected. Rolling 30-day geometric means of enterococcus results were calculated from September 6th, 2024 (once sufficient data were obtained to generate a 30-day geometric mean) through November 7th, 2024. 30-day geometric means for the duration of the filtration pilot period ranged from 3.1 MPN/100 mL to 26.9 MPN/100 ML. Raw enterococcus data are included in **Appendix B6**. Figure 16 plots the daily precipitation vs. Enterococcus results for each day that samples were collected from SP1. Two Enterococcus results were above the STV of 130 MPN/100 ML (8/27/2024, 8/29/2024, and both were associated with measurable precipitation in the preceding 24 hours. 30-Day Geomeans did not produce any results above the 35 MPN/100 ML Threshold.

When evaluated against the 60 CFU/100 SSM outlined in the novel bathing facility framework, nine (9) additional data points exceeded the SSM (11 out of 73 samples or 15%).

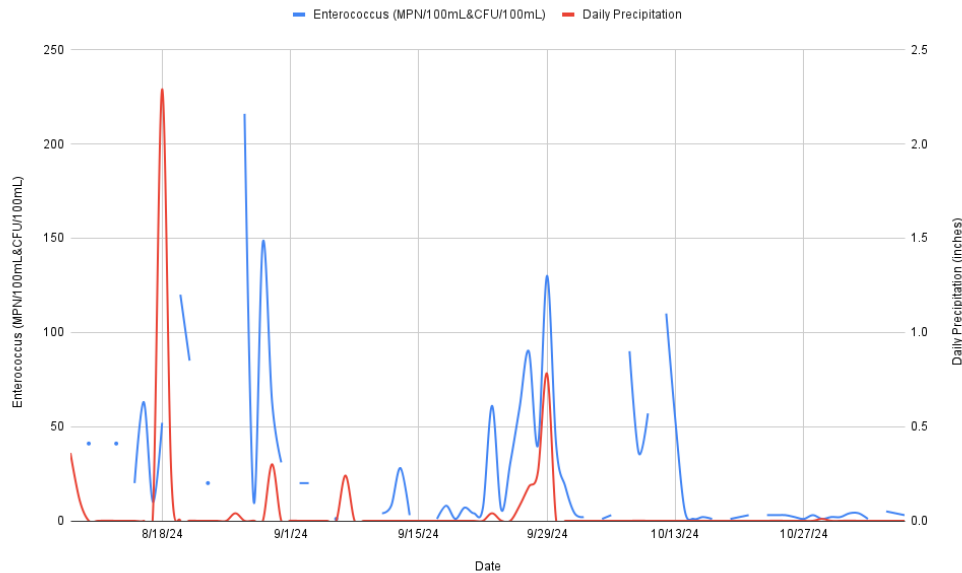


Figure 16 Pier 35- Enterococci vs. Daily Precipitation (2024 Phase 1A Pilot SP1)

Additional sampling initiatives in the vicinity of the Phase 1A Filtration Pilot during 2024 included collection of weekly enterococcus samples **mid-River at Pier 35 (40.70831, -73.98790)**. This sampling location was included in the NYSDEC-funded Harbor Monitoring Survey implemented by IEC (same survey that was performed in 2025), not related to or funded by the Pier 35 Phase 1A filtration pilot. The project is covered by a NYSDEC-approved Quality Assurance Project Plan (Appendix B). The monitoring survey includes 11 stations, sampled weekly. The project, including weekly sampling at the Pier 35 (mid-river) site, commenced July 8th, 2024 and continued weekly through October 30th, 2024. 17 sampling events were completed. Rolling 30-day geometric means were calculated from August 14th, 2024 (once sufficient data were obtained to generate a 30-day geometric mean) through October 30th, 2024. 30-day geometric means for the season ranged from 21 to 47 MPN/100 mL. No results were in excess of the STV of 130 MPN/100 ML. Three 30-day geomeans above 35 MPN/100ML correlated with one sample result of 121 MPN/100 mL collected on 8/21/2024, which was collected after 0.22” of precipitation was recorded in the previous 48 hours. Raw enterococcus data, including precipitation and tidal data, are included in **Appendix B5**. This data is also available on the Water Quality Portal. Figure 17 plots weekly Enterococcus results vs. precipitation (24 hours and 48 hours).

When evaluated against the 60 CFU/100 SSM outlined in the novel bathing facility document, four (4) samples data points exceeded the SSM (4 out of 17 points or 24%). Two of these samples were correlated with measurable precipitation in the preceding 48 hours.

Pier 35 - Enterococci vs Precipitation (24 and 48 hours)

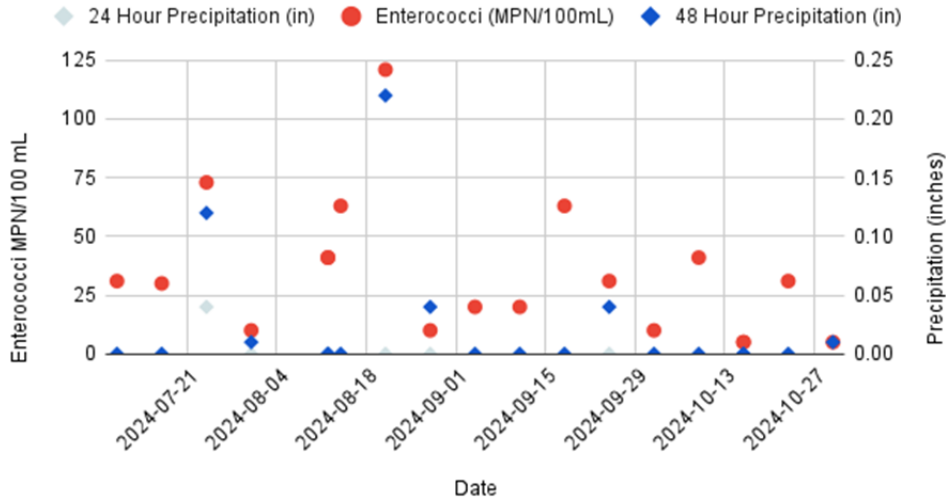


Figure 17 Mid-River at Pier 35 2024 weekly Enterococci vs. Precipitation (24 hours and 48 hours)

2023 Enterococcus Data Summary

In 2023, volunteers with Friends of +Pool collected weekly samples at two (2) points along Pier 35 from June 14th, 2023 through September 28th, 2023. Raw data are attached as **Appendix B4**. Figure 7 depicts the weekly Enterococcus results at both pier 35 sites along with precipitation totals for the preceding 48 hour periods, as measured by the NWS weather station in Central Park, NY. Rolling 30-day geometric means have been calculated weekly since June 29th, 2023 (once sufficient data were obtained to generate a 30-day geometric mean). Calculated 30-day geometric means ranged between 13 MPN/100 mL to 165 MPN/100mL. 29 of 92 samples (31.5%) yielded Enterococcus results above the statistical threshold value of 130 MPN/100 ML. All but two of these measurements exceeding the STV 7/13/2023 (301 MPN/100 ML) and 9/7/2023 (340 MPN/100ML) correlated with measurable precipitation in the preceding 48 hours. The measurements above the statistical threshold resulted in 73 calculated 30-day geometric means above the 35 MPN/100ML threshold. Raw Data to date is included in **Appendix B4** along with results of weekly samples collected for additional pathogen indicators (Fecal Coliform).

When evaluated against the 60 CFU/100 SSM outlined in the novel bathing facility framework, 22 additional sample points exceeded the SSM (51 out of 92 samples or 55%).

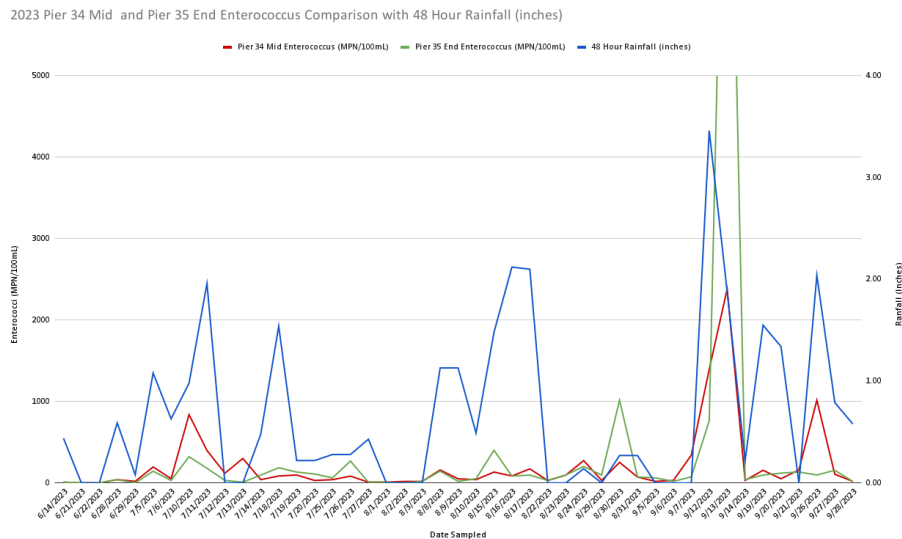


Figure 18 2023 Enterococcus results (MPN/100mL) and Rainfall (inches) over 2023 sampling season.

2022 Enterococcus Data Summary

In 2022, volunteers with Friends of +Pool collected weekly samples at two (2) points along Pier 35 from May 19th, 2022 through September 29th, 2022. Raw data are attached as **Appendix B3**. Figure 19 depicts the weekly Enterococcus results at both sites along with precipitation totals for the preceding 48 hour periods, as measured by the NWS weather station in Central Park, NY. Rolling 30-day geometric means have been calculated weekly since June 16th, 2022 (once sufficient data were obtained to generate a 30-day geometric mean). Calculated 30-day geometric means ranged between 10 MPN/100 mL to 160 MPN/100mL. Five samples out of 46 samples (11%) yielded Enterococcus results above the statistical threshold value of 130 MPN/100 ML. All five measurements exceeding the STV - correlated with measurable precipitation in the preceding 48 hours. The measurements above the statistical threshold resulted in four calculated 30-day geometric means above the 35 MPN/100ML threshold. Raw Data to date is included in **Appendix B3**, along with results of weekly samples collected for additional pathogen indicators (Fecal Coliform).

When evaluated against the 60 CFU/100 SSM outlined in the novel bathing facility framework, three (3) additional samples exceeded the SSM (8 out of 46 points or 17%).

B2	CSO Long Term Control Plan II – East River Data	Climatology Report Raw Data	Raw Data	Excel
B3	Pier 35 Site WQ Data 2022	Data collected at the site in Summer 2022	Raw Data	Excel
B4	Pier 35 Site WQ Data 2023	Data collected at the site in Summer 2023	Raw Data	Excel
B5	+POOL Geomean 2024	2024 Sampling Summary	Raw Data	Excel
B6	2024 NYSDEC Harbor Program Data Pier 35	Pier 35 open water sampling completed in 2024	Raw Data	Excel
B7	2025 NYSDEC Harbor Program Data Pier 35	Pier 35 open water sampling completed to date (2025). Updated 09/30/2025	Raw Data	Excel
B8	+Pool 2025 Volunteer Data	Volunteer data collected at the Esplanade at Pier 35 completed to date (2025)	Raw Data	Excel
B9	460-327858-1 ExcelSheet	250626 Data	Raw Data	Excel
B10	J327858-1 UDS Level 2 Report Final Report	250626 Report	Report	PDF
B11	460-329870-1 ExcelSheet	250702 Data	Raw Data	Excel
B12	J329870-1 UDS Level 2 Report Final Report	250702 Report	Report	PDF
B13	460-330411-1 ExcelSheet	250709 Data	Raw Data	Excel
B14	J330411-1 UDS Level 2 Report Final Report	250709 Report	Report	PDF
B15	460-330891-1 ExcelSheet	250716 Data	Raw Data	Excel
B16	460-330891-1ExcelPivot [Interim EDD Auto (UDS)]	250716 Data	Raw Data	Excel
B17	J330891-1 UDS Level 2 Report Final Report	250716 Report	Report	PDF
B18	460-331285-1 ExcelSheet	250723 Data	Raw Data	Excel
B19	J331285-1 UDS Level 2 Report Final Report	250723 Report	Report	PDF
B20	460-331745-1 ExcelSheet	250730 Data	Raw Data	Excel
B21	J331745-1 UDS Level 2 Report Final Report	250730 Report	Report	PDF
B22	460-332235-1 ExcelSheet	250806 Data	Raw Data	Excel
B23	J332235-1 UDS Level 2 Report Final Report	250806 Report	Report	PDF
B24	460-332758-1 ExcelSheet	250813 Data	Raw Data	Excel
B25	J332758-1 UDS Level 2 Report Final Report	250813 Report	Report	PDF
B26	460-333295-1 ExcelSheet	2508021 Data	Raw Data	Excel
B27	J333295-1 UDS Level 2 Report Final Report	2508021 Report	Report	PDF
B28	Pier 35 EXO2 Sonde Data (250805 - 251216)	Water quality data from EX02 Sonde installed at Pier 35	Raw Data	Excel

8. Third Party Assessment

The credentials and qualifications for the third-party subject matter expert (LimnoTech) were approved via email by NYC DOHMH on 09/05/25.

LimnoTech will independently issue a certification to indicate that they have reviewed the Phase 2A report as submitted to NYC DOHMH.

9. Additional Appendices

Table 7 Additional Appendices

APPENDIX	Title	Description
C1	LimnoTech SOQ for PlusPool Water Feasibility Assessment	Credentials and qualifications for the third-party subject matter expert
C2	240624_Traylor_Climatology of East River	Climatology Report (Historic Data)
C3	QAPP-WQM-0083_V25-1_NY-Harbor-WQ-Assessment	New York Harbor Water Quality Assessment Protocols
C4	2018 NYC DEP New York Harbor Water Quality Report.	Context /reference report for East River Historical Water Quality Monitoring
C5	POOL1_Phase 2A_Additional Baseline Sampling_Phase 2A summary	Compiled overall summary in Excel format of all raw data from 2025 Additional Baseline Sampling
C6	POOL1_Phase 2A_Additional Baseline Sampling_Phase 2A summary_Column Analytes	Compiled overall summary in Excel format of all raw data from 2025 Additional Baseline Sampling, formatted with columns as analytes, per DOH request
C7	EDR Report – Environmental Impact Maps & Summary	Supplemental Documentation to Support Limnotech Review
C8	Barge Design and Stability Memo (+ Pile Design)	Supplemental Documentation to Support Limnotech Review
C9	Sanitary Survey_Roux_+Pool - Sanitary Survey	Supplemental Documentation to Support Limnotech Review
C10	Draft Control Philosophy	Supplemental Documentation to Support Limnotech Review