



III.D

Stormwater Management

1. Existing Conditions and Capacity

Stormwater runoff is rainwater or melted snow that flows over land, including pavement, roofs, lawns, and other landscaping, and does not directly soak into the ground. As noted by the United States Geological Survey (USGS), there are four potential paths of stormwater; some of the flow will be intercepted by vegetation and evaporate into the atmosphere; some will fall onto the ground surface and evaporate; some will infiltrate into the soil; and some will run directly off from the ground surface.¹ As described by the US Environmental Protection Agency (USEPA), “when stormwater is absorbed into soil, it is filtered and ultimately replenishes aquifers or flows into streams and rivers.”²

The Project Site is located within the Hackensack-Passaic Watershed (HUC 02030103). The site generally slopes from the east, south, and west towards the wetlands located near the western property boundary. Beyond the Project Site, the area ultimately slopes to the north toward the Mahwah River, located to the north beyond the New York State Thruway (the “Thruway”). Within the Montebello portion of the Project Site (Section 55.06, Block 1, Lot 1), there is an apparent ridgeline running north-south; the portion of the Project Site to the east of the ridgeline appears to drain via overland flow to the existing stormwater infrastructure along Hemion Road, which slopes from south to north towards Old Mill Road and the Thruway.

As detailed in **Chapter III.C, Wetlands, Waterbodies and Watercourses**, the Project Site includes intermittent and perennial tributaries to the Mahwah River, running from south to north across the site, as well as an on-site stormwater pond, which ultimately drain to a single tributary (Tributary 1) that exits the site under the Thruway. See **Figure III.D-1** for a map of the existing drainage area for the Project Site. A drainage area is a localized area in which runoff from a storm event will flow to and be detained. As shown, the two existing drainage areas on the Project Site within the limit of project disturbance include the existing stormwater pond study area and the existing stream study area. The ultimate point of stormwater discharge from the Project Site was identified as the most downstream point of Tributary 1 within the Project Site. Dynamic Engineering Consultants, PC

¹ United States Geological Survey. *Surface Runoff and the Water Cycle*. Available at: https://www.usgs.gov/special-topic/water-science-school/science/surface-runoff-and-water-cycle?qt-science_center_objects=0#qt-science_center_objects.

² United States Environmental Protection Agency. EPA Facility Stormwater Management. Available at: <https://www.epa.gov/greeningepa/epa-facility-stormwater-management>.

(Dynamic) prepared a preliminary Stormwater Pollution Prevention Plan (SWPPP) for the Proposed Project dated August 2022. The SWPPP was prepared in accordance with the 2015 New York State Department of Environmental Conservation Stormwater Management Design Manual (SMDM) and the New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity General Permit Number GP-0-20-001. A copy of the SWPPP is included in **Appendix I**. As detailed in the SWPPP, Natural Resource Conservation Service (NRCS) soil boundaries identified within the Proposed Project area of disturbance include Wethersfield gravelly silt loam (WeB, hydrologic soil group 'C'), Wethersfield gravelly silt loam 15 to 25 percent slopes (WeD, soil group 'C'), Udorthents – smoothed (Us, soil group 'A'), Holyoke-Rock outcrop complex – hilly (HoD, soil group 'D'), Water (W, no soil classification), and Urban Land (Ux, no soil classification). Groundwater on the Project Site is typically encountered at depths ranging between approximately four feet and eight feet below ground surface (bgs) based on the geotechnical analysis conducted by Dynamic Earth, LLC (see **Appendix G** for the geotechnical report).

The Project Site is a total of 161.51 acres, although the Proposed Action site disturbance would be limited to the Village of Suffern parcel (Section 55.22, Block 1, Lot 1), which is a total of 124.93 acres. Existing impervious surfaces in the Village of Suffern portion of the Project Site, including the existing buildings, parking areas, and roadways, total approximately 20.86 acres.

Water Quantity and Water Quality

As detailed in the SWPPP, the Project Site has been evaluated based upon the NRCS, TR-55 "Urban Hydrology for Small Watersheds" methodologies and recommendations, the SMDM, requirements contained in the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit Number GP-0-20-001, and requirements found in Chapter 233 of the Village of Suffern Village Code.

Pre-development rates of stormwater runoff have been computed for the 1-, 10-, 25-, and 100-year storm (extreme storm) events. The existing combined runoff rates, rates of flow from two or more existing drainage areas, for the overall site are provided in **Table III.D-1**.

Table III.D-1 Existing Overall Runoff Rates

Design Storm	Existing Combined Runoff Rates (cfs)
1-Year (channel protection)	51.60
10-Year (overbank flood)	101.73
25-Year	102.27
100-Year (extreme storm)	189.42

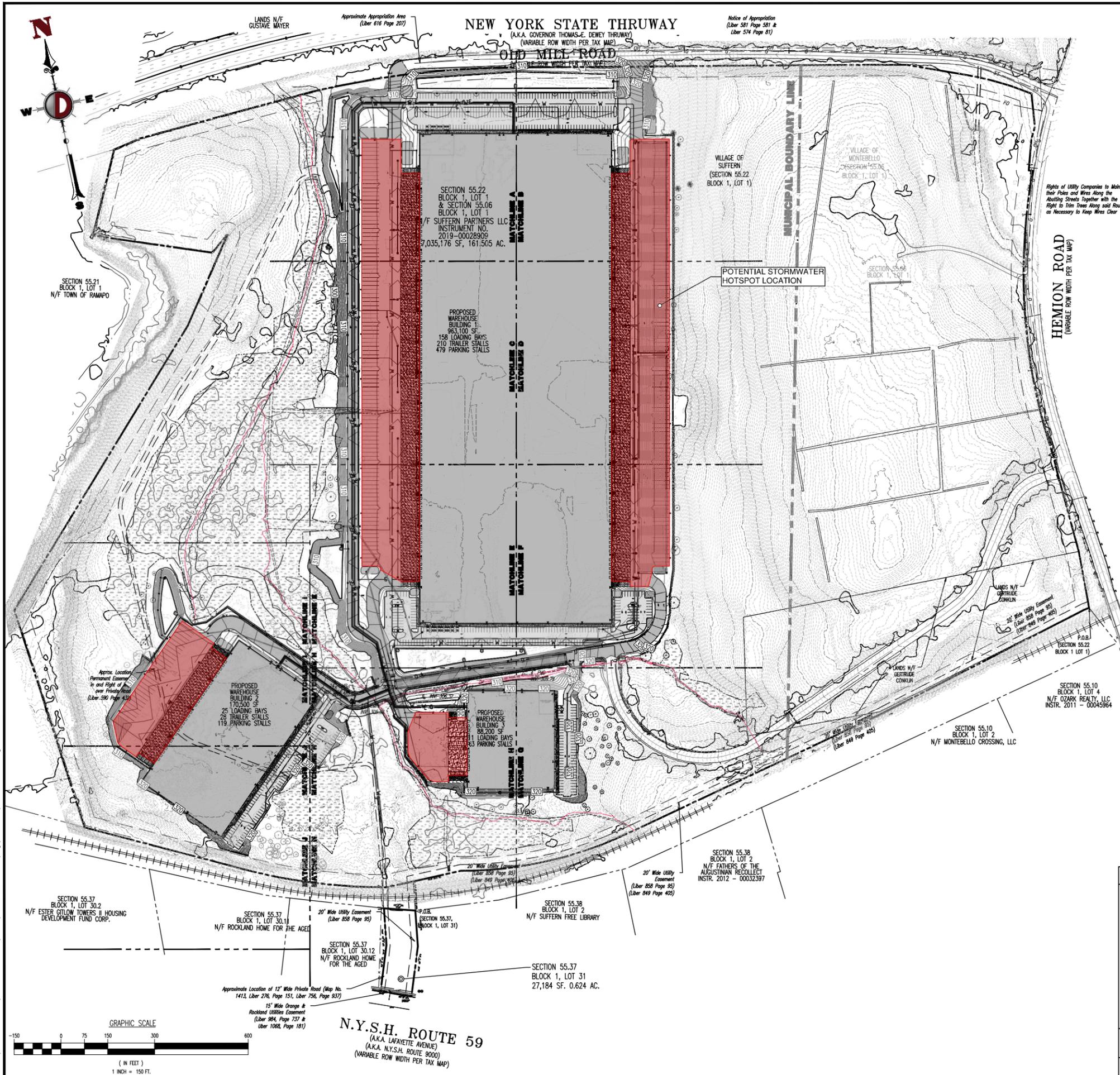
Requirements for water quality (the required Water Quality Volume (WQv)) are set forth in Chapter 4 of the SMDM. WQv is designed to improve water quality by capturing and treating 90 percent of the average annual stormwater runoff volume. WQv is typically associated with the 1-year storm event for stormwater management performance purposes. The minimum WQv that must be treated is unique per each site and is calculated per NYSDEC standards. The required WQv can be viewed in **Table III.D-3**. As detailed in **Chapter III.C, Wetlands, Waterbodies and Watercourses**, existing waterbodies, including Tributaries 1 through 5, within the Project Site were classified based on Title 6

of the New York Code of Rules and Regulations (NYCRR) Part 701. Tributaries 1 and 5 are mapped by NYSDEC and assigned a classification of 'C'. The best usage for class C fresh surface waters is fishing. Class C waters are suitable for fish, shellfish and wildlife propagation and survival and for primary and secondary contact recreation, although other factors may limit the use for these purposes. All other tributaries on-site as classified as intermittent and do not maintain a year-round flow, and therefore are not classified. See **Chapter III.C, Wetlands, Waterbodies and Watercourses**, for a complete description of existing surface water quality conditions on the Project Site.

Sources of Pollution

The Proposed Project will contain potential areas for both point and non-point sources of pollution. Point sources of pollution are generally identified in the outdoor loading areas where consistent truck traffic has the potential to leak contaminants that could runoff through into the stormwater management system. Due to the nature of the proposed land use, the point sources of pollutions on Proposed Site are classified as stormwater hotspots. The NYSDEC defines a stormwater hotspot as a land use or activity that generates higher concentrations of hydrocarbons, trace metals, or toxicants than are found in typical stormwater runoff. Stormwater hotspots cannot be allowed to infiltrate untreated and must addressed in a stormwater pollution prevention plan. Stormwater hotspots on the Proposed Site can be identified in **Figure III.D-2**.

Figure III.D-2 Stormwater Hotspot Location



LEGEND

 **POTENTIAL STORMWATER HOTSPOT LOCATION (+/-618,470 SF)**

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TITLE: **STORMWATER HOTSPOT LOCATION EXHIBIT**

PROJECT: **IV2 ROCKLAND LOGISTICS, LLC
 PROPOSED INDUSTRIAL PARK AT 25 OLD MILL ROAD
 SECTION 55.22 BLOCK 1, LOT 1; SECTION 55.37, BLOCK 1, LOT 31
 OLD MILL ROAD AND HEMION ROAD (CR 93)
 VILLAGE OF SUFFERN, ROCKLAND COUNTY, NEW YORK**

JOB No: 3709-99-004 DATE: 12/17/2021
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 CHECKED BY: JMS
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Non-point sources of pollution on the Project Site include sheet flow and shallow concentrated flow from roadway and other impervious surface runoff to the existing stormwater pond and tributaries on-site. The Project Site is connected to the Suffern municipal sewer system; therefore, no point sources of pollution are associated with sewage disposal. Pollution from grass clippings or other organic materials is avoided through the employment of landscaping best management practices on the Project Site.

2. Potential Impacts

The Proposed Project would include the demolition of the existing site buildings and construction of three one-story warehouse buildings with associated improvements including parking, loading docks, and access drives. The proposed Project Site stormwater management system would consist of a series of vegetated stormwater infiltration and detention facilities which would release stormwater runoff at a controlled rate through outlet control structures into the on-site tributaries. The infiltration and detention facilities have been designed to satisfy the channel protection, overbank flood, and extreme storm requirements set forth by the SMDM.

Specifically, the Proposed Project would consist of 68,646 square feet (1.57 acres) of planted infiltration basins and 43,959 square feet (1.01 acres) of enhanced basin slopes (slopes graded at a slope of 3:1 and stabilized using a series of plantings. See **Figure III.C-8**).

Four aboveground basins would be located on the north, west, and south sides of Building 1 and its associated parking, and two additional basins would be located to the north of Buildings 2 and 3 (one basin north of each building). Underground infiltration basins are located on the west side of Building 1, and in the loading zones of Buildings 2 and 3. There are three underground detention basins located on site with two on the east side of Building 1 and one located in the road in between Building 1 and Building 3. See **Figure III.D-3** for the proposed drainage plan which identifies all stormwater conveyance systems for the Project Site.

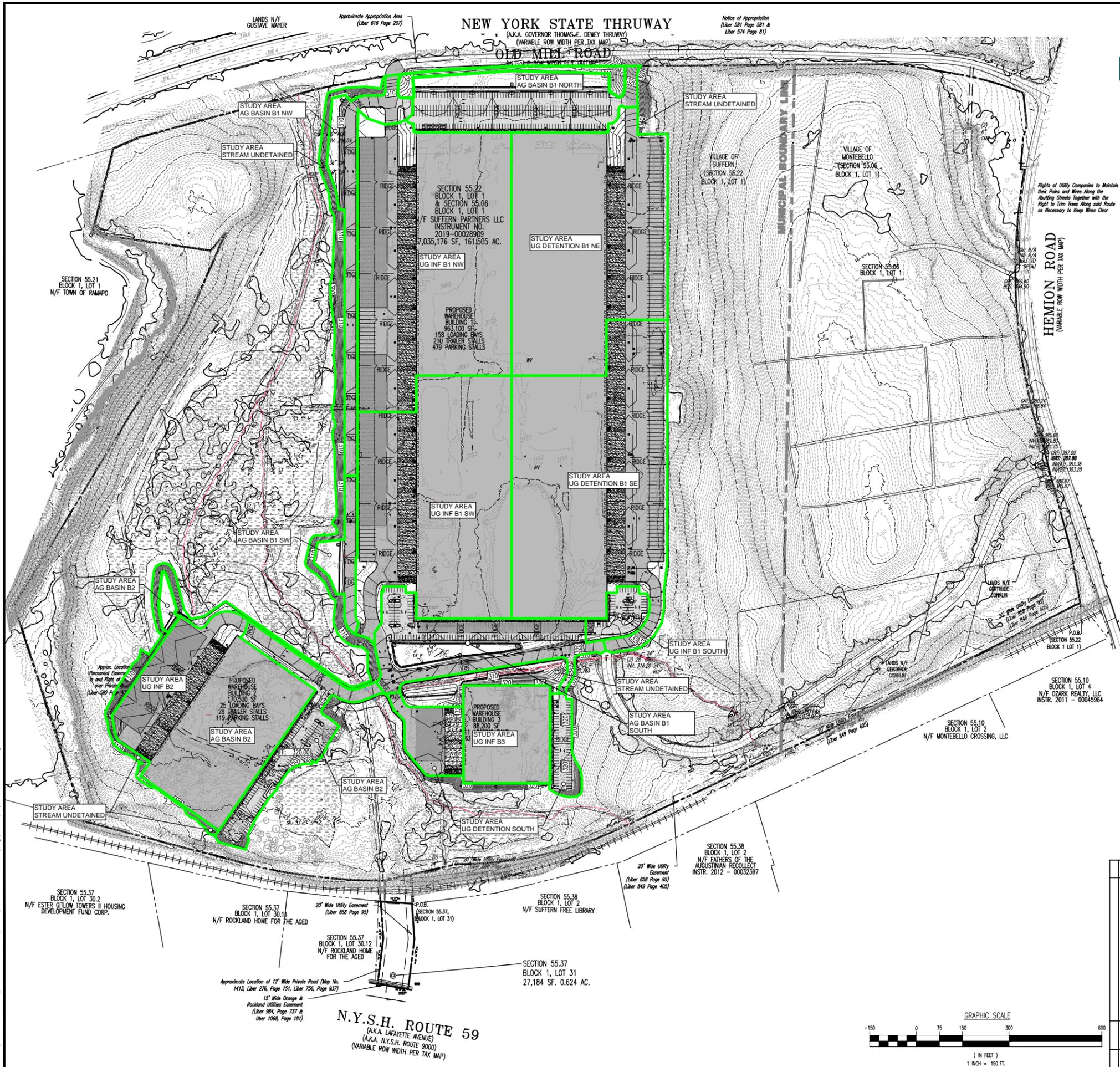
Due to the increase in impervious coverage, the Proposed Project will require a large amount of stormwater infrastructure in order to collect, detain / infiltrate, and release stormwater runoff in a reduced capacity. The Proposed Project features a large network of stormwater inlets which collect surface runoff and conveys runoff through a series of stormwater pipes, manholes, and other inlets. Stormwater pipes are sized to contain enough capacity for 25-year storm event. Runoff that is routed to an aboveground basin is discharged directly to the basin and treated for water quality. Stormwater entering an underground basin will pass through a manufactured treatment device to remove pollutants and contaminants from entering the basin. Once in the basin, the stormwater will either infiltrate into the ground water or be released at a controlled rate through an outlet control structure. An outlet control structure is a precast concrete structure consisting of orifices and weirs which are carved out of the structure at different elevations in order to control the release of water leaving a basin.

The Proposed Project would also employ hydrodynamic separators to pre-treat surface runoff upstream of the proposed infiltration basins. Hydrodynamic separators treat stormwater through the use of gravity to remove settleable particles and phase separation to remove buoyant materials such as oils and grease. In addition, Jellyfish Media Filters, a stormwater quality treatment technology featuring high flow pretreatment and membrane filtration, would be employed to treat remaining stormwater that is unable to be captured and retained by the proposed infiltration and detention facilities, avoiding any stormwater hot spots. Certifications as well as manufacturer maintenance

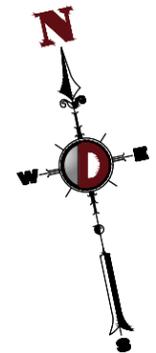
manuals are provided in the appendix of the SWPPP found in **Appendix I**. Overall, the Proposed Project would continue to direct stormwater runoff from the Project Site ultimately to Tributary 1. As the Proposed Project results in an increased impervious area, there will be less natural open space for stormwater runoff to infiltrate through the soil. If not properly managed, the increased runoff from the site could have negative effects from the site such as increased downstream flooding and erosion. The Proposed Project intends to use several stormwater management systems to balance the amount of runoff leaving the Project Site and avoid any negative impacts. See **Figure III.D-3** for the proposed post-development drainage conditions.

Figure III.D-3 Proposed Drainage Area Map

THIS PLAN TO BE UTILIZED FOR STORMWATER/DRAINAGE ANALYSIS PURPOSES ONLY



PAVEMENT LEGEND	
	PROPOSED LIGHT DUTY PAVEMENT
	PROPOSED HEAVY DUTY PAVEMENT
	PROPOSED STANDARD CONCRETE
	PROPOSED HEAVY DUTY CONCRETE



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TITLE: **PROPOSED DRAINAGE AREA MAP**

PROJECT: BROOKFIELD PROPERTIES PROPOSED INDUSTRIAL PARK AT 25 OLD MILL ROAD SECTION 55.22 BLOCK 1, LOT 1 OLD MILL ROAD AND HEMION ROAD (CR 93) VILLAGE OF SUFFERN, ROCKLAND COUNTY, NEW YORK	JOB No: 3709-99-004	DATE: 07/28/2022
DESIGNED BY: JMS	DRAWN BY: ALPH	SCALE: (H) 1"=150' (V) 1"=150'
CHECKED BY: JMS	CHECKED BY: --	SHEET No: 2
JOHN A. PALUS PROFESSIONAL ENGINEER NEW YORK LICENSE No. 087502	JOSHUA M. SEWALD PROFESSIONAL ENGINEER NEW YORK LICENSE No. 097639	Rev. # 0

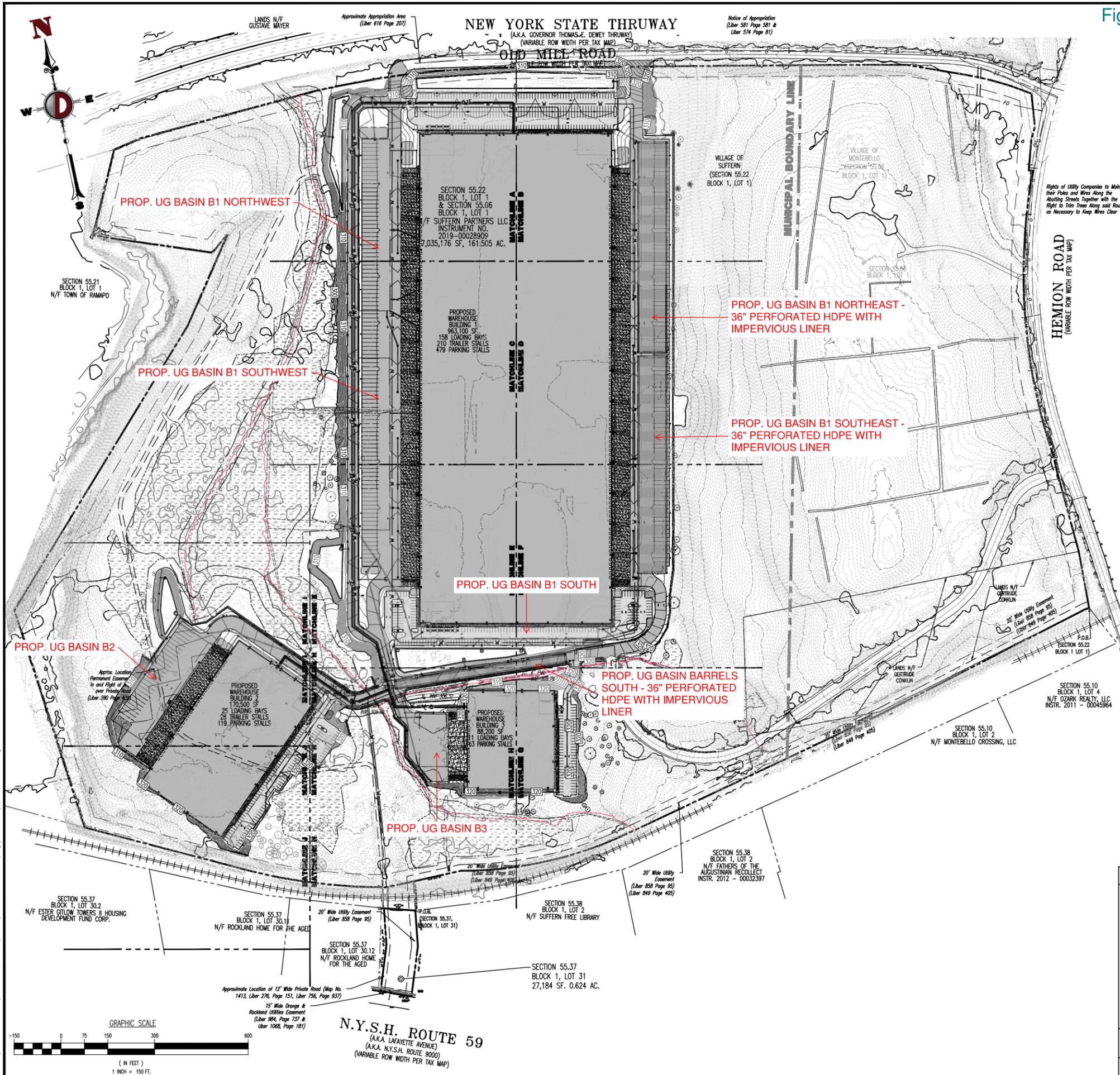
The proposed aboveground and underground infiltration facilities have been designed in accordance with the following requirements set forth by the SMDM:

- › The bottom of the infiltration facility shall be separated by at least three feet vertically from the seasonally high-water table or bedrock layer (Four feet vertical separation from water table when located in sole source aquifers).
- › Infiltration basins located on aquifers shall provide 100 ft horizontal separation distance from wells.

A minimum pretreatment runoff volume of 25 percent of the incoming WQv must be provided prior to entry to an infiltration facility. Pretreatment can be provided via manufactured treatment devices such as the hydrodynamic separators and Jellyfish Media Filters described above.

Manufactured treatment devices are identified on the in **Figure III.D-5**. A summary of the WQv treatment is provided in **Table III.D-3**.

Figure III.D-4: DRAINAGE COLLECTION SYSTEM



REFER TO DRAINAGE PLANS A-J (SHEETS 39-48 OF FULL CIVIL DRAWINGS) IN APPENDIX C FOR ADDITIONAL DETAIL

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TITLE: **OVERALL DRAINAGE PLAN**

PROJECT: **IV2 ROCKLAND LOGISTICS, LLC
PROPOSED INDUSTRIAL PARK AT 25 OLD MILL ROAD**

SECTION 55.22 BLOCK 1, LOT 1; SECTION 55.37, BLOCK 1, LOT 31
OLD MILL ROAD AND HEMION ROAD (CR 93)
VILLAGE OF SUFFERN, ROCKLAND COUNTY, NEW YORK

JOB No: 3709-99-004 DATE: 12/17/2021

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Based on the relatively shallow depths from the existing grades to the seasonally high water table, it was necessary to raise the grade on-site in order to provide the necessary separation between the seasonally high water table and the proposed infiltration facilities. As such, the proposed infiltration facilities would be placed in fill soils.

The bottom of the infiltration basins would be planted with red fescue (*Festuca rubra*) and would be intermittently inundated with stormwater. The bottom of the basin would be seeded at a density of 0.5 lbs./1,000 sf. Red fescue is a low maintenance, drought tolerant species that is well suited for the fluctuating hydrology exhibited within an infiltration basin. Red fescue is adapted to a wide range of soil textures and is somewhat tolerant of salinity.

In the Proposed Action, no disturbance to the Montebello portion of the Project Site is proposed, and therefore no new stormwater management measures are required. Therefore, there would be no change to existing drainage patterns in that location.

The proposed development coverage area would increase from 20.86 acres to 52.79 acres of impervious surface coverage, an increase of 31.93 acres. The proposed disturbance is primarily limited to the interior portions of the Project Site with the intention to preserve undisturbed areas and mature vegetation located at the perimeter of the Project Site. The project has been designed as such to limit disturbance to the existing wetlands and watercourses and to maintain preconstruction natural hydrologic conditions of the Project Site to the maximum extent practicable.

Water Quantity and Water Quality

Table III.D-2 describes the comparison of the existing and proposed land coverages broken down between impervious coverage and open space area. The open space area comprises of landscaped areas, wooded areas, wetlands, etc. As seen, the Proposed Project results in a larger amount of impervious coverage compared to existing conditions. As a result, stormwater management measures will need to be taken to manage runoff from both a quality and quantity stand point.

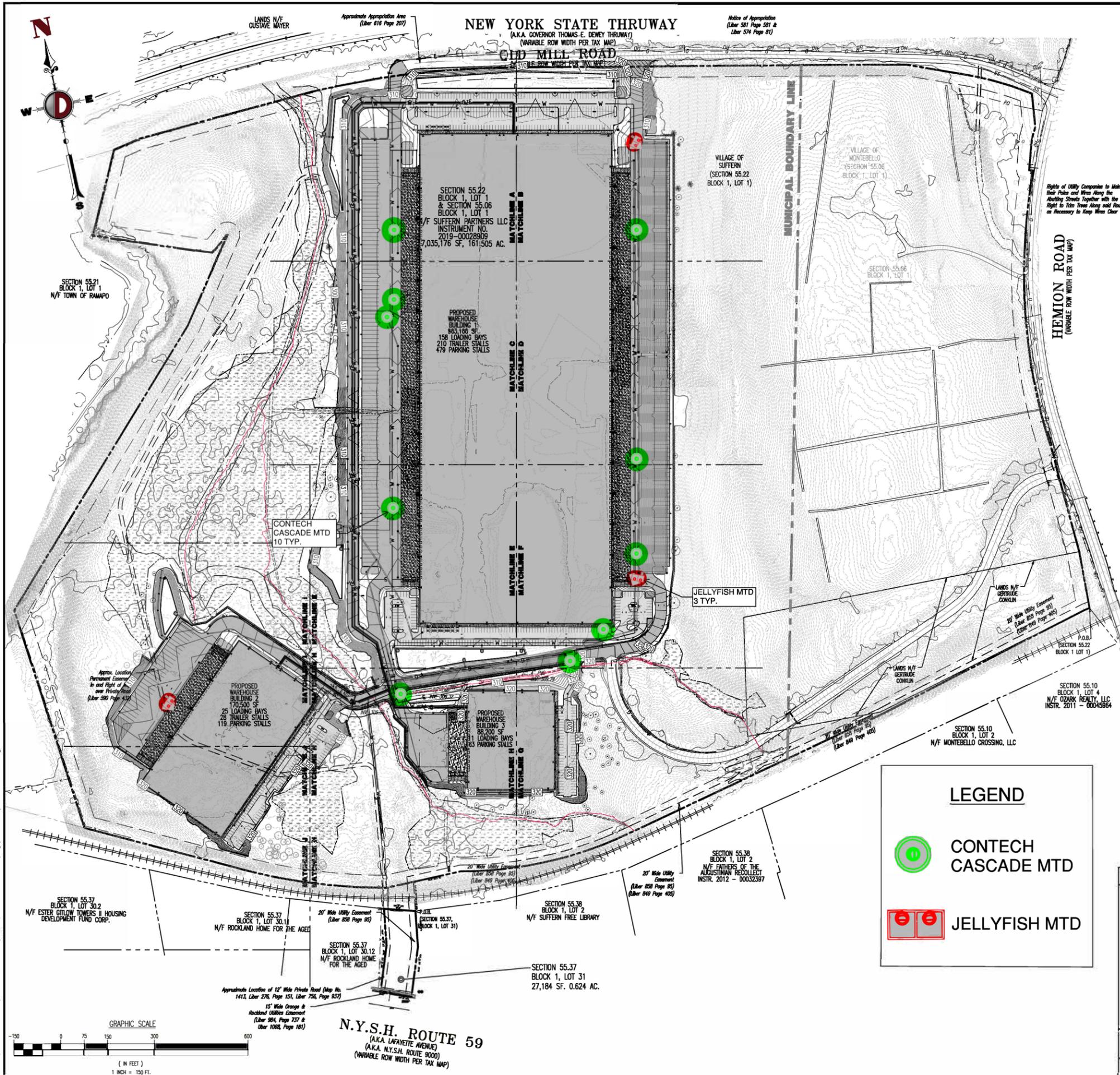
Table III.D-2 Land Coverage Table

Land Coverage Type	Existing (Square Feet)	Proposed (Square feet)	Net
Impervious Coverage	16.7% (910,634 SF)	54.5% (2,299,677 SF)	(+)37.8% (1,389,043 SF)
Open Space	83.3% (4,531,120 SF)	45.5% (3,142,077 SF)	(-)37.8% (1,389,043 SF)

Post-construction stormwater quality was evaluated in accordance with the 2015 NYSDEC SMDM. The Water Quality Volume (WQv) was determined and incorporated into the Proposed Project's overall design. The WQv is intended to improve water quality by capturing and treating runoff from small, frequent storm events that tend to contain higher pollutant levels. The stormwater management system has been designed to reduce the WQv to the maximum extent practical, and to treat any remaining WQv prior to site discharge. Furthermore, in compliance with NYSDEC requirements, a minimum amount of the proposed stormwater runoff is required to be infiltrated directly back into the existing groundwater. This volume of runoff is referred to as the minimum Runoff Reduction Volume (RRv). This volume is calculated based off of existing and proposed conditions of the site.

As detailed above, the Proposed Project would incorporate infiltration practices and, in some cases, manufactured treatment devices to treat stormwater runoff. Areas of the Project Site where in-situ soils are not favorable for infiltration practices would utilize manufactured treatment devices to treat stormwater runoff to 80 percent removal of total suspended solids and 40 percent phosphorus removal. Additionally, the project proposes hydrodynamic separators to pretreat runoff tributary to

Figure III.D-5: Manufactured Treatment Devices



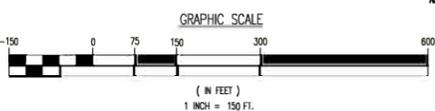
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CONTECH CASCADE MTD

JELLYFISH MTD

Rights of Utility Companies to Maintain their Poles and Wires Along the Abutting Streets Together with the Right to Trim Trees Along said Route as Necessary to Keep Wires Clear

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N.Y.S.H. ROUTE 59
 (A.K.A. LAFAYETTE AVENUE)
 (A.K.A. N.Y.S.H. ROUTE 9000)
 (VARIABLE ROW WIDTH PER TAX MAP)

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MTD LOCATION EXHIBIT

PROJECT: **IV2 ROCKLAND LOGISTICS, LLC**
 PROPOSED INDUSTRIAL PARK AT 25 OLD MILL ROAD
 SECTION 55.22 BLOCK 1, LOT 1; SECTION 55.37, BLOCK 1, LOT 31
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 VILLAGE OF SUFFERN, ROCKLAND COUNTY, NEW YORK

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underground infiltration facilities through the removal of sediment, floatables, oil, and grease. A summary of the WQv treatment and RRV volume is provided in **Table III.D-3**.

Table III.D-3 Water Quality Volume Summary

Water Quality Volume (cubic feet)	275,386
Minimum Runoff Reduction Volume (cubic feet)	150,188
Runoff Reduction (proposed infiltration)	226,512

As shown in **Table III.D-4** below, through the implementation of the proposed stormwater management system, proposed combined runoff rates encompassing the total runoff during each storm event from all proposed drainage areas identified in **Figure III.D-3** from the Project Site would be significantly reduced, in accordance with the SPDES General Permit for Stormwater Discharges from Construction Activity - GP-0-20-001. A hydrology model calculating the existing and proposed runoff rates was established using stormwater modeling software and can be viewed in the appendix of the SWPPP found in **Appendix I**.

Table III.D-4 Existing and Proposed Overall Runoff Rates

Design Storm	Existing Combined Runoff Rates (cfs)	Proposed Combined Runoff Rates (cfs)
1-Year (channel protection)	51.60	0.590
10-Year (overbank flood)	101.73	17.05
25-Year	102.27	17.51
100-Year (extreme storm)	189.42	75.43

Overall, with the implementation of the proposed stormwater management system detailed above, the proposed project site would result in decreased flows from the site and promotes positive groundwater recharge through the use of infiltration systems. As shown in **Table III.D-5**, the Proposed Project significantly reduces the volume of runoff generated from the 1, 10, 25, and 100-year storm, as required per the NYSDEC Stormwater Management Design Manual. While the 100-year storm event results in an increase of runoff volume, through the multitude of stormwater management basins and outlet control structures, the volume of water is released at a controlled rate that will not result in flooding or increased erosion to downstream water courses such as the Mahwah River. The Proposed Action would have no adverse impacts on downstream properties or stormwater conveying systems, and in fact would significantly improve overall runoff rates from the Project Site and to the surrounding Hackensack-Passaic Watershed.

Table III.D-5 Existing and Proposed Overall Volumes

Design Storm	Existing Volume (Cubic Feet)	Proposed Volume (Cubic Feet)
1-Year (channel protection)	230,317	4,053
10-Year (overbank flood)	500,795	451,661
25-Year	504,201	457,275
100-Year (extreme storm)	918,799	1,073,741

Operations and Maintenance

The following procedures are set forth in the SWPPP to ensure proper construction, operation, and maintenance of the proposed stormwater infrastructure. The routine maintenance of all stormwater infrastructure would ensure the continued effective management of stormwater on the Project Site and avoid equipment failures on an ongoing basis.

The applicant is responsible to maintain a detailed log of all preventative and corrective maintenance actions for the constructed stormwater facilities incorporated into the design, including record of all inspections and copies of all maintenance-related work orders. The applicant is also responsible for maintenance to evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and deed as needed. The applicant shall retain a copy of the maintenance report onsite should a public entity request the maintenance report or documentation of said maintenance in the future.

- › During construction, a qualified inspector would inspect all stormwater management practices under construction to ensure they are constructed in conformance with the SWPPP.
- › The Applicant would own and be responsible for the operation and maintenance of the stormwater management practices on the Project Site. A maintenance agreement would be put in place to ensure the following long term operation and maintenance activities for each stormwater management practice:
 - **Underground Infiltration Facilities:** Maintenance of the underground infiltration facilities would require the upstream collection system feeding the chambers be routinely inspected and cleaned. Upstream catch basins shall incorporate a sump and hooded outlet pipes as preventive measures. Debris accumulating in these structures shall be inspected and cleaned once every two to three months.
 - **Hydrodynamic Separators:** The vortex separator unit allows for easy and safe inspection, monitoring, and cleanout procedures. Cleaning would be scheduled with a local company to remove sediment, oil, and other floatable pollutants during dry weather conditions. All cleaning activities should be performed in accordance with property health and safety procedures. Site-specific conditions or the presence of known contaminants may necessitate that appropriate actions be taken to clean and dispose of materials captured and retained by the treatment device. All materials removed from the pretreatment devices during the maintenance process would be handled and disposed in accordance with local and state environmental or other regulatory requirements. The hydrodynamic separators would be inspected every three months and cleaned as needed during construction and post-construction operation.
 - **Jellyfish Filter:** The Jellyfish filter systems would be inspected quarterly and after all storm events for debris build up, proper flow and signs of leaking to verify that they are working as intended. Required maintenance for the Jellyfish Filter would be based upon results of the most recent inspection.

Erosion and Sediment Controls

Erosion and sediment controls would be employed during construction of the Proposed Project. All erosion and sedimentation controls would be installed, monitored, repaired, and replaced in accordance with the New York State Standards and Specifications for Erosion and Sediment Control,

and would be the responsibility of a trained construction contractor on-site. The proposed erosion and sediment control practices to be implemented as part of the Proposed Project are listed below. See the SWPPP in **Appendix I** and the Erosion and Stormwater Pollution Prevention Plan drawings in **Appendix C** for additional details regarding erosion and sediment control and short-term maintenance and inspection requirements during construction. Compliance with the proposed erosion and sediment controls is critical to ensuring that disturbance is kept only to within the project area. Failure to comply with all steps could result in erosion of soil which could fill a stream or wetland, or the leakage of contaminants into the adjacent tributaries, wetlands, or groundwater. These failure scenarios would have significant impacts on the existing habitats both on the Proposed Site and downstream of the site, as well as a potential human health impact if contaminants were to leak into the groundwater and contaminate the aquifer below the site.

- › **Stabilized Construction Access:** Stabilized construction access points would be used at all points of construction ingress and egress. The construction access point would consist of a stabilized pad of aggregate underlain with geotextile located at any point where traffic would be entering or leaving the Project Site to or from a public right-of-way, street, alley, sidewalk, or parking area. The purpose of stabilized construction access is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets. The stabilized construction access points would be established at two site access points from Old Mill Road. The stabilized construction access points would be constructed in accordance with the 2016 New York State Standards and Specifications for Erosion and Sediment Control.
- › **Temporary Stockpiles:** Materials, such as topsoil, would be temporarily stockpiled, as necessary, on the Project Site during the construction process. Temporary stockpile areas would be located, as depicted on the Erosion and Stormwater Pollution Prevention Plan drawings, in areas away from storm drainage, water bodies and/or drainage courses to the maximum extent practicable. The stockpile areas would be surrounded with silt fencing to prevent runoff sediment laden runoff from exiting these areas. Soils would be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, and would be kept covered when not in use with appropriately anchored plastic tarps. Broken or ripped tarps would be promptly replaced.
- › **Silt Fence:** Silt fencing would be installed in accordance with the New York State Standards and Specifications for Erosion and Sediment Control. These barriers may extend into non-impact areas to provide adequate protection of adjacent lands. Silt fencing would serve to intercept sediment laden runoff from areas with disturbed soils, reduce the runoff velocity and initiate deposition of the transported sediment. Tall stakes would be used for the silt fencing to allow for visibility above potential snowpack.
- › **Haybales:** A temporary barrier of straw, or similar material, would be used to intercept sediment laden runoff in areas where it is not feasible to utilize silt fence.
- › **Catch Basin Inlet Protection:** Catch basins within and surrounding the Project Site with the potential to receive sediment laden runoff from the Project Site would be protected by a filter fabric drop or manufactured insert inlet protection measures. The filter fabric barriers would be installed around inlets to detain water, thereby reducing the sediment content of sediment laden water by settling and thus preventing heavily sediment laden water from entering a storm drain system. The top of the barrier would be maintained to allow overflow to drop into the drop inlet and not bypass the inlet to unprotected lower areas.

- › Geotextile Filter Bag: In the event that dewatering is required, or stormwater ponding is present, localized dewatering would occur and geotextile bags would be used to trap and retain sediment onsite from pumped water.
- › Concrete Truck Washout: A concrete truck washout would be installed nearby the stabilized construction entrances along the access road. The concrete truck washout would allow concrete truck mixers and equipment to be washed after their loads have been discharged, to prevent highly alkaline runoff from entering storm drainage systems or leaching into soil. They would be constructed to contain solids, wash water, and rainfall in addition to allowing for the evaporation of such waters.
- › Dust Control: Dust control measures would be implemented throughout the Project Site. To the extent practical construction activities would be phased to minimize the amount of area disturbed at one time. For disturbed areas, not subject to traffic, vegetation would be utilized to stabilize the exposed surfaces. For disturbed areas subject to traffic, dust control methods utilizing water or wind breakers would be used, as necessary.
- › Sprinkling: To provide short term dust control, the Project Site may be sprayed with water until the surface is wet. No surface runoff would be generated from spraying activities.
- › Windbreakers: A silt fence or similar barrier may be used, if deemed necessary by the trained contractor, to control air currents at intervals equal to ten times the barrier height. Preservation of the existing wind barrier vegetation would occur to the maximum extent practical.
- › Winter Stabilization: Sediment and erosion controls would be modified as follows during winter months:
 - Snow Management: A snow management plan would be prepared allowing for adequate storage of mounded snow and control of the melt water, while not impacting ongoing construction activities. Stabilized construction access points would be widened as necessary to allow for snow management and stockpiling. Snow management activities (plowing) must not destroy or degrade installed erosion and sediment control practices. A minimum 25-foot buffer would be maintained, to the extent practical, from all perimeter controls such as silt fencing. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations, which restrict the flow of runoff and meltwater, shall be removed.
- › Protection of Exposed Soil: Exposed soils would be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures as described above would be initiated. Disturbed areas remaining exposed for more than 14 days during construction operations would be stabilized temporarily. Straw or manufactured mulch would be applied at double the typical application rate when mulching is alone used for stabilization. Stone paths would be utilized when deemed necessary by the trained contractor or qualified inspector to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated.

Practices that would be implemented to protect water quality during the clearing and grading stage of construction would include erecting a construction fence demarcating the limit of disturbance; stabilizing the construction entrance established along the access road to the Project Site; delineating a vehicle and equipment staging area with flags, tape and/or spray paint; installing field office trailers for the construction engineers and managers, portable toilets, and dumpsters for trash, as necessary; delineating material stockpile areas with silt fencing; haybales; paved surface inlet

protection; and spill kits. In addition, the required clean suitable soil/fill material needed for the regrading of the Project Site would be placed immediately, spread, and compacted in layers one foot or less in thickness. During building construction, concrete truck washout would remain at the Project Site near the stabilized construction entrance. All disturbed areas would be permanently stabilized post construction with vegetation of hard surfaces to prevent potential for erosion following construction.

All erosion and sediment control measures as detailed above would be inspected in accordance with the SPDES requirements. Inspections would be conducted daily by a trained contractor to determine when measures need maintenance or repair. In addition, periodic inspections and maintenance of the stabilized construction access point would be provided after each rainfall event and on an as needed basis at the discretion of the trained contractor so as to prevent tracking of sediment onto public rights-of-way or into the Project Site as a result of truck operations.

Surface Water Resources

As detailed above, the Proposed Project would, at minimum, maintain current stormwater quality, and as a result would protect current wetlands functionality. The Proposed Project includes the installation of infiltration facilities to address 90 percent of all rainfall events and preservation of natural areas to allow the uplands and wetlands to continue to filter stormwater runoff and preserve water quality within the tributaries. The Proposed Project would utilize a number of infiltration and detention facilities which would release stormwater runoff at a controlled rate to Tributary 1 and would maintain its currently hydrology and functionality. Outlet control structures would ensure that stormwater is released at a rate that does not significantly impact the tributary or its associated wetland.

In addition, as described in **Chapter III.B Ecology and Natural Resources**, fertilizers, pesticides, herbicides, fungicides and other chemicals are not proposed to be used in the proposed naturalized areas of the Project Site, except for very limited and targeted potential use of herbicides to control very aggressive invasive vegetation in accordance with State and Federal laws and by licensed professionals. Further, the potential usage of fertilizer, pesticides, herbicides, fungicides and other chemicals in the Proposed Action portions of the Project Site would also be conducted in accordance with State and Federal laws and by licensed professionals. As a result, no significant impacts to wetlands or tributaries are expected from the potential use of fertilizer, pesticides, herbicides, fungicides, and other chemicals on the Project Site (see **Chapter III.C, Wetlands, Waterbodies and Watercourses**).

Chapter III.C, Wetlands, Waterbodies and Watercourses set forth the permits that would be required by the Proposed Project for proposed disturbances to Project Site surface water resources. Specifically, the Proposed Project entails the replacement of existing culverts and installation of new culverts to maintain the existing connectivity between freshwater wetlands via regulated tributaries, and would involve a total of approximately 3,716 square feet (0.085 acres) of freshwater wetland disturbance, 97,132 square feet (2.23 acres) of USACE regulated stormwater pond disturbance, and 583 square feet (0.013 acres) of disturbance to USACE tributaries within the Project Site (**Table III.C-2**). As such, a United States Army Corp of Engineers (USACE) Standard Individual Permit would be required. Impacts of the environmental areas are described in **Chapter C. Section 2. Potential Impacts**.

Overall, the Proposed Project would not have a significant adverse impact the water quality of the on-site wetland and tributary systems through the construction or during operation.

3. Mitigation Measures

As detailed above, various measures have been incorporated into the overall project design to minimize the potential for impacts to stormwater, including those detailed below. As such, no significant adverse impacts to stormwater management have been identified.

- › The Proposed Project has been designed to limit disturbance to the existing wetlands and watercourses and to maintain preconstruction natural hydrologic conditions of the Project Site to the maximum extent practicable.
- › A SWPPP has been prepared for the Proposed Project in accordance with the 2015 New York State Stormwater Management Design Manual, Chapter 233 of the Village Code, and the New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity General Permit Number (GP-0-20-001).
- › The SWPPP includes a detailed erosion and sediment control plan identifying the specific erosion and sediment control measures to be implemented on the Project Site.
- › The proposed Project Site stormwater management system would consist of a series of vegetated stormwater infiltration and detention facilities which would release stormwater runoff at a controlled rate through outlet control structures into the on-site tributaries. The infiltration and detention facilities have been designed to satisfy the channel protection, overbank flood, and extreme storm requirements set forth by the New York State Stormwater Design Manual.