

## **Chapter 7: Stormwater Management**

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### **A. INTRODUCTION**

This chapter analyzes potential impacts associated with stormwater runoff for the Proposed Action. As described in Chapter 1, “Project Description,” the Proposed Action is: 1) the adoption of zoning to establish a Medical Oriented District (MOD) in the approximately 98.4 acre area surrounding the existing New York Presbyterian Hospital (NYPH) facility; and 2) site plan approval for the MOD Development Plan proposed by Gyrodyne, LLC and VS Construction (the “Applicants”) to develop a mix of uses within the proposed MOD on approximately 42 acres.

In general, implementation of the Proposed Action would result in an increase in total impervious surfaces, and thereby increase the amount of surface water runoff that would occur during storm events within the Study Area. This raises the potential for impacts related to downstream flooding and erosion. In order to avoid such impacts, regulatory authorities require the implementation of runoff reduction strategies to minimize runoff caused by development and to capture and treat stormwater runoff with stormwater management practices. These design strategies and stormwater management practices are intended to reduce the peak rate of discharge and volume of post-construction runoff and minimize increases in stormwater pollutants. The

The Proposed Zoning Action would establish maximum permitted lot coverage requirements that could allow for increases in impervious surfaces for properties within the MOD. To mitigate potential increase in impervious surfaces, each future development within the MOD will be required to develop a Storm Water Pollution Prevention Plan (SWPPP) that addresses water quality and quantity volumes. The SWPPP must show both quantitatively and qualitatively that there is no increase in peak flow or velocity from pre-existing hydraulic and hydrologic conditions. The SWPPP would include stormwater quality treatment and stormwater quantity control measures and would be reviewed and approved by the Town as part of the Site Plan Approval process.

The proposed MOD Development Plan will increase impervious surfaces as compared to existing conditions. Stormwater management practices are proposed to provide stormwater quality treatment and stormwater quantity control. Erosion and sediment controls are proposed to mitigate potential impacts to stormwater runoff during construction activities.

This Chapter describes the existing conditions within the Study Area and compares future conditions without the Proposed Action with 1) the MOD Zoning; and 2) the MOD Development Plan to identify potential impacts associated with stormwater runoff and develop the process for evaluating and mitigating possible impacts.

## **B. PROPOSED ZONING ACTION (GENERIC ANALYSIS)**

### **EXISTING CONDITIONS**

The MOD Study Area is comprised of approximately 98.4 acres of contiguous parcels located around the intersection of Lafayette Avenue and Route 202/35/Crompond Road.

The Project Site's topography is characterized by the lowland valley of McGregor Brook, and wetlands tributary to Dickey Brook and Furnace Brook. McGregor Brook runs from east to west along the northern border of the site. Dickey Brook runs from north to south originating from a wetland central to the southern border of the site. Furnace Brook runs northwest to southeast, originating in a wetland tributary to the Furnace Brook Basin. The Project Site is located within a subwatershed of the Lower Hudson Watershed, which is tributary to the Hudson River. The Study Area is a mix of undeveloped/forested land, parcels previously developed for the NYPH, the future Gyrodyne and Evergreen Project Sites, the Church of the Holy Spirit, and smaller business/residential properties.

### **FUTURE WITHOUT THE PROPOSED ACTION (NO BUILD CONDITION)**

In the future without the Proposed Action, no substantial changes to the Project Site's stormwater runoff character (volume, water quality, and erosional characteristics) or flow patterns are expected. No projects are currently approved or proposed within the MOD Study Area (except for the Evergreen Manor and Gyrodyne projects). Impervious surfaces could be increased based on development under the Town's existing zoning regulations. It is anticipated impacts related to such developments would be mitigated by inclusion of Stormwater Management Practices into their site designs.

### **PROBABLE IMPACTS OF THE PROPOSED ZONING (BUILD CONDITION)**

Impacts to water quality and quantity can result from changes in land use, creation of impervious surfaces, and changes in grading. As vegetation is removed and the amount of impervious surface increases, the quality of stormwater runoff decreases, impacting receiving waterbodies. In addition, a smaller volume of stormwater infiltrates into the soil, increasing volumes and peak flow rates of stormwater runoff.

The Proposed Zoning Action will establish a maximum permitted lot coverage of 60 percent. At full project buildout, if each parcel within the Project Study Area maximizes its impervious area to the extent allowed by the Proposed MOD Zoning, the total impervious area within the MOD would increase.

### **MITIGATION**

Any project within the MOD would require the development of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the New York State Stormwater Management Design Manual (NYSSMDM). The SWPPP would also be required to meet the minimum requirements for stormwater quality treatment and quantity control defined in the General Permit. Future projects that include earth disturbances in excess of 1-acre would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and gain coverage under the New York State Department of Environmental Conservation (NYSDEC) General Permit. Projects that involve less 1-acre of earth disturbance would be required to develop a Storm Water Pollution Prevention Plan as part of the local site plan approval process. In either case, each project within the MOD would

be required to include stormwater management practices for stormwater quality treatment and stormwater quantity control.

As the majority of the MOD is developed under existing conditions, it is anticipated Storm Water Pollution Prevention Plans would include a mix of stormwater management practices for “New Development” and “Redevelopment” as defined by the NYSSMDM. Practices for New Development would include green infrastructure practices, such as rain gardens, green roofs, and stormwater planters, as well as standard management practices with runoff reduction capacity, such as bioretention basins and infiltration practices. Practices for Redevelopment could include proprietary practices such as hydrodynamic separator units.

As such, impacts associated with increased impervious area (e.g. increases in pollutants, erosion, stormwater runoff volume and peak flow rate) would be mitigated through the inclusion of stormwater management practices for each future development within the MOD. The Storm Water Pollution Prevention Plan for each future development within the MOD would be reviewed as part of the Town of Cortlandt site-specific SEQRA review and Site Plan Approval process. Therefore, no adverse impact to stormwater runoff would occur as a result of the Proposed Zoning Action.

## **C. MOD DEVELOPMENT PLAN**

The following sections provide a summary of the stormwater conditions and the Storm Water Pollution Prevention Plans developed for the Evergreen Manor and Gyrodyne Project Sites. Additional information on the Storm Water Pollution Prevention Plans for each project is contained in the Preliminary SWPPPs found in **Appendices 7-1 and 7-2**.

### **EXISTING CONDITIONS**

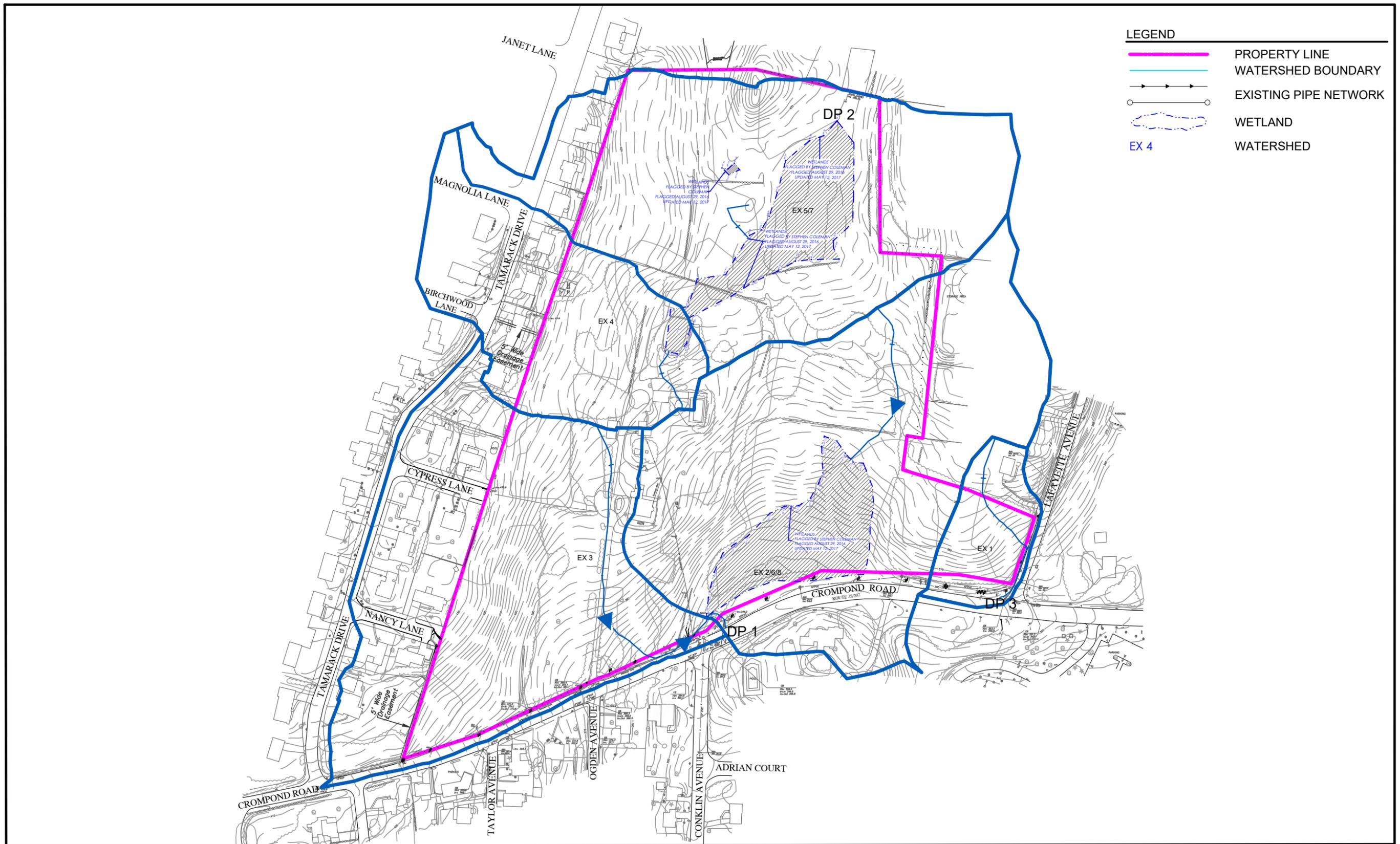
#### *EVERGREEN MANOR PROJECT SITE*

The Evergreen Manor Project Site is approximately 28.6 acres in size and is located in the eastern portion of the MOD Study Area. It is bordered by Route 202/35/Crompond Road on the north and by Tamarack Drive on the east. The Project Site is predominantly vacant land with a few existing structures. The Site is directly surrounded by mostly single-family residential uses and a few low-density multi-family residential lots. Northwest of the Site, across from Route 202/35/Crompond Road, is the New York Presbyterian Hospital. To the west of the Site, across Lafayette Avenue, is the future Site of Gyrodyne’s mixed-use, medical oriented campus.

The Evergreen Manor Project Site is divided by a ridgeline that generally runs east-west through the center portion of the property dividing the Site between two watershed areas. The majority of the property drains north to the McGregor Brook Basin and the remaining property area drains south to the Furnace Brook Basin. As shown on **Figure 7-1, Existing Drainage Conditions**, Discharge Point 2 (DP-2) contributes to the Furnace Brook Basin and DP-1 and DP-3 are part of the McGregor Brook Basin.

#### *GYRODYNE PROJECT SITE*

The Gyrodyne Project Site is approximately 13.8 acres in size and is located in the central portion of the MOD Study Area. It is bordered by Route 202/35/Crompond Road on the north and by Lafayette Avenue on the east. The Project Site is currently developed and contains two 2-story frame buildings, one with a detached garage, and an 18,914 square foot medical office complex with on-site parking. To the southwest of these structures is a waterbody known as Orchard Lake. The site is directly surrounded by mostly single family homes on the south, east and west sides.



| LEGEND |                       |
|--------|-----------------------|
|        | PROPERTY LINE         |
|        | WATERSHED BOUNDARY    |
|        | EXISTING PIPE NETWORK |
|        | WETLAND               |
| EX 4   | WATERSHED             |

**Figure 7-1  
EXISTING  
DRAINAGE  
CONDITIONS**  
Medical Oriented District  
Draft Generic Environmental  
Impact Statement



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To the north of the Site, across Route 202/35/Crompond Road, is the New York Presbyterian Hospital. To the east of the Site, across Lafayette Avenue, is the future Site of Evergreen Manor Project Site.

The Gyrodyne Project Site is generally sloped towards the southwest side of the property and divided into two watershed areas. Stormwater on the north side of the site drains to the municipal stormwater system on Crompond Road. Stormwater on the south side of the site drains to Orchard Lake at the southwest of the property. There are two residential drainage structures at the north end of the site that directly discharge to the municipal drainage system on Route 202/35/Crompond Road. The drainage infrastructure for the medical office complex primarily discharges to Orchard Lake. Some of the stormwater related to the medical office complex is directed towards an open air dry settling pond for water quality treatment, with spillover discharging to the drainage system on Route 202/35/Crompond Road.

## **PROBABLE IMPACTS OF MOD DEVELOPMENT PLAN**

### *EVERGREEN MANOR PROJECT SITE*

The Evergreen Manor Project will increase the impervious coverage of The Evergreen Manor Site by approximately 9.5 acres and thereby produce greater rates of stormwater discharge and may introduce additional pollutants into the stormwater runoff. Without appropriate stormwater management measures, proposed development of the Evergreen Manor Project could impact the quality and quantity of the stormwater runoff. The removal of elements, such as trees, absorbent topsoil and natural depressions, that naturally store stormwater runoff by both intercepting, infiltrating and temporarily ponding water, combined with an increase in impervious surfaces, would result in the concentration of stormwater runoff pollutants and increased peak flow rates that could cause downstream erosion.

### *GYRODYNE PROJECT SITE*

The Gyrodyne Project will increase the impervious coverage of The Gyrodyne Project Site by approximately 3.3 acres and thereby produce greater rates of stormwater discharge and may introduce additional pollutants into the stormwater runoff. Without appropriate stormwater management measures, proposed development of the Gyrodyne Project could impact the quality and quantity of the stormwater runoff. The removal of elements, such as trees, absorbent topsoil and natural depressions, that naturally store stormwater runoff by both intercepting, infiltrating and temporarily ponding water, combined with an increase in impervious surfaces, would result in the concentration of stormwater runoff pollutants and increased peak flow rates that could cause downstream erosion.

## **MITIGATION**

### *EVERGREEN MANOR*

#### *Stormwater Drainage and Treatment Systems*

The Storm Water Pollution Prevention Plan for Evergreen Manor will consist of a combination of Stormwater Management Practices (SMP), Green Infrastructure Practices, and Alternative Treatment Practices. Standard Treatment Practices such as bioretention basins and underground infiltration basins will be used to treat stormwater runoff from roads, walks, driveways and parking areas. Stormwater planters will be used to treat roof runoff. A hydrodynamic separator will treat the equivalent area of the existing 0.5 acres of impervious surface. The proposed Stormwater

Management Practices will be designed to meet the NYSSMDM requirements in order to provide 80% Total Suspended Solids (TSS) removal and 40% Total Phosphorous (TP) removal.

*Maintenance Responsibilities for the Stormwater Facilities*

Stormwater management facilities on the Evergreen Manor Project Site will be owned and maintained by the project Sponsor, its agents, or its successors with a restrictive covenant or formation of drainage district. Stormwater management facilities have been proposed outside of Parcel 8, which is proposed to be dedicated to the Town of Cortlandt. It is expected that the proposed measures will be maintained in accordance with cleaning, replacement and maintenance practices outlined in the SWPPP prepared for the project.

*Stormwater Pollution Prevention Plan*

In compliance with requirements established for the NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, Permit No. GP-0-15-002, (“General Permit”), a Preliminary SWPPP has been prepared and will be implemented for the Evergreen Manor Project. In conformance with NYSDEC requirements, the proposed stormwater management practices are designed in accordance with the NYSSMDM. The SWPPP, which is enclosed in **Appendix 7** and is summarized in this chapter, evaluates the potential stormwater management impacts anticipated with the proposed Evergreen Manor Project Site and to provide measures to minimize impacts to the maximum extent practicable during construction and after completion of the project with the use of temporary and permanent treatment practices.

The Storm Water Pollution Prevention Plan has been developed and will be implemented so that the quantity and quality of stormwater runoff during construction and after development are not significantly altered from pre-construction conditions. Primary stormwater management objectives are to replicate, as close as possible, pre-development hydrology and to avoid causing downstream flooding and flood damage and to employ all means practicable to mitigate increases in pollutant (TSS and TP) loads that will occur as a result of the proposed Project. In addition to maintaining stormwater runoff flow from the proposed watershed areas in a manner similar to existing drainage patterns, the peak rates of runoff at each storm event up to a 100-year storm frequency will be less than or equal to existing conditions through the implementation of proposed stormwater detention and infiltration practices. Refer to **Table 7-1** for comparison of peak flow rates.

**Table 7-1  
Evergreen Manor Peak Runoff Flow<sup>1</sup>**

| Design Point         | Existing (cfs) | Developed (cfs) | Change in Flow Rate |         |
|----------------------|----------------|-----------------|---------------------|---------|
| <b>1-year storm</b>  |                |                 |                     |         |
| DP1                  | 9.5            | 9.5             | 0.0                 | 0.00%   |
| DP2                  | 1.6            | 1.2             | -0.4                | -0.25%  |
| DP3                  | 0.1            | 0.1             | 0.0                 | 0.00%   |
| <b>2-year storm</b>  |                |                 |                     |         |
| DP1                  | 16.4           | 15.6            | 0.8                 | -4.88%  |
| DP2                  | 7.3            | 3.9             | -3.4                | -46.58% |
| DP3                  | 0.3            | 0.3             | 0.0                 | 0.00%   |
| <b>10-year storm</b> |                |                 |                     |         |
| DP1                  | 36.8           | 34.6            | -2.2                | -5.98%  |

<sup>1</sup> Design storms are based on a Type III rainfall distribution

|                       |      |      |      |         |
|-----------------------|------|------|------|---------|
| DP2                   | 29.5 | 22.3 | -7.2 | -24.41% |
| DP3                   | 1.6  | 1.3  | -0.3 | -18.75% |
| <b>100-year storm</b> |      |      |      |         |
| DP1                   | 79.9 | 79.6 | -0.3 | -0.38%  |
| DP2                   | 84.8 | 82.0 | -2.8 | -3.30%  |
| DP3                   | 6.1  | 6.1  | 0.0  | 0.00%   |

Under developed conditions, the existing subwatershed boundaries are generally maintained and have been further divided to model catchment areas to proposed stormwater management measures as shown on **Figure 7-2**, Developed Drainage Conditions.

Low impact design green infrastructure measures are proposed to address the runoff reduction volume (RRv) requirements. Due to potential rock and groundwater modeling, should RRv not be able to equal 100% of the water quality volume (WQv), a minimum RRv can be applied. Specific site limitations such as seasonal high groundwater, shallow depth to bedrock, and soils with infiltration rate less than one half inch per hour will be documented for each parcel as part of the development of a final SWPPP which will include soil testing. Soil testing will be completed prior to the Town’s acceptance of the FEIS and FGEIS. Green infrastructure measures for the proposed on-site development include bioretention areas, stormwater planters and underground infiltration basins. These measures will provide additional WQv to meet minimum requirements and ensure that the proposed peak rates of runoff to the off-site collection system are at or below existing conditions. The proposed stormwater measures are general considerations for the Evergreen Manor Project and the specific measures for each parcel may be different depending on the site conditions. WQv and RRv calculations from the preliminary SWPPP are summarized in **Table 7-2** below.

**Table 7-2**  
**Evergreen Manor WQv and RRv Summary**

|            | <b>Required (cubic feet)</b> | <b>Provided (cubic feet)</b> |
|------------|------------------------------|------------------------------|
| <b>WQv</b> | 41,070                       | 41,141 <sup>1</sup>          |
| <b>RRv</b> | 16,644                       | 40,768                       |

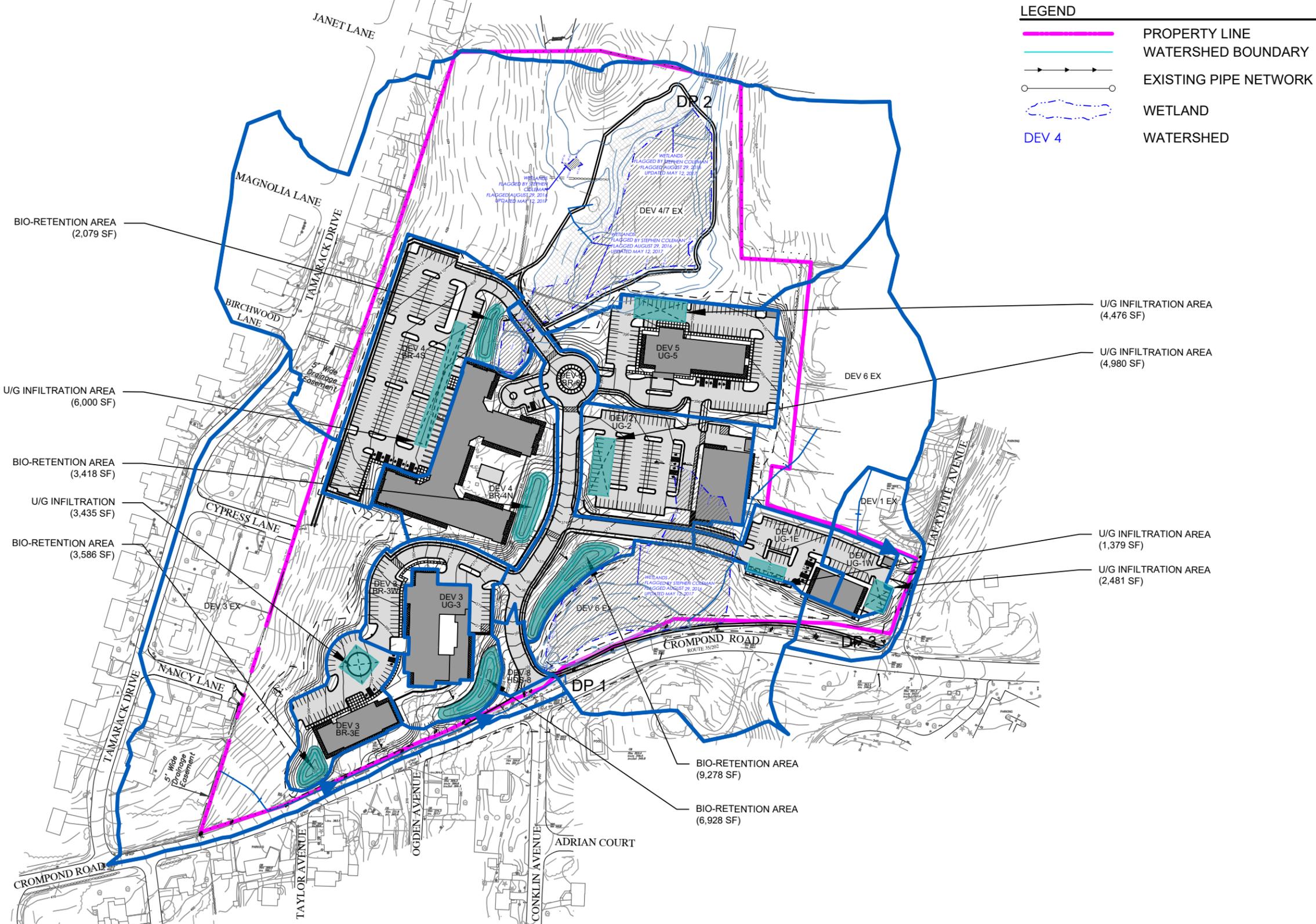
The project SWPPP will be reviewed in detail by the Town as part of the Site Plan Approval process for the project. Once the SWPPP is approved and considered final, a Notice of Intent will be submitted to NYSDEC for the project to gain coverage under the General Permit.

*Erosion and Sediment Control*

An erosion and sediment control plan has been prepared for the Evergreen Manor Project and is included in the full-size site plan set for the project (see sheets SP-4.0 and SP-4.1). Temporary structures and practices, as described on the Erosion & Sediment Control Plan drawings, will be installed and maintained throughout the duration of the project’s construction. As required by the General Permit, structures and practices located in disturbed areas of the site will be inspected by a Qualified Inspector at least every seven calendar days. Areas of the site that have achieved final stabilization will be inspected at least every month until the entire site has achieved final stabilization. Following each inspection, the Qualified Inspector is required to document their inspection in a certified inspection report as outlined in Part IV.C of the General Permit. Based on

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<sup>1</sup> Summation of RRv provided and additional WQv provided per SWPPP Table No. 3



| LEGEND |                       |
|--------|-----------------------|
|        | PROPERTY LINE         |
|        | WATERSHED BOUNDARY    |
|        | EXISTING PIPE NETWORK |
|        | WETLAND               |
|        | DEV 4 WATERSHED       |

**Figure 7-2  
DEVELOPED  
DRAINAGE  
CONDITIONS**  
Medical Oriented District  
Draft Generic Environmental  
Impact Statement



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the results of the inspections, appropriate revisions to the SWPPP and its implementation will be completed within seven calendar days following the inspection.

Permanent structures and measures implemented to control the project's quantity and/or quality of the stormwater will require regular inspections and maintenance. These include permanent erosion control practices (soil stabilization), water quality control practices (e.g. bioretention areas), and related stormwater flow controlling structures (culverts, catch basins, etc.). The project sponsor will be responsible for inspecting and maintaining permanent stormwater management structures and practices.

The goal of the proposed erosion and sediment control measures at the Project Site is to prevent erosion through runoff controls and soil stabilization. If runoff controls and soil stabilization are not sufficient, sediment controls are proposed to remove sediment from water. The following describes the three methodologies.

**Runoff Control** – Proposed runoff controls for the Project include diversion swales to keep stormwater runoff from undisturbed areas from flowing onto the limit of work area. Within the work area, temporary swales are designed to direct water away from disturbed areas. Check dams are proposed within the swales to allow for the settling of sediment. Outlet protection is required at each of the perimeter's existing headwalls to the boundary wetlands until the site is stabilized.

**Soil Stabilization** – Temporary and permanent soil stabilization include mulching, seeding and slope stabilization with plantings and/or fabrics. Mulching can be performed with wood chips, spray mulching and gravel. Temporary seeding is encouraged in disturbed areas outside of the current work area. This includes stockpiled material that is not anticipated to be used for a month or longer. Stabilizing steep slopes is imperative to protect the downstream work areas, and can include rolled matting, gabion walls, plant plugs and proprietary slope stabilization methods.

**Sediment Control** – Proposed on-site sediment control measures include stabilized construction entrances at both the northern work area and the southern village site. Concrete washout areas will be provided adjacent to the construction entrances. Sediment traps and basins are proposed, sized for the contributing drainage area (3,600 cf/acre). These measures include filtering systems at the outlet to ensure that there is no sediment transport from the site. Inlet protection is required at existing drain inlets proximal to the site and at any proposed inlets until the site is stabilized. Along the downhill slopes of the disturbed work areas, silt fence is required and must be properly installed and 'toed-in' to the soil.

## *GYRODYNE PROJECT SITE*

### *Stormwater Drainage and Treatment Systems*

The stormwater management practices for Gyrodyne will consist of a combination of SMPs and Green Infrastructure Practices such as HDPE piping, drain inlets, trench drains, porous pavement, the Terre Arch stormwater storage system, and the Contech Jellyfish JF-6 stormwater treatment system to treat stormwater runoff from roads, walks, driveways, parking areas and roofs. The site will be divided into four watersheds, each with its own discharge outfall. Outfalls 1, 3, and 4 will discharge into Orchard Lake. Outfall 2 will discharge to the New York State system along Route 202/35/Crompond Road. The stormwater treatment systems will incorporate the use of the above mentioned stormwater management practices to provide water quality treatment of stormwater runoff from newly constructed impervious surfaces.

*Maintenance Responsibilities for the Stormwater Facilities*

Stormwater management facilities on the Gyrodyne Project Site will be owned and maintained by the building owner upon completion of construction activities. It is expected that the proposed measures will be maintained in accordance with cleaning, replacement and maintenance practices outlined in the SWPPP prepared for the project.

*Stormwater Pollution Prevention Plan*

In compliance with requirements established for the General Permit, a preliminary SWPPP has been prepared for the Gyrodyne Project. In conformance with NYSDEC requirements, the proposed stormwater management practices are designed in accordance with the NYSSMDM. The preliminary SWPPP, which is enclosed in **Appendix 7** and is summarized in this chapter, evaluates the potential stormwater management impacts anticipated with the proposed Gyrodyne Project Site and to provide measures to minimize impacts to the maximum extent practicable during construction and after completion of the project with the use of temporary and permanent treatment practices.

The Storm Water Pollution Prevention Plan has been developed and will be implemented so that the quantity and quality of stormwater runoff during construction and after development are not significantly altered from pre-construction conditions. Primary stormwater management objectives are to replicate, as close as possible, pre-development hydrology and to avoid causing downstream flooding and flood damage and to employ all means practicable to mitigate increases in pollutant (TSS and TP) loads that will occur as a result of the proposed Project. In addition to maintaining stormwater runoff flow from the proposed watershed areas in a manner similar to existing drainage patterns, the peak rates of runoff at each storm event up to a 100-year storm frequency will be less than or equal to existing conditions through the implementation of proposed stormwater detention and infiltration practices. Refer to **Table 7-3** for comparison of peak flow rates.

**Table 7-3**  
**Gyrodyne Peak Runoff Flow<sup>1</sup>**

| Design Point          | Existing (cfs) | Developed (cfs) | Change in Flow Rate |         |
|-----------------------|----------------|-----------------|---------------------|---------|
| <b>1-year storm</b>   |                |                 |                     |         |
| DP1                   | 4.56           | 3.84            | 0.72                | -15.79% |
| DP2                   | 0.30           | 0.44            | 0.14                | 46.67%  |
| DP3                   | 0.36           | 0.05            | 0.31                | -86.11% |
| DP4                   | 0.05           | 0.05            | 0.00                | 0.00%   |
| <b>2-year storm</b>   |                |                 |                     |         |
| DP1                   | 5.98           | 5.91            | 0.07                | -1.17%  |
| DP2                   | 0.62           | 0.74            | 0.12                | 19.35%  |
| DP3                   | 0.49           | 0.08            | 0.41                | -83.67% |
| DP4                   | 0.11           | 0.08            | 0.03                | -27.27% |
| <b>10-year storm</b>  |                |                 |                     |         |
| DP1                   | 11.29          | 9.29            | 2.00                | -17.71% |
| DP2                   | 3.25           | 1.24            | 2.01                | -61.85% |
| DP3                   | 1.04           | 0.42            | 0.62                | -59.61% |
| DP4                   | 0.50           | 0.14            | 0.36                | -72.00% |
| <b>100-year storm</b> |                |                 |                     |         |
| DP1                   | 24.70          | 20.03           | 4.67                | -18.91% |
| DP2                   | 12.18          | 4.10            | 8.08                | -66.33% |

<sup>1</sup> Design storms are based on a Type III rainfall distribution

|     |      |      |      |         |
|-----|------|------|------|---------|
| DP3 | 2.47 | 2.32 | 0.15 | -6.07%  |
| DP4 | 1.97 | 1.50 | 0.47 | -23.86% |

The proposed temporary and permanent structures and practices seek to maintain pre-development peak flow rates, water quality and quantity during the construction phase of the project. The purpose of the SWPPP is to ensure that the stormwater management goals of the project design are met during construction activities and prior to final installation of the proposed site stormwater system.

In order to preserve the quality and reduce the quantity of stormwater leaving the Project Site, various Stormwater Management Objectives have been set within the SWPPP. The site will be graded such that runoff will be prevented from being directed off-site. A permanent on-site stormwater drainage system will collect, control and treat on-site stormwater in a system of inlets, pipes, and a stormwater detention/infiltration system by directing stormwater runoff from the impervious portions of the site into the ground for filtration and recharge. Soil testing to support the design of infiltration systems will be completed prior to the Town’s acceptance of the FEIS and FGEIS. Best management practices will be utilized to control the erosion of on-site soil and sediment and provide soil stabilization through a combination of temporary and permanent measures.

Under developed conditions, the existing subwatershed boundaries are generally maintained and have been further divided to model catchment areas to proposed stormwater management measures as shown on Sheet C3.1 Grading & Drainage Plan.

The proposed storm drainage system provides sufficient storage to capture and treat the required Water Quality Volume, and to limit site stormwater discharge in the 10-year and 100-year storm events to less than pre-development discharge rates. Storage of stormwater runoff is achieved through several systems of Terre Arch detention chambers and porous pavement, which provide a total detention volume of 43,952 cubic feet.

Downstream effects of the proposed development within the areas of Outfalls 3 and 4 are attenuated to match pre-development discharge rates by the use of porous pavement over the entirety of their respective watersheds. Within the watershed contributing to Outfall 1, the total proposed area of impervious coverage will be less than that of existing conditions. The watershed area contributing to Outfall 2 will require on-site stormwater detention to meet flood control criteria, implemented as sub-surface infiltration basins. WQv and RRv calculations from the preliminary SWPPP are summarized in **Table 7-4** below.

**Table 7-4**  
**Gyrodyne WQv and RRv Summary**

|     | Required (acre-feet) | Provided (acre-feet) |
|-----|----------------------|----------------------|
| WQv | 0.735                | 1.533                |
| RRv | 0.735                | 1.533                |

The project SWPPP will be reviewed in detail by the Town as part of the Site Plan Approval process for the project. Once the SWPPP is approved and considered final, a Notice of Intent will be submitted to NYSDEC for the project to gain coverage under the General Permit.

*Erosion and Sediment Control*

An erosion and sediment control plan has been prepared for the Gyrodyne Project and is included in the full-size site plan set for the project (see sheets C6.1 and C6.2). Temporary site protection

structures, inlet protection of existing stormwater structures and silt fences will be installed and maintained throughout the duration of the project's construction. The trained contractor will inspect the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating conditions and are in accordance with the requirements set by the New York State Standards and Specifications for Erosion and Sediment Control (Blue Book). Where deficiencies are identified, the contractor will implement corrective actions within one business day and will complete corrective actions within a reasonable time frame. In areas where soil disturbance activity have temporarily or permanently ceased, the application of soil stabilization measures will be initiated by the end of the next business day and completed within seven days from the date the soil disturbance activity ceased as per Part II.C.3.b of the General Permit. The project will receive authorization in accordance with part II.C.3 of the General Permit to disturb greater than five acres of soil at any one time and a qualified inspector will conduct at least two site inspections every seven calendar days in accordance with Part IV.C.2.b of the General Permit. All inspection reports and details shall be kept on-site and recorded.

The qualified inspector will inspect; all erosion and sediment control practices and pollution prevention measures to ensure their integrity and effectiveness; all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP; all areas of disturbance that have not achieved final stabilization; all points of discharge to natural surface bodies located within, or immediately adjacent to the property boundaries of the construction site; all points of discharge from the construction site.

Prior to the development of the site, the clearing limits will be marked out. Silt fencing will be installed around the perimeter of the disturbed area and be maintained daily. Stabilized construction entrances will be provided with water available for a wash out area. Tree protection will be installed around all trees that are to remain within the limit of disturbance.

While the site is under construction, erosion and sediment controls will be maintained daily. Excavated material will be temporarily stockpiled on-site in designated areas and stabilized. Inlet protection measures will be installed on new on-site stormwater chambers and inlets. Temporary stabilization seeding will be implemented on any area which is to remain inactive. Steep slopes will be avoided throughout construction.

Before the construction is finalized, infiltration chambers will be installed. The project site will be stabilized with either paved/impervious surfaces or with landscaped areas. Drainage structures observed to be silted up will be cleaned.