A. INTRODUCTION

New York City's water and sewer network is fundamental to the operation, health, safety, and quality of life of the City and its surrounding environment, and it must be sized to fit the City's users and surface conditions in order to function adequately. Ensuring these systems have adequate capacity to accommodate land use or density changes and new development is critical to avoiding environmental and health problems such as sewer back-ups, street flooding, or pressure reductions.

This chapter evaluates the potential for the ~~Proposed Project~~previously proposed project to result in significant adverse impacts on the City's water supply and wastewater and stormwater conveyance, management, and treatment infrastructure in accordance with the guidance of the 2020 *City Environmental Quality Review (CEQR) Technical Manual*.[1] As described in Chapter 1, "Project Description," the ~~Proposed Project~~previously proposed project would develop an approximately 680,500 gross square feet (gsf) mixed-use building on the Development Site by 2026 that would include approximately 394,400 gsf of residential uses, 267,747 gsf of office uses, 13,353 gsf of retail uses, 5,000 gsf of community facility uses, and 108 parking spaces. The ~~Proposed Project~~previously proposed project would also facilitate the restoration, reopening, and potential expansion of the existing South Street Seaport Museum (the Museum) on the Museum Site on the block bound by John Street, South Street, Front Street, and Fulton Street. The restoration and reopening of the Museum would result in 54,308 gsf of restored and reopened museum uses, and the potential expansion of the Museum would result in a new seven-story, 32,383-gsf building to be constructed on the vacant lot at the corner of John Street and South Street. The ~~Proposed Project~~previously proposed project would additionally include operational changes to facilitate passenger drop off on the Pier 17 access drive as well as minor improvements to the Pier 17 access drive area and building, and may also include streetscape, open space, or other improvements (e.g., planters) under the Proposed Actions within the Project Area.

PRINCIPAL CONCLUSIONS

The ~~Proposed Project~~previously proposed project would not result in significant adverse impact on the City's water and sewer infrastructure. Based on the methodology set forth in the *CEQR Technical Manual,* while the ~~Proposed Project~~previously proposed project would result in increased demand for water and treatment of sewage, the incremental increases would not constitute a significant adverse impact on the City's water supply, wastewater treatment, or stormwater management and treatment infrastructure.

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[1] Since the publication of the DEIS, the Applicant has withdrawn the application for the previously proposed project and submitted a modified application (Application Number C 210438(A) ZSM; the "A-Application") with proposed changes to the project—this modified version of the project is described and considered in this FEIS as the Reduced Impact Alternative, as outlined in Chapter 18, "Alternatives."

WATER SUPPLY

In the 2026 analysis year, in the future with the ~~Proposed Project~~previously proposed project (the With Action condition) the ~~Proposed Project~~previously proposed project would generate an incremental water demand of 138,463 gallons per day (gpd) as compared to the future without the ~~Proposed Project~~previously proposed project (the No Action condition). This represents a 0.01 percent increase in demand on the New York City water supply system. It is expected that there would be adequate water service to meet the incremental water demand, and as changes of this magnitude would not be large enough to have a significant adverse impact on the City's water system pursuant to *CEQR Technical Manual* guidelines, there would be no significant adverse impacts on the City's water supply in the With Action condition.

SANITARY SEWAGE

In the 2026 analysis year, the With Action condition would generate an incremental 63,698 gpd of sewage over the No Action condition. This incremental volume in sanitary flow to the combined sewer systems would represent approximately 0.03 percent of the average daily flow to the Newtown Creek Wastewater Treatment Plant (WWTP). This volume would not result in an exceedance of the Newtown Creek WWTP's capacity and is not anticipated to create a significant adverse impact on the City's sanitary sewage treatment system. An applicant would be required to file a Site Connection Proposal Application (SCP) for approval from DEP to tie into the sewer system. In this process, before a building permit can be issued, site connection proposals must be certified for sewer availability by DEP. This analysis and any improvements would be undertaken, as necessary, in coordination with DEP.

STORMWATER

The Project Area is located within two sub catchment areas of the Newtown Creek WWTP. As compared to existing conditions, in the With Action condition there would be an increase in stormwater flows from the Project Area to the WWTP. However, for the Development Site and Museum Site, a reduction in stormwater peak flows to the combined sewer system would be achieved with the incorporation of stormwater source control best management practices (BMPs), specifically on-site detention, that would be required as part of the New York City Department of Environmental Protection (DEP) site connection approval process. DEP's detention performance standard is intended to reduce peak discharges to the City's sewer system during rain events by requiring greater onsite storage of stormwater runoff and slower release to the sewer system. The implementation of DEP's stormwater performance standard over time is expected to provide additional capacity to the existing sewer system, thereby improving its performance. In addition, as a New York State Department of Environmental Conservation (DEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001) is required for any development that would involve soil disturbance of one or more acres, a Stormwater Pollution Prevention Plan (SWPPP), consisting of both temporary erosion and sediment controls and post-construction stormwater best management practices (BMPs), may be required of the Applicant.

With the incorporation of sanitary and stormwater source control BMPs, the ~~Proposed Project~~previously proposed project is not expected to appreciably increase the frequency or volume of CSO events. In addition, wastewater treatment capacity at the WWTP and the sewer conveyance infrastructure near the Project Area would be sufficient to handle wastewater flows

resulting from the ~~Proposed Project~~previously proposed project. Therefore, there would not be any significant adverse impacts on wastewater treatment or stormwater conveyance infrastructure.

B. METHODOLOGY

This analysis follows the *CEQR Technical Manual* guidelines that recommend a preliminary water analysis if a project would result in an exceptionally large demand of water (over 1 million gpd), or if it is located in an area that experiences low water pressure (i.e., an area at the end of the water supply distribution system, such as the Rockaway Peninsula or Coney Island). The ~~Proposed Project~~previously proposed project is not located in an area that experiences low water pressure and would not generate an incremental water demand of over 1 million gpd.

The *CEQR Technical Manual* indicates that a preliminary assessment is warranted if a project is located in a combined sewer area and would have an incremental increase above the No Action condition of 1,000 residential units or 250,000 sf of commercial, public facility, and institution and/or community facility space in Manhattan. The ~~Proposed Project~~previously proposed project would develop more than 250,000 square feet (sf) of commercial space. Since the ~~Proposed Project~~previously proposed project is located in a combined sewer and would exceed the threshold for commercial space, following the guidelines of the *CEQR Technical Manual*, an analysis of the ~~Proposed Project~~previously proposed project's potential impacts on the wastewater and stormwater conveyance and treatment system was performed.

Existing and future water demand and sanitary sewage generation are calculated based on use rates set by the *CEQR Technical Manual*.[2] The Department of Environmental Protection (DEP) Volume Calculation Matrix is then used to calculate the overall combined sanitary sewage and stormwater runoff volume discharged to the combined sewer system for four rainfall volume scenarios with varying durations. Relevant planned infrastructure improvements including the affected area, project components, and current schedules are also described. The ability of the City's sewer infrastructure to handle the anticipated demand from the proposed project is assessed by estimating existing sewage generation rates, and then comparing these existing rates with No Action and With Action conditions, in accordance with *CEQR Technical Manual* guidance.

C. EXISTING CONDITIONS

WATER SUPPLY SYSTEM

The New York City water supply system is comprised of a network of reservoirs, lakes, and aqueducts extending into the Catskill region and a pipe network that distributes water within the City. New York City obtains nearly all of its water from the Delaware, Catskill, and Croton watersheds, which are within 125 miles of the City. Water from the watersheds is stored at 19 reservoirs and three control lakes with a combined capacity of approximately 580 billion gallons. The water is then carried into the City by a number of aqueducts. The water enters the City via City Tunnel 1 (which runs through the Bronx, Manhattan, and Queens) and City Tunnel 2 (which runs through the Bronx, Queens, and Brooklyn). The partially completed City Tunnel 3 currently serves the Bronx, Manhattan, and Queens; when fully complete it will terminate in Brooklyn. Staten Island obtains its water via the Richmond Tunnel, which is an extension of City Tunnel 2.

[2] *CEQR Technical Manual*, November 2020, Table 13-2.

Once in the City, the three aqueducts distribute water into a network of water mains. Water mains up to 96 inches in diameter feed smaller mains that deliver water to their final destination. Nearly all the water reaches its consumers by gravity alone, although some four percent (generally at the outer limits of the system where in-line pressure is lowest, at high elevations, or at a pressure extremity, such as Far Rockaway) is pumped to its final destination. Pressure regulators throughout the City monitor and control the water pressure.

Based on a review of available DEP water system mapping, the Project Area is served by water mains, ranging from 12 inches to 48 inches in diameter, located on Beekman, Front, Fulton, Water, Pearl, John, and South Streets, as well as Peck Slip. These water mains serve the Development Site and the Museum Site that comprise part of the Project Area. Many of these water mains were installed in the late 20th century and early 21st century.

SEWER SYSTEM

The Project Area is located within a part of Manhattan that is served by a combined sewer system that collects both sanitary sewage and stormwater, as well as direct drainage. In periods of dry weather, the combined sewers located in the adjacent streets convey only sanitary sewage. The Project Area currently contains a number of buildings, including buildings on a portion of the Museum Site, which contain space utilized by the South Street Seaport Museum. Combined sewers run north, south, east, and west along streets throughout the Project Area. These sewers were constructed during the late 19th century and throughout the 20th century.

Combined sewers that run along Pearl Street, Fulton Street, Water Street, and Peck Slip serve the Development Site as well as approximately 0.12 acres of the Museum Site facing Fulton Street. The total area served by these combined sewers is approximately 1.22 acres. The Development Site is presently a surface parking lot; therefore, no sanitary flow currently flows from the site. The sanitary flow from the Fulton Street buildings on the Museum Site is conveyed to a combined sewer that runs southeast along Fulton Street to South Street, and then northeast to Regulator NC-M16 located below FDR Drive at Peck Slip.[3] From Regulator NC-M16, flow is conveyed to an interceptor running along the east side of Manhattan to the Manhattan Pump Station at Avenue D and East 13th Street. From there flow is directed east below the East River via a force main to the Newtown Creek WWTP, located in the Greenpoint neighborhood of Brooklyn.

The remaining approximately 0.25 acres of the Museum Site facing John Street and South Street is served by combined sewer systems along John and South Streets. The sanitary flow from these buildings is conveyed southwest along South Street and southeast along John Street, and then southeast to Regulator NC-M13 located just south of John Street below FDR Drive. From Regulator NC-M13, flow is conveyed to the same interceptor running along the east side of Manhattan mentioned above and then east to the Newtown Creek WWTP.

At the Newtown Creek WWTP, wastewater is treated by physical and biological processes before it is discharged into Newtown Creek. A SPDES permit issued by the DEC, which establishes limits for effluent parameters (i.e., suspended solids, fecal coliform bacteria, and other pollutants), regulates the quality of the treated wastewater (effluent). Since the volume of flow to a WWTP affects the level of treatment a plant can provide, the maximum permitted capacity for the Newtown Creek WWTP is 310 million gallons per day (mgd). The average monthly flow over the

[3] Regulators are structures that control the flow of sewage to interceptors, i.e., larger sewers that connect the combined the sewer system to the City's sewage treatment system.

latest 12-month period for which data are available is 212 mgd,[4] which is well below the maximum permitted capacity.

Most of New York City's sewers are combined sewers that collect both sanitary sewage and stormwater. In periods of dry weather, the combined sewers (sized to convey an amount of sanitary sewage that is based on density levels according to zoning regulations) convey only sanitary sewage. During and immediately after wet weather, combined sewers can experience a much larger flow due to stormwater runoff collection. To control flooding at the WWTPs, regulators built into the system serve as relief valves, allowing only approximately two times the amount of design dry weather flow into the interceptors (larger sewers that convey wastewater to the WWTPs). The interceptors then take the allowable flow to the WWTPs, while the excess flow is discharged untreated to the nearest waterbody as CSO. As described above, the Development Site and Museum Site are located within two CSO drainage areas—NCM-078 and NCM-067—located along the East River.

SANITARY FLOWS

For purposes of analysis, the amount of sanitary sewage is estimated as all water demand generated on the Development Site and the Museum Site except water used by air conditioning, which is typically not discharged to the sewer system. **Table 10-1** summarizes the water demand and sewage generation from the Development Site and Museum Site under the existing conditions. The Development Site is currently an approximately 48,000 sf surface parking lot, while the Museum Site includes approximately 66,543 gsf of South Street Seaport Museum uses. This space is comprised of the existing Museum spaces on Fulton and South Street and the Museum's "Collections" space on John Street. For the purposes of this analysis, the water demand and sewer generation estimate for community facility space uses the retail rates found in the *CEQR Technical Manual.* As the Development Site is a surface parking lot, no sanitary sewage nor water is generated on the Development Site. The sanitary sewage generated on the Museum Site is 15,970 gpd, while the water demand is 27,283 gpd.

[4] Twelve-month period through March 2017.

Table 10-1
Development and Museum Sites
Water Consumption and Sewage Generation
Existing Conditions

Use	Size/Population	Rate*	Consumption (gpd)
Development Site			
Residential[1]			
Domestic	0 persons	100 per person	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Office			
Domestic	0 sf	0.10 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Retail			
Domestic	0 sf	0.24 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Community Facility[2]			
Domestic	0 sf	0.24 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Development Site Total Water Supply Demand			0
Development Site Total Sewage Generation			0
Museum Site			
Residential[1]			
Domestic	0 persons	100 per person	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Office			
Domestic	0 sf	0.10 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Retail			
Domestic	0 sf	0.24 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Community Facility[2]			
Domestic	66,543 sf	0.24 gpd/sf	15,970
Air Conditioning	66,543 sf	0.17 gpd/sf	11,312
Museum Site Total Water Supply Demand			27,283
Museum Site Total Sewage Generation			15,970
Combined Total Water Supply Demand			**27,283**
Combined Total Sewage Generation			**15,970**

Notes:
* Rates are from the *CEQR Technical Manual* Table 13-2.
[1] Assumes 1.91 residents per DU (2010 Census Average Household Size for Manhattan Community District 1)
[2] Utilizes Retail rates for calculation

STORMWATER FLOWS

The Development Site and Museum Site have a combined lot area of approximately 64,397 sf (1.48 acres). The Development Site comprises approximately 48,000 sf (1.10 acres) of the combined lot area, with the remaining approximately 16,340 sf (0.38 acres) is comprised of the Museum Site. The two sites are currently paved and/or comprised of existing structures (see **Table 11-2**). The table summarizes the surfaces and surface areas, as well as the weighted runoff coefficient (the fraction of precipitation that becomes surface runoff for each surface type). The Development and Museum Sites are split amongst two stormwater flow areas: approximately 1.22 acres in CSO NCM-078, and approximately 0.25 acres in CSO NCM-067.

Table 10-2
Existing Surface Coverage

Affected CSO Outfall	Surface Type	Roof	Pavement and Walkways	Other	Grass and Soft Scape	Total
NCM-078	Area (percent)	10%	90%	0%	0%	**100%**
	Surface Area (sf)	5,249	48,057	–	–	**53,306**
	Runoff Coefficient	1.00	0.85	–	0.20	**0.86***
NCM-067	Area (percent)	51%	49%	0%	0%	**100%**
	Surface Area (sf)	5,667	5,424	–	–	**11,091**
	Runoff Coefficient	1.00	0.85	–	0.20	**0.93***

Notes:
* The Runoff Coefficient is a weighted average. The calculations are based on the DEP Volume Calculation Matrix provided in the *CEQR Technical Manual*, retrieved December 2020.
Totals may not sum due to rounding.

D. THE FUTURE WITHOUT THE PREVIOUSLY PROPOSED PROJECT

In the No Action condition, as-of-right development will occur on the Development Site. It is also conservatively assumed that the South Street Seaport Museum will close permanently and, as such, there would be no renovated spaces for the Museum nor would there be a potential expansion of the Museum. New development on the Development Site will result in the construction of an approximately 327,400-gsf mixed-use building containing residential, retail, and community facility spaces, as well as accessory parking spaces.

It is expected that the sewers in Beekman, Front, Fulton, Water, Pearl, John, and South Streets, as well as Peck Slip will continue to convey the sanitary and stormwater flow from the Project Area and the Development Site to the Newtown Creek WWTP.

WATER SUPPLY AND SANITARY FLOWS

The overall water supply system in New York City is not expected to change materially in the No Action condition. **Table 10-3** summarizes the water demand and sewage generation on the Development Site and Museum Site in the No Action condition. The Development Site is expected to be redeveloped with an as-of-right building in accordance with existing zoning, while the Museum Site would become vacant. As stated above, the water demand and sewer generation estimate for the community facility space is based on retail generation rates as found in the *CEQR Technical Manual.* The No Action condition would generate 63,617 gpd of sanitary sewage, while the water demand would be 119,275 gpd.

Additionally, in 2011, DEP launched the Water for the Future Program (WFF), a comprehensive long-term planning effort to repair leaks in sections of the Delaware Aqueduct by 2024. To support this program, a newly created Demand Management Unit within DEP was tasked with the development of a citywide strategy that will outline DEP's plan for the implementation of water demand management projects. DEP's 2013 *Water Demand Management Plan* identified five key strategies for managing water demand in New York City and detailed 21 specific initiatives to be implemented by 2024 in order to achieve targeted water demand reductions. It is anticipated that these initiatives will offset much of the increased demands citywide that may result from population growth and new development.

Table 10-3
Development and Museum Sites Water Consumption and Sewage Generation
No Action Condition

Use	Size/Population	Rate*	Consumption (gpd)
Development Site			
Residential[1]			
Domestic	577 persons	100 per person	57,682
Air Conditioning	302,670 sf	0.17 gpd/sf	51,454
Office			
Domestic	0 sf	0.10 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Retail			
Domestic	19,730 sf	0.24 gpd/sf	4,735
Air Conditioning	19,730 sf	0.17 gpd/sf	3,354
Community Facility[2]			
Domestic	5,000 sf	0.24 gpd/sf	1,200
Air Conditioning	5,000 sf	0.17 gpd/sf	850
Development Site Total Water Supply Demand			119,275
Development Site Total Sewage Generation			63,617
Museum Site			
Residential[1]			
Domestic	0 persons	100 per person	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Office			
Domestic	0 sf	0.10 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Retail			
Domestic	0 sf	0.24 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Community Facility[2]			
Domestic	0 sf	0.24 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Museum Site Total Water Supply Demand			0
Museum Site Total Sewage Generation			0
Project Sites Total Water Supply Demand			**119,275**
Project Sites Total Sewage Generation			**63,617**

Notes:
* Rates are from the *CEQR Technical Manual* Table 13-2.
[1] Assumes 1.91 residents per DU (2010 Census Average Household Size for Manhattan Community District 1)
[2] Utilizes Retail rates for calculation

SEWER SYSTEM

As discussed previously, combined sewer systems run along Pearl Street, Water Street, and Peck Slip. It is anticipated that the combined sewers in the adjacent streets will be available for connection and convey sanitary flow from the No Action condition building on the Development Site. The flow will run southeast along Peck Slip to South Street to Regulator NC-M16 located below FDR Drive at Peck Slip. From Regulator NC-M16, flow will be conveyed to an interceptor running along the east side of Manhattan to the Manhattan Pump Station. From there flow will be directed east below the East River via a force main to the Newtown Creek WWTP.

STORMWATER FLOWS

In the No Action condition, the existing surface parking lot on the Development Site would be redeveloped with a mixed-use building in accordance with existing zoning. Surface types would change with the introduction of roof surface area on the Development Site, increasing stormwater flows (see **Table 10-4**). As required by the DEP regulations and the proposed Unified Stormwater Rule (described below), sanitary and stormwater source control BMPs would be used to reduce sanitary volume and peak stormwater runoff volumes to the combined sewer system. The No Action condition building on the Development Site would incorporate low-flow plumbing fixtures to reduce sanitary flow. In addition, stormwater detention would be required as part of the DEP site connection approval process for new construction that connects to the City's sewer system. This performance standard, required by DEP, is discussed in more detail below.

Table 10-4
Surface Coverage
No Action Condition

Affected CSO Outfall	Surface Type	Roof	Pavement and Walkways	Other	Grass and Soft Scape	Total
NCM-078	Area (percent)	100%	0%	0%	0%	**100%**
	Surface Area (sf)	53,306	–	–	–	**53,306**
	Runoff Coefficient	1.00	0.85	–	0.20	**1.00***
NCM-067	Area (percent)	51%	49%	0%	0%	**100%**
	Surface Area (sf)	5,667	5,424	–	–	**11,091**
	Runoff Coefficient	1.00	0.85	–	0.20	**0.93***

Notes:
* The Runoff Coefficient is a weighted average. The calculations are based on the DEP Volume Calculation Matrix provided in the *CEQR Technical Manual*, retrieved December 2020.
Totals may not sum due to rounding.

In the No Action condition, the Development Site would be redeveloped with site flows restricted in accordance with DEP's regulations. The flow generated from the site would be detained and restricted with an outlet control. Through the use of this system, the developed peak flow rate is restricted to the allowable peak flow rate with an additional 10 percent restriction in conformance with DEP standards to reduce the peak flow rate to the City's combined sewers.

In the No Action condition, independent of the ~~Proposed Project~~previously proposed project, DEP is expected to enact amended on-site stormwater management requirements for new and redevelopment projects in combined sewer areas, updating the current regulations (2012 Stormwater Rule) which reduce peak discharges to the city's sewer system during rain events by requiring greater on-site storage of stormwater runoff and slower release to the sewer system. Specifically, DEP is proposing amendments to Chapters 31 and 19.1 of Title 15 of the Rules of the City of New York (RCNY) as part of a Unified Stormwater Rule. The Unified Stormwater Rule, to be administered citywide, will update and align Chapter 31 stormwater quantity and flow rate requirements with Chapter 19.1 Construction/Post-Construction permitting program water quality requirements.

Under Chapter 31 amendments, the Unified Stormwater Rule increases the amount of stormwater required to be managed on-site and further restricts the release rates for all new and redevelopment projects that require a DEP House or Site Connection Proposal. Additionally, under Chapter 19.1 amendments, sites that disturb 20,000 square feet or more of soil or increase impervious surfaces by 5,000 square feet or more will also be required to manage the Water Quality Volume (WQv), currently defined as 1.5" over the lot area, using stormwater management practices (SMPs) dictated by DEP SMP hierarchies. DEP has developed hierarchies for both combined and separate

sewer areas. The SMP hierarchies prioritize vegetated retention SMPs for both drainage areas with stormwater volume control and stormwater treatment communicated as the underlying goals for combined and separate sewer areas, respectively. For sites that trigger the Chapter 19.1 component of the Unified Stormwater Rule, the hierarchy is mandatory, meaning that developers must start with the most preferred SMP and provide documentation of site constraints that prevent implementation in order to move to the next SMP.

In August 2020, New York City Council passed Intro No. 1851, enabling DEP to move forward with the Chapter 19.1 amendments necessary to package the Unified Stormwater Rule amendments. Draft rules are anticipated to be published in Spring 2021 and be in effect in 2022. A new New York City Stormwater Management Guidance Manual will accompany the Unified Stormwater Rule to provide clear guidance on requirements and design options. The draft manual will be published along with the draft rules in Spring 2021.

The Unified Stormwater Rule is expected to lead to a substantial improvement in the way that individual new and redeveloped properties manage stormwater compared to the 2012 Stormwater Rule. In some cases, stormwater will be entirely prevented from entering the city sewer system through retention and, in most cases, stormwater that does enter the system will be reduced and/or treated and released at a much lower rate, allowing the system to operate more efficiently during peak wet weather events. In combined sewersheds, such as portion of Manhattan that contains the Project Area, the Unified Stormwater Rule is expected to lead to a reduction in CSO volume as more lots redevelop over time. The Unified Stormwater Rule is not presented as part of this analysis; the analysis is more conservative as the USR would require SMPs that are more stringent.

E. THE FUTURE WITH THE PREVIOUSLY PROPOSED PROJECT

In the With Action condition, the Development Site would be redeveloped, and the South Street Seaport Museum would be restored and reopened, and potentially expanded on the Museum Site. The Development Site would be redeveloped with an approximately 680,500-gsf mixed-use building with residential space, office space, community facility space, retail, and accessory parking spaces. The restoration and reopening of the Museum would consolidate its spaces within approximately 27,996 gsf of renovated and reopened space at 91-93 South Street and 2-4 Fulton Street; reopen its approximately 26,312-gsf "Collections" space at 167-171 John Street; and include a potential expansion of the Museum on the vacant site at the corner of South Street and John Street (89 South Street/175 John Street). Additionally operational changes would be implemented at the Pier 17 access drive to facilitate passenger drop off as well as minor improvements to the Pier 17 access drive area and building, while streetscape, open space, or other improvements (e.g., planters) may also occur in the remainder of the Project Area under the With Action condition.

The With Action condition would result in more water consumption and generate more sewage than the No Action condition. The results of the analysis on water and sewer infrastructure are described in the sections below. In addition, for the With Action condition it is anticipated that existing combined sewers in the streets adjacent to the Development Site and Museum Site would be available for connection to buildings proposed for development and would convey the sanitary and stormwater flow to the Newtown Creek WWTP.

WATER SUPPLY

As shown in **Table 10-5**, the With Action condition on the Development Site and the Museum Site would result in a total water demand of 257,738 gpd; this would be an increase in incremental water demand of approximately 138,463 gpd as compared to the No Action condition. This represents a 0.01 percent increase in demand on the water supply system compared to the City's average daily water use of approximately 1.1 billion gpd. Therefore, there would be no significant adverse impact on the City's water supply.

Table 10-5
Water Consumption and Sewage Generation
With Action Condition

Use	Size/Population	Rate*	Consumption (gpd)
Development Site			
Residential[1]			
Domestic	753 persons	100 per person	75,330
Air Conditioning	394,400 sf	0.17 gpd/sf	67,048
Office			
Domestic	267,747 sf	0.10 gpd/sf	26,775
Air Conditioning	267,747 sf	0.17 gpd/sf	45,517
Retail			
Domestic	13,353 sf	0.24 gpd/sf	3,205
Air Conditioning	13,353 sf	0.17 gpd/sf	2,270
Community Facility[2]			
Domestic	5,000 sf	0.24 gpd/sf	1,200
Air Conditioning	5,000 sf	0.17 gpd/sf	850
Development Site Total Water Supply Demand			222,195
Development Site Total Sewage Generation			106,510
Museum Site			
Residential[1]			
Domestic	0 persons	100 per person	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Office			
Domestic	0 sf	0.10 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Retail			
Domestic	0 sf	0.24 gpd/sf	0
Air Conditioning	0 sf	0.17 gpd/sf	0
Community Facility[2]			
Domestic	86,691 sf	0.24 gpd/sf	20,806
Air Conditioning	86,691 sf	0.17 gpd/sf	14,737
Museum Site Total Water Supply Demand			35,543
Museum Site Total Sewage Generation			20,806
Total Water Supply Demand			**257,738**
Total Sewage Generation			**127,316**
No Action to With Action Incremental Total Water Supply Demand			**138,463**
No Action to With Action Incremental Total Sewage Generation			**63,698**

Notes:
* Rates are from the *CEQR Technical Manual* Table 13-2.
[1] Assumes 1.91 residents per DU (2010 Census Average Household Size for Manhattan Community District 1)
[2] Utilizes Retail rates for calculation

SANITARY FLOWS

As shown in **Table 10-5**, the With Action condition on the Development Site and Museum Site are expected to generate 127,316 gpd of daily sanitary sewage. The sanitary sewage generated by

the With Action condition would be an incremental increase of 63,698 gpd compared to the No Action condition. The increase in sewage generation would be approximately 0.03 percent of the average daily flow at the Newtown Creek WWTP and would not result in an exceedance of the WWTP's permitted capacity of 310 mgd. In addition, in accordance with the New York City Plumbing Code (Local Law 33 of 2007), the Development Site and the potential Museum Site expansion would be required to utilize low-flow plumbing fixtures, which would help to further reduce sanitary flows to the WWTP.

Connecting to the City's sewer system requires certification from DEP as part of the building permit process, which is not a discretionary approval. An applicant would be required to file a Site Connection Proposal Application (SCP) for approval from DEP to tie into the sewer system. In this process, before a building permit can be issued, site connection proposals must be certified for sewer availability by DEP. An applicant would be required to demonstrate that the existing sanitary system could handle the site-specific sanitary flows from the ~~Proposed Project~~previously proposed project. Because the City's sewers are sized and designed based on the designated zoning of an area and related population density and surface coverage characteristics, the ~~Proposed Project~~previously proposed project may result in development that is inconsistent with the design of the existing built sewer system. A site-specific hydraulic analysis of the existing sewer system will likely be required to determine whether the existing sewer system is capable of supporting higher density development and related increases in wastewater flows. Sewer upgrades may be required at the time of the SCP to accommodate the projected flows from the new development. In addition, there may be a need to amend the existing drainage plan based on the hydraulic analysis calculations. As the ~~Proposed Project~~previously proposed project is not expected to result in a significant increase in dry weather flows to the combined sewer system, no significant adverse impacts would result.

STORMWATER FLOWS

The amount of impervious surfaces on the development sites in the With Action condition would be the same as in the No Action condition. However, the types of impervious surfaces—roof and pavement/walkways—would change; specifically, in the portion of the of Project Area located in the NCM-067 service area, there would be an increase in rooftop area as compared to the No Action condition (in the NCM-078 service area, there would be no change in surface area from the No Action condition, which would remain fully rooftop area). Therefore, the stormwater flow would change in a portion of the Project Area (see **Table 10-6**). The weighted runoff coefficient would increase in the NCM-067 service area, the runoff coefficient would increase from 0.93 in the No Action condition to 1.00 in the With Action condition; in the NCM-078, the runoff coefficient would remain at 1.00. Therefore, as compared to the No Action condition, the stormwater runoff would increase in the With Action condition in a portion of the Project Area.

Table 10-6
Surface Coverage
With Action Condition

Affected CSO Outfall	Surface Type	Roof	Pavement and Walkways	Other	Grass and Soft Scape	Total
NCM-078	Area (percent)	100%	0%	0%	0%	**100%**
	Surface Area (sf)	53,306	–	–	–	**53,306**
	Runoff Coefficient	1.00	0.85	–	0.20	**1.00***
NCM-067	Area (percent)	100%	0%	0%	0%	**100%**
	Surface Area (sf)	11,091	–	–	–	**11,091**
	Runoff Coefficient	1.00	0.85	–	0.20	**1.00***

Notes:
* The Runoff Coefficient is a weighted average. The calculations are based on the DEP Volume Calculation Matrix provided in the *CEQR Technical Manual*, retrieved December 2020.
Totals may not sum due to rounding.

In the With Action condition, the Development Site would be redeveloped and the Museum Site expanded. These two new developments would include site flows restricted in accordance with DEP regulations. The developed flow generated from each site would be detained and restricted with outlet controls. Through the use of these systems, the developed peak flow rate of each site would be restricted to the site's allowable peak flow rate with an additional 10 percent restriction in conformance with DEP standards to reduce the peak flow rate to the City's combined sewers. As described above, there is expected to be increased retention and detention of stormwater runoff to be implemented with the new development in accordance with the proposed Unified Stormwater Rule.

Using these sanitary and stormwater flow calculations, the DEP Volume Calculation Matrix was utilized to determine flows for the With Action condition. The calculations from the Volume Calculation Matrix help to determine the change in wastewater volumes to the combined sewer system from existing conditions to With Action condition and include four rainfall runoff volume scenarios with varying durations.[5] The drainage analysis assumes that all stormwater runoff from the Development Site and Museum Site would flow via the existing combined sewer infrastructure adjacent to the Development Site and Museum Site. The summary tables of the Volume Calculation Matrix are included in **Table 10-7**.

[5] Consistent with the guidance of the *CEQR Technical Manual* and the DEP Volume Calculation Matrix, With Action condition flows are compared to existing conditions rather than No Action conditions.

Table 10-7
DEP Volume Calculation Matrix:
Existing and With Action Condition Volume Comparison

Rainfall Volume (in)	Rainfall Duration (hr)	Runoff Volume to SS(MG)	Runoff Volume to CSS (MG)*	Sanitary Volume to CSS (MG)	Total Volume to CSS (MG)	Runoff Volume to SS (MG)	Runoff Volume to CSS (MG)*	Sanitary Volume to CSS (MG)	Total Volume to CSS (MG)	Increased Total Volume to CSS (MG)*
NCM-078		**Existing**				**With Action**				**NCM-067 Increment**
		1.22 acres				1.22 acres				
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01
0.40	3.80	0.00	0.01	0.00	0.01	0.00	0.01	0.02	0.03	0.02
1.20	11.30	0.00	0.03	0.01	0.04	0.00	0.04	0.05	0.09	0.05
2.50	19.50	0.00	0.07	0.01	0.08	0.00	0.08	0.09	0.17	0.09
NCM-067		**Existing**				**With Action**				**NCM-067 Increment**
		0.25 acres				0.25 acres				
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
1.20	11.30	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.01
2.50	19.50	0.00	0.02	0.00	0.02	0.00	0.02	0.02	0.03	0.02

Notes:
Totals may not sum due to rounding.
*Assumes no on-site detention or Best Management Practices (BMPs) for purposes of calculations.
SS = Storm Sewer; CSS = Combined Sewer System; MG = Million Gallons

As shown in **Table 10-7**, in all rainfall scenarios the total rainfall and sanitary sewage volume would increase for CSO outfalls NCM-078 and NCM-067: during storm events with up to 2.5 inches of rainfall, the increase would be up to 0.09 million gallons at outfall NCM-078, and up to 0.02 million gallons at outfall NCM-067. The increase in volume under the With Action condition as compared with the existing conditions is attributable to the increase in sanitary flow resulting from denser development (particularly residential development) as well as the increase in the rooftop surface area resulting from redevelopment of the Development Site and the expansion of the Museum Site.

The volume matrix calculations presented in **Table 10-7** ~~above~~ do not reflect the use of any sanitary and stormwater source control BMPs to reduce sanitary volume and stormwater runoff volumes to the combined sewer system. As noted above, the Development Site and the potential Museum Site expansion would incorporate low-flow plumbing fixtures to reduce sanitary flow as required by the New York City Plumbing Code. In addition, stormwater detention would be required as part of the DEP Site Connection Proposal (SCP) application process for new buildings connecting to the City's sewer system. As part of the SCP permit approval processes, developments must be in compliance with the required on-site stormwater volume requirements and stormwater release rate as detailed in the Unified Stormwater Rule. The performance standard is intended to reduce peak discharges to the City's sewer system during rain events by requiring greater onsite storage of stormwater runoff and slower release to the sewer system. The implementation of DEP's stormwater performance standard over time is expected to provide additional capacity to the existing sewer system, thereby improving its performance. The performance standard is a key element of the New York City Green Infrastructure Plan to promote green infrastructure and improve water quality in the City's surrounding waterbodies. Specific BMP measures for the proposed developments would be determined in the future in consultation with DEP when specific designs are advanced, and may include stormwater detention tanks, and rainwater reclamation systems.

In addition, a New York State Department of Environmental Conservation (DEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001) is required for any development that would involve soil disturbance of one or more acres. Therefore, a Stormwater Pollution Prevention Plan (SWPPP) for the ~~Proposed Project~~previously proposed project may be required of the Applicant. The SWPPP would include both temporary erosion and sediment controls and post-construction stormwater BMPs.

Given the small increment in total volumes as shown in **Table 10-7**, and the incorporation of sanitary and stormwater source control BMPs, the ~~Proposed Project~~previously proposed project is not expected to appreciably increase the frequency or volume of CSO events. Overall, the previously proposed project would not result in significant adverse impacts on wastewater treatment or stormwater conveyance. ✷