

APPENDIX K

Master Stormwater Pollution Prevention Plan

Hudson Heritage

3532 North Road (US Route 9)
Town of Poughkeepsie
Dutchess County, New York

March 1, 2016

Revised: August 16, 2016

Revised: February 1, 2017



Engineers
Land Surveyors
Planners
Environmental Professionals
Landscape Architects

Prepared for:

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Dutchess County, New York

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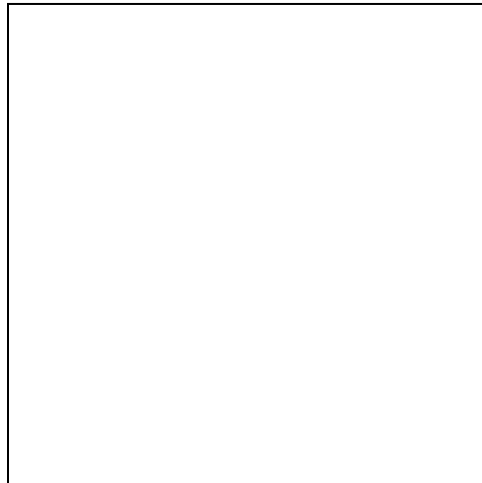
PREPARER OF THE SWPPP

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a Class A misdemeanor pursuant to Section 29.45 of the Penal Law."

Name¹: George Cronk, PE

Title: Director

Date: ~~August 16, 2016~~
February 1, 2017



¹ This is a signature of a New York State licensed Professional Engineer employed by The Chazen Companies that is duly authorized to sign and seal Stormwater Pollution Prevention Plans (SWPPPs), NOIs, and NOTs prepared under their direct supervision. Refer to Appendix H for the Chazen Certifying Professionals Letter.

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1.0 EXECUTIVE SUMMARY

This Master Stormwater Pollution Prevention Plan (SWPPP) has been prepared to support the state environmental quality review (SEQR) of the proposed Hudson Heritage mixed-use redevelopment project, located at 3532 North Road (US Route 9), in the Town of Poughkeepsie, Dutchess County, New York. The intent of this Master SWPPP is to provide sufficient documentation for an overall SEQR determination, and to serve as the baseline for the final SWPPPs that will be prepared for future phases of construction, as approved. As such, design concepts are provided for stormwater collection and conveyance systems, and water quality and quantity control facilities. This report is not intended to be a final engineering document as certain detailed aspects of the project are likely to change during the site plan review process. Portions of the design were advanced to substantiate regulatory compliance determinations and to provide input pertinent to the environmental assessment of impacts of the proposed project.

The methodology used to develop this Master SWPPP shall be adhered to for the preparation of the final SWPPP for each future phase of construction. Stormwater quality and quantity controls designed for this Master SWPPP are preliminary in nature and are intended to demonstrate their location, approximate size, and design concept. Detailed analysis of these practices must be performed, and their design refined as part of the final SWPPP for each future phase of construction.

The stormwater analysis identified herein follows *the "NYS Stormwater Management Design Manual," dated January 2015 (Design Manual)*. This Master SWPPP and analysis are an integral part of the project's natural resource management plan, which takes into consideration existing parameters of site topography, soils, erosion potential, surface waters, their connectivity, and water quality of receiving water bodies.

Stormwater mitigation measures primarily involve preventing soil erosion and sedimentation resulting from stormwater runoff during and after construction. During construction, this is accomplished by sequencing site disturbance activities to establish erosion controls, minimize disturbed areas, maintain existing vegetation as much as possible, and stabilize newly disturbed areas as soon as possible. Stormwater pollutant controls utilized during construction will include temporary sediment barriers and sediment traps designed in accordance with the *"NYS Standards and Specifications for Erosion and Sediment Control"*. Stormwater pollutant controls utilized after construction will include stormwater quality control facilities designed in accordance with the Design Manual.

Land development can also have an effect on site hydrology. Impervious areas such as rooftops, roads, driveways, and parking lots can cause rainfall to rapidly convert into stormwater runoff. Increases in runoff can cause streambank erosion and floodplain expansion. To mitigate these impacts, stormwater quantity controls will be implemented to capture and release runoff at less than pre-development discharge rates. A preliminary hydrologic and hydraulic analysis was performed using computer modeling and an evaluation of the proposed improvements across the project site.

1.1 Project Description

EFG/DRA Heritage, LLC is proposing a mixed-use redevelopment project, to be constructed on the 156± acre site of the former Hudson River Psychiatric Center ("HRPC") in the Town of Poughkeepsie, New York. A Site Location Map has been provided in Appendix G, as Figure 1.

Full build-out of the Project is anticipated in 2025. When approved, the Project will include:

- 350,000 SF of commercial development;
- 750 units of residential development, including apartments, townhouses and single-family residence;
- Redevelopment of the Main Administration Building into an 80-room hotel with restaurant and spa;
- Adaptive reuse of four other HRPC structures, including the former Director's House transitioned into a 15-room Bed and Breakfast, museum, or other use, and the former Library, Amusement Hall and Avery Chapel transitioned into a Community Center and Club House;
- Open space features including restoration of the site's Great Lawn and creation of a new North Green buffer;
- Development of an open space network connecting the aforementioned Great Lawn and North Green to a pedestrian/bicycle trail system throughout the site, which connects to the adjoining properties; and
- Site improvements such as stormwater management features, sewer and water infrastructure and landscaping.

This type of project is included in Table 2 of Appendix B of GP-0-15-002; and the project site is not located in one of the watersheds listed in Appendix C of GP-0-15-002. Therefore, this SWPPP includes post-construction stormwater management practices, as well as erosion and sediment controls.

This project is located within the Town of Poughkeepsie regulated, traditional land use control Municipal Separate Stormwater Sewer System (MS4). Therefore, an MS4 SWPPP Acceptance Form is required to accompany NOIs submitted to the NYSDEC in conjunction with future phases of development.

Runoff from the project site will discharge to either the NYSDOT storm sewer collection system to the west, an unnamed stream to the north, or an unnamed stream to the southeast, for ultimate conveyance to the Hudson River. Neither the unnamed streams nor the Hudson River are included in the list of Section 303(d) water bodies included in Appendix E of GP-0-15-002.

Project construction activities will consist primarily of site grading, paving, building construction, landscaping, and the installation of storm drainage, water supply, sewage collection, and public utility infrastructure necessary to support the proposed redevelopment. The total area of impervious surfaces (e.g. roads, driveways, sidewalks, rooftops) associated with these improvements is approximately 64 acres, or approximately 41 percent of the project site. Such impacts will be minimized by proper design, installation, and maintenance of stormwater infrastructure and utilities. Construction phase pollutant sources anticipated at the site are disturbed (exposed) soil, vehicle fuels and lubricants, chemicals associated with building construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by stormwater.

1.2 Stormwater Pollution Controls

The stormwater pollution controls outlined herein have been designed and evaluated in accordance with the following standards and guidelines:

- New York State Stormwater Management Design Manual, dated January 2015 (Design Manual).

- New York State Standards and Specifications for Erosion and Sediment Control, dated ~~July~~November 2016 (SSESC).

Stormwater quality will be enhanced through the implementation of temporary and permanent erosion and sediment control measures, the proposed stormwater management facilities, and other construction-phase pollution controls outlined herein.

The proposed stormwater collection system consisting of pipes, open drainage ways, and on-site stormwater management facilities will adequately collect, treat, and convey the stormwater runoff.

Multiple types of stormwater practices will be used to manage and treat stormwater runoff generated by the proposed redevelopment.

Pre- and post-development surface runoff rates have been evaluated for the 1-, 10-, and 100-year 24-hour storm events and preliminary sizing of post-construction stormwater management practices has been performed. Pre- and post-development watershed conditions were then compared in order to demonstrate that the peak rate of runoff from the project site will not be increased over pre-development conditions. A more detailed analysis will be performed in conjunction with future permitting of the individual phases of development.

It is anticipated that the post-construction stormwater management practices will be maintained and operated in various ways depending upon the land use type. For instance, practices located within the right-of-way of designated town collector roads will be deeded to the municipality in which the practices are located; Any practices associated with the private roads/alleys or with the individual residential lots will be privately owned by an HOA that will be established; and any practices located within the commercial sector will be the responsibility of the Owner/Operator.

1.3 Conclusion

This project is subject to the requirements of the Town of Poughkeepsie regulated MS4, and this SWPPP has been prepared in conformance with the current Design Manual and SSESC. As such, GP-0-15-002 coverage will be effective five (5) business days from the date the NYSDEC receives the electronically submitted eNOI and signed "MS4 SWPPP Acceptance" form, or ten (10) business days from the date the NYSDEC receives the complete paper NOI and signed "MS4 SWPPP Acceptance" form.

2.0 SWPPP IMPLEMENTATION RESPONSIBILITIES

A summary of the responsibilities and obligations of all parties involved with compliance with the NYSDEC SPDES General Permit GP-0-15-002 conditions is outlined in the subsequent sections. For a complete listing of the definitions, responsibilities, and obligations, refer to the SPDES General Permit GP-0-15-002 presented in Appendix A.

2.1 Definitions

1. “General SPDES Permit” means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 authorizing a category of discharges.
2. “Owner” or “Operator” means the person, persons, or legal entity which owns or leases the property on which the *construction activity* is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications. There may be occasions during the course of a project in which there are multiple Owners/Operators, all of which will need to file and maintain the appropriate SWPPP documents and plans, including without limitation, the Notice of Intent (NOI) and Notice of Termination (NOT).
3. “Owner’s/Operator’s Engineer” means the person or entity retained by an Owner/Operator to design and oversee the implementation of the SWPPP.
4. “Contractor” means the person or entity identified as such in the construction contract with the Owner/Operator. The term “Contractor” shall also include the Contractor’s authorized representative, as well as any and all subcontractors retained by the Contractor.
5. “Qualified Inspector” means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that an individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

6. "Qualified Professional" means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect, or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.
7. "Trained Contractor" means an employee from a contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *Trained Contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from a contracting (construction) company, identified in Part III.A.6., that meets the *Qualified Inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity.

The "Trained Contractor(s)" will be responsible for the day to day implementation of the SWPPP.

2.2 Owner's/Operator's Responsibilities

1. Ensure that control measures are selected, designed, installed, implemented and maintained to minimize the discharge of pollutants and prevent a violation of the water quality standards, meeting the non-numeric effluent limitations in Part I.B.1.(a)-(f) of the SPDES General Permit and in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated ~~July~~ November 2016.
2. Ensure that practices are selected, designed, installed, and maintained to meet the performance criteria in the Design Manual. Practices must be designed to meet the applicable sizing criteria in Part I.C.2.a., b., c. or d. of GP-0-15-002.
3. Retain the services of a "Qualified Inspector" or "Qualified Professional" as defined under Section 2.1, to provide the services outlined in Section 2.5 "Qualified Inspector's/Qualified Professional's Responsibilities."
4. Retain the services of a "Qualified Professional," as defined under Section 2.1, to provide the services outlined in Section 2.3 "Owner's/Operator's Engineers Responsibilities."
5. Have an authorized corporate officer sign the completed NOI. A copy of the completed NOI is included in Appendix B.

6. Submit the electronic version of the NOI (eNOI) along with the MS4 SWPPP acceptance form using the NYSDEC's website (<http://www.dec.ny.gov/chemical/43133.html>) or submit the signed NOI along with the MS4 SWPPP acceptance form to the following:

NOTICE OF INTENT
NYS DEC, Bureau of Water Permits
625 Broadway, 4th Floor
Albany, New York 12233-3505

Town of Poughkeepsie
1 Overocker Road
Poughkeepsie, NY 12603

7. Pay the required initial and annual fees upon receipt of invoices from NYSDEC. These invoices are generally issued in the fall of each year. The initial fee is calculated as \$110.00 per acre disturbed plus \$675.00 per acre of net increase in impervious cover, and the annual fee is \$110.00.
8. Prior to the commencement of construction activity, identify the contractor(s) and subcontractor(s) that will be responsible for implementing the erosion and sediment control measures and stormwater management practices described in this SWPPP. Have each of these contractors and subcontractors identify at least one "Trained Contractor", as defined under Section 2.1 that will be responsible for the implementation of the SWPPP. Ensure that the Contractor has at least one "Trained Contractor" on site on a daily basis when soil disturbance activities are being performed.
9. Schedule a pre-construction meeting, which shall include the Town of Poughkeepsie representative, Owner's/Operator's Engineer, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.
10. Retain the services of an independent certified materials testing and inspection firm operating under the direction of a licensed Professional Engineer to perform regular tests, inspections, and certifications of the construction materials used in the construction of all post-construction stormwater management practices.
11. Retain the services of a NYS licensed land surveyor to perform an as-built topographic survey of the completed post-construction stormwater management facilities located above-grade or at the surface.
12. Require the Contractor to fully implement the SWPPP prepared for the site by the Owner/Operator's Engineer to ensure that the provisions of the SWPPP are implemented from the commencement of construction activity until all areas of disturbance have achieved final stabilization and the Notice of Termination (NOT) has been submitted to the NYSDEC.
13. Forward a copy of the NOI Acknowledgement Letter received from the regulatory agency to the Owner's/Operator's Engineer for project records, and to the Contractor for display at the construction site.
14. Maintain a copy of the General Permit (GP-0-15-002), NOI, NOI Acknowledgement Letter, SWPPP, MS4 SWPPP Acceptance Form, inspection reports, Spill Prevention, Countermeasures,

Cleanup (“SPCC”) Plan, and all documentation in accordance with Part I.F.8.a.-d of GP-0-15-002 necessary to demonstrate eligibility with the permit at the construction site, until all disturbed areas have achieved final stabilization and the NOT has been submitted to the NYSDEC. Place documents in a secure location that must be accessible during normal business hours to an individual performing a compliance inspection.

15. Prior to submitting a Notice of Termination, ensure that the post-construction stormwater management practices and any right-of-ways needed to maintain such practices within the town collector roads have been deeded to the municipality in which the practices are located, and ensure for post-construction stormwater management practice(s) that are privately owned, that the Owner/Operator has a deed restriction in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.
16. Submit a Notice of Termination (NOT) form (see Appendix B) within 48 hours of receipt of the Owner’s/Operator’s Engineer’s certification of final site stabilization to the following:

NOTICE OF TERMINATION
NYS DEC, Bureau of Water Permits
625 Broadway, 4th Floor
Albany, New York 12233-3505

Town of Poughkeepsie
1 Overocker Road
Poughkeepsie, NY 12603

17. Request and receive all SWPPP records from the Owner’s/Operator’s Engineer and archive those records for a minimum of five (5) years after the NOT is filed.
18. Implement the Post-Construction Inspections and Maintenance procedures outlined in Appendix F.
19. The NOI, SWPPP, and inspection reports required by GP-0-15-002 are public documents that the Owner/Operator must make available for review and copying by any person within five (5) business days of the Owner/Operator receiving a written request by any such person to review the NOI, SWPPP, or inspection reports. Copying of documents will be done at the requester’s expense.
20. The Owner/Operator must keep the SWPPP current at all times. At a minimum, the Owner/Operator shall amend the SWPPP:
 - a) Whenever the current provisions prove to be ineffective in minimizing pollutants in stormwater discharges from the project site;
 - b) Whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the discharge of pollutants; and
 - c) To address issues or deficiencies identified during an inspection by the “Qualified Inspector,” the Department, or other Regulatory Authority.

2.3 Owner's/Operator's Engineer's Responsibilities

1. Prepare the SWPPP using good engineering practices, best management practices, and in compliance with all federal, state, and local regulatory requirements.
2. Prepare the Notice of Intent (NOI) form (see Appendix B), sign the "SWPPP Preparer Certification" section of the NOI, and forward to Owner/Operator for signature.
3. Provide copies of the SWPPP to the Town of Poughkeepsie once all signatures and attachments are complete.
4. Enter Contractor's information in Section 2.5 "SWPPP Participants" once a Contractor is selected by the Owner/Operator.
5. Update the SWPPP each time there is a significant modification to the pollution prevention measures or a change of the principal Contractor working on the project who may disturb site soil.

2.4 Contractor's Responsibilities

1. Sign the SWPPP Contractor's Certification Form contained within Appendix C and forward to the Owner's/Operator's Engineer for inclusion in the Site Log Book.
2. Identify at least one Trained Contractor that will be responsible for implementation of this SWPPP. Ensure that at least one Trained Contractor is on site on a daily basis when soil disturbance activities are being performed. The Trained Contractor shall inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating conditions at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.
3. Provide the names and addresses of all subcontractors working on the project site. Require all subcontractors who will be involved with construction activities that will result in soil disturbance to identify at least one Trained Contractor that will be on site on a daily basis when soil disturbance activities are being performed; and to sign a copy of the Subcontractor's Certification Form contained within Appendix C, then forward to the Owner's/Operator's Engineer for inclusion into the Site Log Book. This information must be retained as part of the Site Log Book.
4. Maintain a Spill Prevention and Response Plan in accordance with requirements outlined in Section 5.4 of this SWPPP. This plan shall be provided to the Owner's/Operator's Engineer for inclusion in the Site Log Book, prior to mobilization on-site.
5. Participate in a pre-construction meeting which shall include the Town of Poughkeepsie representative, Owner/Operator, Owner's/Operator's Engineer, and all subcontractors to discuss responsibilities as they relate to the implementation of this SWPPP.

6. If Contractor plans on utilizing adjacent properties for material, waste, borrow, or equipment storage areas, or if Contractor plans to engage in industrial activity other than construction (such as operating asphalt and/or concrete plants) at the site, Contractor shall submit appropriate documentation to the Owner's/Operator's Engineer so that the SWPPP can be modified accordingly.
7. Implement site stabilization, erosion and sediment control measures, and other requirements of the SWPPP.
8. In accordance with the requirements in the most current version of the NYS Standards and Specifications for Erosion and Sediment Control, conduct inspections of erosion and sediment control measures installed at the site to ensure that they remain in effective operating condition at all times. Prepare and retain written documentation of inspections as well as of all repairs/maintenance activities performed. This information must be retained as part of the Site Log Book.
9. Begin implementing corrective actions within one (1) business day of receipt of notification by the Qualified Inspector/Qualified Professional that deficiencies exist with the erosion and sediment control measures employed at the site. Corrective actions shall be completed within a reasonable time frame.
10. Maintain a record of the date(s) and location(s) that soil restoration is performed in accordance with the accompanying plans and NYSDEC Division of Water's publication "Deep-Ripping and Decompaction," dated April 2008. A copy of this publication is provided in Appendix E. The record that is to be maintained shall be a copy of the overall site grading plan delineating the area(s) and date(s) that the soil was restored.
11. Upon completion of all construction at the site, the contractor responsible for overall SWPPP Compliance shall sign the certification on their Contractor Certification Form indicating that: a.) all temporary erosion and sediment control measures have been removed from the site, b.) the on-site soils disturbed by construction activity have been restored in accordance with the SWPPP and the NYSDEC Division of Water's publication "Deep-Ripping and Decompaction," and c.) all permanent stormwater management practices required by the SWPPP have been installed in accordance with the contract documents.

2.5 Qualified Inspector's/Qualified Professional's Responsibilities

1. Participate in a pre-construction meeting with the Town of Poughkeepsie representative, Owner/Operator, Contractor, and their subcontractors to discuss responsibilities as they relate to the implementation of this SWPPP.
2. Conduct an initial assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment control measures described within this SWPPP have been adequately installed and implemented to ensure overall preparedness of the site.
3. Provide on-site inspections to determine compliance with the SWPPP. Site inspections shall occur at an interval of at least once every seven calendar days. If it is determined that greater than 5 acres of soil will be disturbed at any one time, then the Contractor shall receive written

approval from the Town of Poughkeepsie and site inspections shall occur at an interval of at least twice every seven calendar days, with the inspections separated by a minimum of at least two full calendar days. A written inspection report shall be provided to the Owner/Operator and general contractor within one business day of the completion of the inspection, with any deficiencies identified. A sample inspection form is provided in Appendix D.

4. Prepare an inspection report subsequent to each and every inspection that shall include/address the items listed in Part IV.C.4.a-k of GP-0-15-002. Sign all inspection reports and maintain on site with the SWPPP.
5. Notify the owner/operator and appropriate contractor or subcontractor of any corrective actions that need to be taken.
6. Prepare a construction Site Log Book to be used as a record of all inspection reports generated throughout the duration of construction. Ensure that the construction Site Log Book is maintained and kept up-to-date throughout the duration of construction.
7. Review the Contractor's SWPPP records on a periodic basis to ensure compliance with the requirements for daily reports, soil restoration, inspections, and maintenance logs.
8. Based on the as-built survey and material testing certifications performed by others, perform evaluations of the completed stormwater management practices to determine whether they were constructed in accordance with this SWPPP.
9. Conduct a final site assessment and prepare a certification letter to the Owner/Operator indicating that, upon review of the material testing and inspection reports prepared by the firm retained by the Owner/Operator, review of the completed topographic survey, and evaluation of the completed stormwater management facilities, the stormwater management facilities have been constructed substantially in accordance with the contract documents and should function as designed.
10. Prepare the Notice of Termination (NOT). Sign the NOT Certifications VI (Final Stabilization) and VII (Post-construction Stormwater Management Practices), and forward the NOT to the Owner/Operator for signature on Certification VIII (Owner/Operator Certification).
11. Transfer the SWPPP documents, along with all NOI's, permit certificates, NOT's, construction Site Log Book, and written records required by the General Permit to the Owner/Operator for archiving.

2.6 SWPPP Participants

1. Owner's/Operator's Engineer: George Cronk, PE
The Chazen Companies
21 Fox Street
Poughkeepsie, New York 12601
Phone: (845) 454-3980
Fax: (845) 454-4026

2. Owner/Operator: EFG/DRA Heritage, LLC
4 River Road Suite 200
Summit, NJ 07901

3. Contractor²:

Name and Title: _____

Company Name: _____

Mailing Address: _____

Phone: _____

Fax: _____

² Contractor's information to be entered once the Contractor has been selected.

3.0 SITE CHARACTERISTICS

3.1 Land Use and Topography

The project site is located within the Historic Revitalization Development District (HRDD) zoning district. Amendments to the HRDD zoning district are proposed as part of this project to allow greater flexibility in the reuse, or demolition when necessary, of existing buildings, allowable uses, and densities. Land uses within ½ mile of the project site include residential, vacant, community services, commercial, public services, recreation and entertainment, apartments/mobile home park, parks, and unclassified uses.

The project site consists of two tax parcels. The major land parcel is identified as Town of Poughkeepsie tax map parcel number 134689-6163-03-011149-0000 and has a total lot size of 156.19 acres. The minor, adjoining 0.04 acre parcel in the north is in the Town of Hyde Park and is identified as tax parcel 133200-6163-03-025314-0000. No development is proposed in Hyde Park.

In terms of topography, the overall site is moderately to steeply sloping, with slopes ranging from 0 to 100 percent. Site elevations range from approximately 75 feet above mean sea level (MSL) to 230 feet MSL. The site generally slopes down and outward toward the property lines, with the exception of the northern central portion of the site that drains to a 25-ft+ depression.

3.2 Soils and Groundwater

The United States Department of Agriculture (USDA) Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>) was used to obtain surficial soil conditions for the study area. Soil data as provided by the SCS is presented in Table 1.

Table 1: USDA Soil Data

Map Symbol & Description	Hydrologic Soil Group	Permeability (inches/hour)	Erosion Factor K	Depth to Water Table (feet)	Depth to Bedrock (inches)
DwC – Dutchess-Cardigan complex, rolling, rocky	B/C	1.28	0.32	>6.67	20 to >80
DxB – Dutches-Cardigan complex, undulating, rocky	B/C	1.28	---	>6.67	20 to >80
HsA – Hoosic gravelly loam, nearly level	A	16.92	0.10	>6.67	>80
HsB – Hoosic gravelly loam, undulating	A	16.92	0.10	>6.67	>80
HsE – Hoosic gravelly loam, 25 to 45 percent slopes	A	16.92	0.10	>6.67	>80
HuA – Hoosic-Urban land complex, nearly level	A	16.92	---	>6.67	>80
HuB – Hoosic-Urban land complex, undulating	A	16.92	---	>6.67	>80

Map Symbol & Description	Hydrologic Soil Group	Permeability (inches/hour)	Erosion Factor K	Depth to Water Table (feet)	Depth to Bedrock (inches)
NwB – Nassau – Cardigan complex, undulating, very rocky	C/D	1.13	0.24	>6.67	10 to 20
NwC – Nassau-Cardigan complex, rolling, very rocky	C/D	1.13	0.24	>6.67	10 to 20
NwD – Nassau-Cardigan complex, hilly, very rocky	C/D	1.03	0.17	>6.67	10 to 20
NxE – Nassau-Rock Outcrop complex, steep	D	1.03	---	>6.67	10 to 20
Wy – Wayland silt loam	C/D	0.25	0.37	>6.67	>80

Upon review of the soil data presented in Table 1, the project site does contain soils with a soil slope phase of E or F and/or soils with a map unit name that is inclusive of 25% or greater slope.

The Soil Conservation Service defines the hydrologic soil groups as follows:

- **Type A Soils:** Soils having a high infiltration rate and low runoff potential when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a moderate rate of water transmission.
- **Type B Soils:** Soils having a moderate infiltration rate when thoroughly wet and consisting mainly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.
- **Type C Soils:** Soils having a low infiltration rate when thoroughly wet and consisting chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine-to-fine texture. These soils have a low rate of water transmission.
- **Type D Soils:** Soils having a very low infiltration rate and high runoff potential when thoroughly wet. These soils consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very low rate of water transmission.

A comprehensive geotechnical investigation will be undertaken prior to construction to determine general soil conditions, depths to bedrock and seasonal high groundwater, as well as soil exfiltration capacity.

The soils map for the study area is presented in Appendix G, as Figure 2.

3.3 Watershed Designation

The project site is not located in a restricted watershed identified in Appendix C of GP-0-15-002.

3.4 Receiving Water Bodies

The nearest natural classified water bodies into which runoff from the project site will discharge are two unnamed streams that are each tributary to the Hudson River. Stream designation 862-403 is located at the southern end of the property and is classified by NYSDEC as a Class C water course. Stream designation 862-404 is located off-site to the north of the property, and is classified by NYSDEC as a Class B water course. Both of these streams flow to the west for ultimate discharge into the Hudson River, which is a NYSDEC Class A water course. Neither the unnamed streams nor the Hudson River are included in the Section 303(d) list of impaired waters found in Appendix E of GP-0-15-002. A Wetlands and Streams Map is presented in Appendix G, as Figure 3.

3.5 Aquifer Designation

The project site is not located over a US EPA designated Sole Source aquifer; nor is it located over a Primary or Principal aquifer listed in the NYSDEC Technical and Operational Guidance Series (TOGS) 2.1.3 (1980).

3.6 Wetlands

On September 4, 2015 and October 21, 2015, The Chazen Companies evaluated the project site for the presence of regulated wetlands, which were later surveyed on October 27, 2015 by Chazen land surveyors. It was determined that the project site contains four (4) wetlands, which are regulated by the US Army Corps of Engineers, but are not New York State Department of Environmental Conservation (NYSDEC) or federally regulated. The wetlands mapped by The Chazen Companies are too small (less than 12.4 acres) for jurisdiction under Environmental Conservation Law Article 24, Freshwater Wetlands. Further, there is no work proposed in any of these aquatic resource areas of within their Town-regulated 25 foot buffers.

3.7 Flood Plains

According to the National Flood Insurance Program Flood Insurance Rate Map (FIRM), Town of Poughkeepsie, New York, Community Panel Number 356 of 602, the majority of the project site lies within Flood Zone X, an area determined to be outside of the 0.2% annual chance floodplain. A very small portion of the site located directly adjacent to stream 862-403, lies within Flood Zone A, an area with no base flood elevations determined, but considered a special flood hazard area subject to inundation by the 1% annual chance flood. The FEMA FIRM map is provided in Appendix G, as Figure 3A.

3.8 Listed, Endangered, or Threatened Species

An Endangered, Threatened and Rare Species Report, as prepared by The Chazen Companies, indicates that the project will not have a significant adverse impact on any listed, endangered, or threatened species, or on any critical habitat. The Report can be found in the DEIS appendices.

3.9 Historic Places

Portions of the project site are located in both State and National Register Historic Districts. The project proposes the reuse and redevelopment of five such buildings including portions of the National Register listed Administration Building. The remaining buildings are deteriorated and can no longer be reused in an economically feasible manner. The New York State Office of Parks, Recreation and Historic Preservation (SHPO) has concurred in this judgment. Such concurrence is found in the DEIS appendices.

Stage IA, IB and II archeological studies have been completed and are found in the DEIS appendices. These studies have been submitted to SHPO for review and comment.

3.10 Rainfall Data

Rainfall data utilized in the modeling and analysis were interpolated from maps presented in Chapter 4 of the Design Manual. Rainfall data specific to the portion of Dutchess County under consideration, for various 24-hour storm events, is presented in Table 2:

Table 2: Rainfall Data

Storm Event Return Period	24-Hour Rainfall (inches)
1-year	2.62
10-year	4.69
100-year	8.24

These values were used to evaluate the pre- and post-development stormwater runoff characteristics.

4.0 CONSTRUCTION SEQUENCE

This project has not received written approval from the Town of Poughkeepsie allowing the disturbance of more than five acres of land at any one time. As this integrated redevelopment project is planned to be built over a 10-year period, every effort will be made to phase construction in such a way to limit disturbance within each separate phase. However, it is likely that some areas of construction, specifically the commercial sector, will require a waiver to be approved by the Town of Poughkeepsie to allow greater than 5 acres of disturbance. If and when required, said waiver(s) will be requested during the regulatory review and permitting process of each construction phase.

Should the waiver request be denied by the Town of Poughkeepsie, then the contractor shall limit the area of disturbance to less than 5 acres at any given time. The Contractor shall prepare and submit to the Owner/Operator's Engineer, a sequencing plan that identifies the progression of construction through the site. This sequencing plan must be retained as part of the Site Log Book.

An "Erosion and Sediment Control Plan" and any necessary waiver requests will need to identify the major construction activities that are the subject of the SWPPP for each respective phase. The order (or sequence) in which the major activities are expected to begin shall be presented on the project drawings, though each activity will not necessarily be completed before the next begins. In addition,

these activities may occur in a different order if necessary to maintain adequate erosion and sediment control. If this is the case, the contractor shall notify the Owner's/Operator's Engineer overseeing the implementation of the SWPPP for each phase of construction.

The Contractor will be responsible for implementing the erosion and sediment control measures identified on the plans. The Contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and ensuring their proper function remains with the Contractor.

5.0 CONSTRUCTION-PHASE POLLUTION CONTROL

This Master SWPPP, and each SWPPP developed for future phases of construction, shall identify the temporary and permanent erosion and sediment control measures that will be incorporated into the design for each respective phase. These measures will be implemented during construction, to minimize soil erosion and control sediment transport off-site, and after construction, to control the quality and quantity of stormwater runoff from the developed site.

Erosion control measures, designed to minimize soil loss, and sediment control measures, intended to retain eroded soil and prevent it from reaching water bodies or adjoining properties, shall be developed in accordance with the following documents:

- NYSDEC SPDES General Permit for Stormwater Discharges From Construction Activity, Permit No. GP-0-15-002 (effective January 29, 2015 through January 28, 2020)
- New York State Standards and Specifications for Erosion and Sediment Control, NYSDEC (~~July~~November 2016)

Each SWPPP and the accompanying plans shall outline the construction schedule for implementing the erosion and sediment control measures. These documents shall include limitations on the duration of soil exposure, criteria and specifications for placement and installation of the erosion and sediment control measures, a maintenance schedule, and specifications for the implementation of erosion and sediment control practices and procedures.

Temporary and permanent erosion and sediment control measures that shall be applied during construction generally include:

1. Minimizing soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from construction site discharges.
2. Preservation of existing vegetation to the greatest extent practical. Following the completion of construction activities in any portion of the site, permanent vegetation shall be established on all exposed soils.
3. Site preparation activities to minimize the area and duration of soil disruption.
4. Establishment of permanent traffic corridors to ensure that "routes of convenience" are avoided.

5.1 Temporary Erosion and Sediment Control Measures

The temporary erosion and sediment control measures described in the following sections represent measures that may be appropriate for use in design of future phases of construction. The specific measures to be implemented will be identified in the detailed SWPPP and associated construction documents for each respective phase.

5.1.1 *Stabilized Construction Entrance*

Prior to construction, stabilized construction entrance(s) will be installed, per accompanying plans, to reduce the tracking of sediment onto public roadways.

Construction traffic must enter and exit the site at the stabilized construction entrance(s). The intent is to trap dust and mud that would otherwise be carried off-site by construction traffic.

The entrance(s) shall be maintained in a condition, which will control tracking of sediment onto public rights-of-way or streets. When necessary, additional aggregate will be placed atop the filter fabric to assure the minimum thickness is maintained. All sediment and/or soil spilled, dropped, or washed onto public rights-of-way must be removed immediately. Periodic inspection and needed maintenance shall be provided after each substantial rainfall event.

5.1.2 *Dust Control*

Water trucks shall be used as needed during construction to reduce dust generated on-site. Dust control must be provided by the Contractor(s) to a degree that is acceptable to the Owner, and in compliance with the applicable local and state dust control requirements.

5.1.3 *Temporary Soil Stockpile*

Materials, such as topsoil, will be temporarily stockpiled (if necessary) on the site during the construction process. Stockpiles shall be located in an area away from storm drainage, water bodies and/or courses, and will be properly protected from erosion by a surrounding silt fence barrier.

5.1.4 *Silt Fencing*

Prior to the initiation of and during construction activities, a geotextile filter fabric (or silt fence) will be established downgradient of all disturbed areas. These barriers may extend into non-impact areas to provide adequate protection of adjacent lands.

Clearing and grubbing will be performed only as necessary for the installation of the sediment control barrier. To facilitate effectiveness of the silt fencing, daily inspections and inspections immediately after significant storm events will be performed by the Contractor(s). Maintenance of the fence will be performed as needed.

5.1.5 *Temporary Seeding*

For areas undergoing clearing, grading, and disturbance as part of construction activities, where work has temporarily ceased, temporary soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the soil disturbance activity has temporarily ceased.

5.1.6 *Stone and Block Drop Inlet Protection*

Concrete blocks surrounded by wire mesh and crushed stone will be placed around both existing catch basins, and proposed catch basins once they have been installed, to prevent sediment from entering the catch basins and storm sewer system. During construction, crushed stone shall be replaced as necessary to ensure proper function.

5.1.7 Filter Fabric Drop Inlet Protection

Install filter fabric or silt fence with wooden stakes at the perimeter of existing or proposed catch basins located in lawn areas, to prevent sediment from entering the catch basins and storm sewer system. Remove sediment accumulation and repair or replace fabric as necessary to ensure proper function.

5.1.8 Erosion Control Blanket

Erosion control blankets shall be installed in accordance with manufacturer's requirements on all slopes exceeding 3:1. Erosion control blankets provide temporary erosion protection, rapid vegetative establishment, and long-term erosion resistance to shear stresses generated by high runoff flow velocities associated with steep slopes.

5.1.9 Stone Check Dams

Stone check dams will be installed within drainage ditches to reduce the velocity of stormwater runoff, promote settling of sediment, and reduce sediment transport off-site.

Sediment accumulated behind the stone check dam will be removed as needed to maintain flow through the stone check dam and prevent large flows from carrying sediment over or around the dam. Stones shall be replaced as needed to maintain the design cross section of the structures.

5.1.10 Temporary Sediment Trap

Temporary sediment traps shall be constructed to intercept sediment-laden runoff, reduce the amount of sediment leaving the disturbed areas, and protect drainage ways, properties, and rights-of-way.

Accumulated sediment shall be removed from the trap when it reaches no greater than 50 percent of the design capacity. Sediment shall not be placed downstream from the embankment, adjacent to a stream, or floodplain.

Temporary sediment traps depicted on the accompanying plans have been designed to provide 3,600 CF of storage per acre of tributary watershed.

5.1.11 Temporary Diversion Swales

Temporary diversion swales shall be used to divert off-site runoff around the construction site and divert runoff from stabilized areas around disturbed areas and direct runoff from disturbed areas into sediment traps.

5.1.12 Dewatering Operations

Dewatering will be used to intercept sediment-laden stormwater or pumped groundwater and allow it to settle out of the pumped discharge prior to being discharged from the site. Water from dewatering operations shall be treated to eliminate the discharge of sediment and other pollutants. Water resulting from dewatering operations shall be directed to temporary sediment traps or dewatering devices. Temporary sediment traps and dewatering bags will be provided, installed, and maintained at downgradient locations to control sediment deposits to downstream surfaces.

5.2 Permanent Erosion and Sediment Control Measures

The permanent erosion and sediment control measures described in the following sections represent measures that may be appropriate for use in design of future phases of construction. The specific measures to be implemented will be identified in the detailed SWPPP and associated construction documents for each respective phase.

5.2.1 *Establishment of Permanent Vegetation*

Disturbed areas that will be vegetated must be seeded in accordance with the contract documents. The type of seed, mulch, and maintenance measures as described in the contract documents shall also be followed.

Permanent soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the soil disturbance activity has permanently ceased.

Final site stabilization is achieved when all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of 80 percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

5.2.2 *Rock Outlet Protection*

Rock outlet protection shall be installed at the locations as indicated and detailed on the accompanying plans. The installation of rock outlet protection will reduce the velocity and energy of water, such that the flow will not erode downstream surfaces.

5.2.3 *Permanent Turf Reinforcement*

Permanent turf reinforcement mats (TRMs) provide long-term erosion protection and vegetation establishment assistance while permanently reinforcing vegetation. TRMs shall be installed on slopes/channels where specified. TRM's provide two key advantages. First, their unique fiber shape and 3-D pattern create a thick matrix of voids that trap seed, soil, and water in place for quicker, thicker vegetation growth. Secondly, they provide additional reinforcement that doubles the vegetation's natural erosion protection abilities by remaining a permanent part of the application and anchoring mature plants to the soil for superior, long-term erosion resistance.

5.3 Other Pollutant Controls

Other necessary pollutant controls are listed below:

5.3.1 *Solid and Liquid Waste Disposal*

No solid or liquid waste materials, including building materials, shall be discharged from the site with stormwater. All solid waste, including disposable materials incidental to any construction activities, must be collected and placed in containers. The containers shall be emptied periodically by a licensed trash disposal service and hauled away from the site.

Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed of so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they represent.

5.3.2 *Sanitary Facilities*

Temporary sanitary facilities will be provided by the Contractor throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a licensed commercial Contractor. These facilities must comply with state and local sanitary or septic system regulations.

5.3.3 *Water Source*

Non-stormwater components of site discharge must be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or private well approved by the Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site; such water can be retained in temporary ponds/sediment traps until it infiltrates and/or evaporates.

5.4 Construction Housekeeping Practices

During each construction phase, the Contractor(s) will implement the following measures:

5.4.1 *Material Stockpiles*

Material resulting from clearing and grubbing operations that will be stockpiled on-site, must be adequately protected with downgradient erosion and sediment controls.

5.4.2 *Equipment Cleaning and Maintenance*

The Contractor(s) will designate areas for equipment cleaning, maintenance, and repair. The Contractor(s) and subcontractor(s) will utilize those areas. The areas will be protected by a temporary perimeter berm.

5.4.3 *Detergents*

The use of detergents for large-scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.)

5.4.4 *Spill Prevention and Response*

A Spill Prevention and Response Plan shall be developed for the site by the Contractor(s). The plan shall detail the steps required in the event of an accidental spill and shall identify contact names and phone numbers of people and agencies that must be notified.

The plan shall include Material Safety Data Sheets (MSDS) for all materials to be stored on-site. All workers on-site will be required to be trained on safe handling and spill prevention procedures for all materials used during construction. Regular tailgate safety meetings shall be held and all workers that are expected on the site during the week shall be required to attend.

5.4.5 *Concrete Wash Areas*

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in specifically designated diked and impervious washout areas, which have been prepared to prevent contact between the concrete wash and stormwater. Waste generated from concrete wash water shall not be allowed to flow into drainage ways, inlets, receiving waters, or highway right of ways, or any location other than the designated concrete wash areas. Proper signage designating the "Concrete Wash Areas" shall be placed near the facility. Concrete wash areas shall be located at minimum 100 linear feet from drainage ways, inlets, and surface waters.

The hardened residue from the concrete wash areas will be disposed of in the same manner as other non-hazardous construction waste materials. Maintenance of the wash area is to include removal of hardened concrete. Facility shall have sufficient volume to contain all the concrete waste resulting from washout and a minimum freeboard of 12 inches. Facility shall not be filled beyond 95% capacity and shall be cleaned out once 75% full unless a new facility is constructed. The Contractor will be responsible for seeing that these procedures are followed.

Sawcut Portland Cement Concrete (PCC) slurry shall not be allowed to enter drainage ways, inlets, and/or surface waters. Sawcut residue should not be left on the surface of pavement or be allowed to flow over and off pavement.

The Project may require the use of multiple concrete wash areas. All concrete wash areas will be located in an area where the likelihood of the area contributing to stormwater discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to stormwater discharges.

5.4.6 Material Storage

Construction materials shall be stored in a dedicated staging area. The staging area shall be located in an area that prevents negative impacts of construction materials on stormwater quality.

Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed of at an approved solid waste or chemical disposal facility.

6.0 STORMWATER MANAGEMENT PLANNING

Chapter 3 of the Design Manual outlines a six-step planning process for site planning and selection of stormwater management practices that must be implemented for both new development and redevelopment projects. This process is intended to develop a design that maintains pre-construction hydrologic conditions through the application of environmentally sound development principles, as well as treatment and control of runoff discharges from the site. The following sections outline the step-by-step process and how it has been applied to this project.

The goals of this Stormwater Management Plan are to analyze the peak rate of runoff under pre- and post-development conditions, to maintain the pre-development rate of runoff in order to minimize impacts to adjacent or downstream properties, and to minimize the impact to the quality of runoff exiting the site.

The Design Manual provides both water quality and water quantity objectives to be met by projects requiring a "Full SWPPP". These objectives will be met by applying stormwater control practices to limit peak runoff rates and improve the quality of runoff leaving the developed site.

This project has multiple discharge, or design points. As such, each design point has been evaluated separately for both quality and quantity objectives. This Master SWPPP is intended to provide preliminary design only. Detailed stormwater design and calculations will be prepared for each future phase of construction.

6.1 Step 1 – Site Planning

During the Site Planning process, the project site is evaluated for implementation of the green infrastructure planning measures identified in Table 3.1 of the Design Manual, in order to preserve natural resources and reduce impervious cover. Table A of Appendix K provides a description of each green infrastructure planning measure, along with a project specific evaluation.

6.2 Step 2 - Determine Water Quality Treatment Volume (WQv)

Stormwater runoff from impervious surfaces is recognized as a significant contributor of pollution that can adversely affect the quality of receiving water bodies. Therefore, treatment of stormwater runoff is important since most runoff related water quality contaminants are transported from land, particularly the impervious surfaces, during the initial stages of storm events.

6.2.1 NYSDEC Requirements for New Development

The Design Manual requires that water quality treatment be provided for the initial flush of runoff from every storm. The NYSDEC refers to the amount of runoff to be treated as the “Water Quality Volume” (WQv). Section 4.2 of the Design Manual defines the Water Quality Volume as follows:

$$WQv = \frac{[(P)(R_v)(A)]}{12}$$

Where: P = 90% Rainfall Event Number
R_v = 0.05 + 0.009 (I), minimum R_v = 0.2
I = Impervious Cover (Percent)
A = Contributing Area in Acres

This definition ensures that, all other things being equal, the Water Quality Volume will increase along with the impervious cover percentage.

6.2.2 NYSDEC Requirements for Redevelopment Projects

Chapter 9 of the Design Manual outlines alternative WQv treatment objectives for redevelopment projects.

According to Section 9.2.1.B.I, if redevelopment activities result in a reduction of existing impervious cover by a minimum of 25% of the total disturbed, impervious area, then the stormwater criteria for water quality has been achieved. There will be greater than a 25% reduction in impervious surfaces to several of the design points; thereby, the water quality objective has been met at those locations. Refer to design point descriptions in Section 6.6.3.

In addition, Section 9.2.1.B.II states that redevelopment activities can achieve the water quality treatment objective if 25% of the water quality volume associated with the disturbed, impervious area is captured and treated by implementation of standard SMPs or reduced by application of RR techniques. In this case, 100% of any new impervious area must be treated. This project will implement a combination of RR Techniques and standard SMPs with RRv capacity to meet the water quality objective.

6.2.3 Methodology

The Water Quality Volume equation has been applied to the drainage area tributary to each of the stormwater quality practices proposed for this project. The practices have been sized to accommodate the Water Quality Volume, as per the performance criteria presented in Chapter 6 and/or Chapter 9 of the Design Manual. Water quality volume calculations are presented in Table B of Appendix K.

6.3 Step 3 – Apply Runoff Reduction Techniques and Standard SMPs with RRV Capacity to Reduce Total WQv

Land use change and development in the watershed increases the volume of runoff. As such, reductions in the amount of runoff from new development, accomplished through the implementation of a stormwater management plan for the site, will play an important role in the success or failure of the watershed-wide stormwater management plan. Runoff reduction techniques can be applied to manage, reduce, and treat stormwater, while maintaining and restoring natural hydrology through infiltration, evapo-transpiration, and the capture and reuse of stormwater. Volume reduction techniques by themselves typically are not sufficient to provide adequate attenuation of stormwater runoff, but they can decrease the size of the peak runoff rate reduction facilities.

6.3.1 NYSDEC Requirements for New Development

The Design Manual states that runoff reduction shall be achieved through infiltration, groundwater recharge, reuse, recycle, and/or evaporation/evapotranspiration of 100-percent of the post-development water quality volume to replicate pre-development hydrology. Runoff control techniques provide treatment in a distributed manner before runoff reaches the collection system, by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow. This can be accomplished by applying a combination of Runoff Reduction Techniques, standard Stormwater Management Practices (SMPs) with RRV capacity, and good operation and maintenance.

6.3.2 NYSDEC Requirements for Redevelopment

Section 3.2 of the Design Manual indicates, “Although encouraged, meeting the RRV criteria is not required for redevelopment activities that meet the criteria in Chapter 9 of this manual.” This is a redevelopment project that involves the reconstruction of existing impervious area. However, there will be an increase in overall impervious surfaces. As such, a combination of runoff reduction techniques and standard SMPs with RRV capacity will be applied to the project to meet the WQv and RRV objectives.

6.3.3 Methodology

In order to reduce the required WQv, a site specific evaluation must be performed to determine the most practical means of reducing runoff volume. The Design Manual strongly encourages implementation of a combination of RR techniques and standard SMPs with RRV capacity. The following Table demonstrates a summary of the RRV practices being applied, and both the water quality and runoff reduction volumes they provide. As part of detailed design for future phases of construction, the RR Techniques and standard SMPs with RRV capacity will be designed in accordance with Chapter 5 and 6 of the Design Manual. Detailed calculations will be completed, and practice dimensions, material specifications, and installation details will be provided as part of the construction drawings for each future phase of construction.

Table 3: Summary of RR Techniques and Standard SMPs with RRv Capacity

RR Technique or Standard SMP with RRv Capacity	NYSDEC Design Variant	WQv Storage Provided (CF)	RRv Capacity	RRv Provided (CF)
Porous Pavement	RR-9	69,696	100%	69,696
Existing Infiltration Basin	I-2	885,075	100%	885,075
Underground Infiltration System	I-4	349,351 396,612	100%	349,351 396,612
Total WQv Provided (CF)				1,304,1221,351,383
Total RRv Provided (CF)				1,304,1221,351,383

Table 4: Summary of WQv Approach by Design Point

<u>Design Point (DP)</u>	<u>WQv Approach</u>
<u>1</u>	<u>> 25% reduction in impervious cover</u> <u>Porous Pavement</u>
<u>2</u>	<u>Existing Infiltration Basin</u>
<u>3</u>	<u>Porous Pavement</u>
<u>4</u>	<u>None required (No disturbance proposed)</u>
<u>5</u>	<u>> 25% reduction in impervious cover</u>
<u>6</u>	<u>>25% reduction in impervious cover</u>
<u>7</u>	<u>Subsurface Infiltration w/ pretreatment Hydrodynamic</u>
<u>8</u>	<u>Subsurface Infiltration w/ pretreatment Hydrodynamic</u>
<u>9</u>	<u>Subsurface Infiltration w/ pretreatment Hydrodynamic</u> <u>Porous Pavement</u>
<u>10</u>	<u>Subsurface Infiltration w/ pretreatment Hydrodynamic</u> <u>Porous Pavement</u>

6.3.4 Application of Standard Stormwater Management Practices (SMPs) with RRv Capacity

The standard SMPs with RRv capacity, described in the following section, have been incorporated into the preliminary stormwater management plan for this project. Detailed design calculations will be prepared as part of the SWPPP for each future phase of construction.

6.3.4.1 Infiltration Basin (I-2)

Infiltration practices reduce runoff volume, remove fine sediment and associated pollutants, recharge groundwater, and provide partial attenuation of peak flows for storm events equal to or less than the design storm. Infiltration practices are appropriate for small drainage areas, but can also be used for

larger multiple lot applications, in contrast to rain gardens and dry wells, which are primarily intended for single lots.

Infiltration basins are stormwater impoundments designed to capture and infiltrate the water quality volume over several days, but do not retain a permanent pool. Infiltration basins can be designed as off-line devices to infiltrate the water quality volume and bypass larger flows to downstream flood control facilities or as combined infiltration/flood control facilities by providing detention above the infiltration zone. The bottom of an infiltration basin typically contains vegetation to increase the infiltration capacity of the basin, allow for vegetative uptake, and reduce soil erosion and scouring of the basin.

Soil testing data consisting of deep test pits and falling head permeability tests in support of the design of the proposed infiltration basin(s) has been provided on the accompanying plans.

The Infiltration Basin(s) (I-2) was/were designed according to the criteria set forth in Section 6.3 “Stormwater Infiltration” of the Design Manual.

6.3.4.2 Underground Infiltration System (I-4)

Most proprietary underground infiltration systems operate similarly to traditional infiltration basins (NYSDEC design variant I-2). These practices reduce runoff volume, remove fine sediment and associated pollutants, recharge groundwater, and provide partial attenuation of peak flows for storm events equal to or less than the design storm. Infiltration practices are appropriate for small drainage areas, but can also be used for larger multiple lot applications, in contrast to rain gardens and dry wells, which are primarily intended for single lots.

Proprietary underground infiltration systems are designed to capture and infiltrate the water quality volume, but do not retain a permanent pool. These systems are typically designed to infiltrate the water quality volume as well as to provide detention above the infiltration zone to attenuate peak volumes of larger storm events to meet flood control requirements.

Soil testing data consisting of deep test pits and falling head permeability tests in support of the design of the proposed underground infiltration system(s) has been provided on the accompanying plans.

6.3.5 RRv Performance Summary

According to Section 3.6 of the Design Manual, “If the RRv calculated in this step is greater than or equal to the WQv calculated in Step 2, the designer has met the RRv requirement and may proceed to Step 6.” A summary of the RRv provided is presented in the following table:

Table 54: Summary of RRv Provided

RRv Required = New Development WQv Required (CF)	RRv Provided (CF)	% RRv Provided
135,600	>135,600	100%

As indicated in the above table, the RRv provided is greater than the RRv required for the project site. As such, the design can proceed to Step 6. It shall be noted that the design of stormwater management practices included in this Master SWPPP is preliminary in nature. Detailed design will be completed as part of each future phase of construction to confirm that the WQv and RRv objectives are met, as anticipated.

6.4 Step 4 – Determine the Minimum RRv Required

Projects that cannot achieve 100% of the runoff reduction requirement due to site limitations that prevent the use of an infiltration technique and/or infiltration of the total WQv must, at a minimum, reduce a percentage of the runoff from impervious areas to be constructed on the site. In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than minimum Runoff Reduction Volume (RRV_{min}) determined by the following equation:

$$RRV_{min} = \frac{[(P)(R_v^*)(A_{ic})(S)]}{12}$$

Where:

RRV _{min}	=	Runoff Reduction Volume (in acre-feet)
P	=	90% Rainfall Event Number
A _{ic}	=	Total area of new impervious cover (acres)
R _v [*]	=	0.05+0.009(I), where I is 100% impervious
S	=	Hydrologic Soil Group (HSG) Specific Reduction Factor where: HSG A = 0.55 HSG C = 0.30 HSG B = 0.40 HSG D = 0.20

Based upon the soil survey data, the majority of the site consists of soils having a hydrologic soil type A. As such, a specific reduction factor of 0.55 could be applied, if site limitations prevent 100% of the WQv from being reduced. Those projects implementing the minimum RRv, must incorporate additional stormwater management practices to meet the balance of the WQv requirement. Design calculations for the minimum required RRv are presented in Table C of Appendix K. Since this is a redevelopment project, this calculation assumed that RRv is only required for the increase in impervious surfaces.

6.5 Step 5 – Apply Standard Stormwater Management Practices to Address Remaining Water Quality Volume

As previously discussed, it is anticipated that 100% of the required WQv will be provided and reduced through RRv practices. As such, the water quality and runoff reduction volume criteria have been met and no other standard SMPs are required. However, it is also assumed that Hydrodynamic Separator(s) will be implemented as a pre-treatment measure, with practice description below:

6.5.1 Hydrodynamic Separators

Hydrodynamic separators accelerate the separation of floating and settling pollutants from stormwater through the use of a vortex. These pre-fabricated devices come in the form of an underground manhole or vault. The devices have no moving parts and are typically fabricated from concrete and marine grade aluminum.

During operation, stormwater runoff enters the unit tangentially to promote a gentle swirling motion in a treatment chamber. As stormwater circles within the chamber, settleable solids fall into a sump and are retained. Buoyant debris, oil, and grease rise to the surface and are separated from the water as it flows under a baffle wall. Finally, treated water exits the treatment chamber through a flow control orifice located behind the baffle wall.

During low-flow conditions all runoff is diverted into the treatment chamber by a flow partition. At higher flow rates, a portion of the runoff spills over the flow partition and is diverted around the treatment chamber to prevent re-suspension and washout of previously trapped pollutants. Water that spills over the partition flows into a head equalization chamber above the treatment chamber outlet. As the head equalization chamber fills, the head differential driving flow through the treatment chamber collapses. The result is that flow rates in the treatment chamber remain relatively constant even as total flow rates increase substantially. This configuration further reduces the potential for re-suspension or washout.

According to Chapter 9 of the Design Manual, hydrodynamic separators have been approved for use as a pretreatment system in new and redevelopment projects or as a primary treatment system on redevelopment projects.

6.6 Step 6 - Apply Volume and Peak Rate Control

This report presents the pre-development and post-development features and conditions associated with the rate of surface water runoff within the study area. For both cases, the drainage patterns, drainage structures, soil types, and ground cover types are considered in this study.

6.6.1 NYSDEC Requirements for New Development

Chapter 4 of the Design Manual requires that projects meet three separate stormwater quantity criteria:

1. The Channel Protection (CPv) requirement is designed to protect stream channels from erosion. This is accomplished by providing 24 hours of extended detention for the 1-year, 24-hour storm event. The Manual defines the CPv detention time as the center of mass detention time through each stormwater management practice.
2. The Overbank Flood Control (Qp) requirement is designed to prevent an increase in the frequency and magnitude of flow events that exceed the bank-full capacity of a channel, and therefore must spill over into the floodplain. This is accomplished by providing detention storage to ensure that, at each design point, the post-development 10-year 24-hour peak discharge rate does not exceed the corresponding pre-development rate.
3. The Extreme Flood Control (Qf) requirement is designed to prevent the increased risk of flood damage from large storm events, to maintain the boundaries of the pre-development 100-year floodplain, and to protect the physical integrity of stormwater management practices. This is accomplished by providing detention storage to ensure that, at each design point, the post-development 100-year 24-hour peak discharge rate does not exceed the corresponding pre-development rate.

6.6.2 Methodology

In order to demonstrate that the NYSDEC detention requirements are being met, the Design Manual requires that a hydrologic and hydraulic analysis of the pre- and post-development conditions be performed using the Natural Resources Conservation Service Technical Release 20 (TR-20) and Technical Release 55 (TR-55) methodologies. HydroCAD, developed by HydroCAD Software Solutions LLC of Tamworth, New Hampshire, is a Computer-Aided-Design (CAD) program for analyzing the hydrologic and

hydraulic characteristics of a given watershed and associated stormwater management facilities. HydroCAD uses the TR-20 algorithms and TR-55 methods to create and route runoff hydrographs.

HydroCAD has the capability of computing hydrographs (which represent discharge rates characteristic of specified watershed conditions, precipitation, and geologic factors) combining hydrographs and routing flows through pipes, streams and ponds. HydroCAD can also calculate the center of mass detention time for various hydraulic features. Documentation for HydroCAD can be found on their website: <http://www.hydrocad.net/>.

For this analysis, the watershed and drainage system was broken down into a network consisting of four types of components as described below:

1. Subcatchment: A relatively homogeneous area of land, which produces a volume and rate of runoff unique to that area.
2. Reach: Uniform streams, channels, or pipes that convey stormwater from one point to another.
3. Pond: Natural or man-made impoundment, which temporarily stores stormwater runoff and empties in a manner determined by its geometry and the hydraulic structure located at its outlets.
4. Link: A multi-purpose mechanism that can be used to introduce a hydrograph from another file.

Subcatchments, reaches, ponds, and links are represented by hexagons, squares, triangles, and broken boxes respectively, on the watershed routing diagrams provided with the computations included in Appendix I and Appendix J.

The analysis of hydrologic and hydraulic conditions and proposed stormwater management facilities, servicing the study area, was performed by dividing the tributary watershed into relatively homogeneous subcatchments. The separation of the watershed into subcatchments was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed characteristics for each subcatchment were then assessed from United States Geological Service (USGS) 7.5-minute topographic maps, aerial photographs, a topographical survey, soil surveys, site investigations, and land use maps.

Proposed stormwater management facilities have been preliminarily designed and evaluated in accordance with the Design Manual and local regulatory requirements. The hydrologic and hydraulic analysis considered the SCS, Type III 24-hour storm events identified in the following table.

Table 65: Design Events

Facility	24-hour Storm Event
Storm Sewer	10-year
Stormwater Management Practices	1-year
	10-year
	100-year
Flood Conditions	100-year

6.6.3 Description of Design Points

The project site generally drains outward toward the property lines. As such, the watershed was defined as the 155.90± acre parcel. The overall watershed was broken down into smaller watersheds, or subcatchments, to allow for analysis of runoff conditions at several locations throughout the study area. Each of these locations was defined as a Design Point (DP) in order to compare the effects resulting from stormwater management facilities proposed as part of the project. Descriptions of each of the selected design points are provided below:

- Design Point 1: Existing meandering stream/vegetated swale that runs north along the property line and discharges off-site to stream 862-404.
- Design Point 2: Existing 25-ft± depression at the northern-central portion of the site that functions like an infiltration basin. There is no evidence of standing water.
- Design Point 3: On-site discharge to existing NYSDOT 24" RCP culvert beneath US Route 9.
- Design Point 4: On-site discharge to existing NYSDOT 24" RCP culvert beneath US Route 9.
- Design Point 5: On-site discharge to existing NYSDOT 36" RCP culvert beneath US Route 9.
- Design Point 6: On-site discharge to existing NYSDOT 24" RCP culvert beneath US Route 9.
- Design Point 7: On-site discharge to existing NYSDOT 18" RCP culvert beneath US Route 9.
- Design Point 8: On-site discharge to stream 862-403 at southern edge of property, for ultimate conveyance to the existing 36" culvert leaving the stream.
- Design Point 9: Overland flow to the southeast into stream 862-403.
- Design Point 10: On-site discharge to existing 36" RCP culvert that discharges to stream 862-403.

The total tributary area, as well as impervious area, discharging to Design Points 1, & 5, and 6 will be reduced from pre- to post-development conditions by greater than 25%. As such, the water quantity and quality criteria have been met without implementing post-construction stormwater controls at those locations. Channel protection will be further evaluated during Site Plan Review, to confirm that the requirements are being met at each of these Design Points.

6.6.4 Pre-development Watershed Conditions

The pre-development project site is covered by a mix of buildings, hardscape, gravel, woods, and overgrown grass/brush. Analysis of pre-development conditions considered existing drainage patterns, soil types, ground cover, and topography. The Pre-Development Watershed Delineation Map has been provided in Appendix G, as Figure 4.

The results of the computer modeling used to analyze the overall watershed under pre-development conditions are presented in Appendix I. A summary of the pre-development watershed runoff rates at each design point is presented in Table 67.

6.6.5 Post-development Watershed Conditions

The post-development project site is covered by a mix of buildings, hardscape, woods, and grass/landscaped areas. The analysis of post-development conditions considered existing drainage patterns, soil types, ground cover to remain, planned site development, site grading, and stormwater management facilities proposed as part of site improvements. The Post-Development Watershed Delineation Map has been provided in Appendix G, as Figure 5.

The results of the computer modeling used to analyze the overall watershed under post-development conditions are presented in Appendix J. A summary of the post-development watershed runoff rates at each design point is presented in Table 67.

There are numerous locations and methods for providing controls of off-site discharge of stormwater from the project site. Each has been preliminarily designed to provide the above quantity controls by attenuating stormwater runoff and releasing runoff to offsite locations at a rate equal to or less than that which existed prior to development of the site.

6.6.6 Performance Summary

A comparison of the pre- and post-development watershed conditions was performed for all design points and storm events evaluated herein. For all design points and design storms, this comparison demonstrates that the peak rate of runoff will not be increased. Therefore, the project will not have a significant adverse impact on the adjacent or downstream properties or receiving water courses.

The results of the computer modeling used to analyze the pre- and post-development watersheds are presented in Appendix I and Appendix J, respectively. The following Table summarizes the results of this analysis.

Table 76: Summary of Pre- and Post-Development Peak Discharge Rates

Design Point (DP)	Pre- vs. Post-Development Discharge Rate (cfs)			
	10-year 24-hour storm event		100-year 24-hour storm event	
	Pre	Post	Pre	Post
1*	36.80 <u>30.49</u>	15.51	114.16 <u>94.52</u>	46.90
2	0.00	0.00	0.00	0.00
3	13.67	13.37	45.31	41.63
4**	6.84 <u>7.69</u>	6.84 <u>7.69</u>	24.27 <u>40.41</u>	24.27 <u>40.41</u>
5*	9.04 <u>6.64</u>	5.12 <u>3.36</u>	43.10 <u>39.62</u>	30.91 <u>26.21</u>
6*	0.76 <u>0.04</u>	0.01	6.69 <u>0.84</u>	6.01 <u>0.43</u>
7	1.53 <u>2.24</u>	0.00	16.09 <u>21.50</u>	15.78 <u>17.09</u>
8	46.74 <u>38.73</u>	1.63 <u>0.00</u>	160.33 <u>132.67</u>	157.49 <u>131.77</u>
9	9.12 <u>7.61</u>	0.22	33.77 <u>28.35</u>	33.47 <u>28.08</u>
10	13.01	3.87 <u>7.75</u>	36.27	36.06 <u>36.16</u>

* The total tributary area, as well as impervious area, discharging to Design Points 1, ~~2~~, ~~5~~, & 6 will be reduced from pre- to post-development conditions by greater than 25%.

**No disturbance is proposed within the subcatchment tributary to Design Point 4.

7.0 INSPECTIONS, MAINTENANCE, AND REPORTING

7.1 Inspection and Maintenance Requirements

7.1.1 Pre-Construction Inspection and Certification

Prior to the commencement of construction, the Qualified Inspector/Qualified Professional shall conduct an assessment of the site and certify that the appropriate erosion and sediment control measures have been adequately installed and implemented. The Contractor shall contact the Qualified Inspector/Qualified Professional once the erosion and sediment control measures have been installed.

7.1.2 Construction Phase Inspections and Maintenance

A Qualified Inspector/Qualified Professional, as defined in Appendix A of the General Permit GP-0-15-002, shall conduct regular site inspections between the time this SWPPP is implemented and final site stabilization. Site inspections shall occur at an interval of at least once every seven (7) calendar days. If the project involves the disturbance of greater than five (5) acres of soil at any one time, then site inspections shall occur at an interval of at least twice every seven (7) calendar days, with the inspections separated by a minimum of at least two (2) full calendar days. The purpose of site inspections is to assess performance of pollutant controls. Based on these inspections, the Qualified Inspector/Qualified Professional will decide whether it is necessary to modify this SWPPP, add or relocate sediment barriers, or whatever else may be needed in order to prevent pollutants from leaving the site via stormwater runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

1. Locations where vehicles enter and exit the site must be inspected for evidence of off-site sediment tracking. A stabilized construction entrance will be constructed where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.
2. Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material from behind sediment barriers will be stockpiled on the up slope side. Additional sediment barriers must be constructed as needed.
3. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.

4. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with at least 80 percent density. The density of 80 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.
5. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance.

Within one (1) business day of the completion of an inspection, the *Qualified Inspector/Qualified Professional* shall notify the Owner/Operator and appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one (1) business day of the notification and shall complete the corrective actions in a reasonable time frame.

In addition to the inspections performed by the *Qualified Inspector/Qualified Professional*, the Contractor shall perform routine inspections that include a visual check of all erosion and sediment control measures. All inspections and maintenance shall be performed in accordance with the inspection and maintenance schedule provided on the accompanying plans. Sediment removed from erosion and sediment control measures will be exported from the site, stockpiled for later use, or used immediately for general non-structural fill.

It is the responsibility of the general contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the accompanying plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers, sediment traps, etc.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

7.1.3 *Temporary Suspension of Construction Activities*

For construction sites where soil disturbance activities have been temporarily suspended (e.g. Winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the frequency of Qualified Inspector/Qualified Professional inspections can be reduced to once every 30 calendar days. Prior to reducing the frequency of inspections, the Owner/Operator shall notify the NYSDEC Region 3 stormwater contact person and the Town of Poughkeepsie in writing.

7.1.4 *Partial Project Completion*

For construction sites where soil disturbance activities have been shut down with partial project completion, all areas disturbed as of the project shutdown date have achieved final stabilization, and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational, the inspections by the

Qualified Inspector/Qualified Professional can stop. Prior to the shutdown, the Owner/Operator shall notify the NYSDEC Region 3 stormwater contact person and the Town of Poughkeepsie in writing.

If soil disturbance activities have not resumed within two years from the date of shutdown, a Notice of Termination (NOT) shall be properly completed and submitted to the NYSDEC.

7.1.5 *Post-Construction Inspections and Maintenance*

Inspections and maintenance of final stabilization measures and post-construction stormwater management practices shall be performed in accordance with Appendix F, once all disturbed areas are stabilized and all stormwater management systems are in place and operable.

7.2 Reporting Requirements

7.2.1 *Inspection and Maintenance Reports*

Inspection/maintenance reports shall be prepared prior to and during construction in accordance with the schedule outlined herein and in the SPDES General Permit GP-0-15-002 Part IV.C. The reports shall be prepared to identify and document the maintenance of the erosion and sediment control measures. A sample inspection form is provided in Appendix D.

Specifically, each inspection shall record the following information:

1. Date and time of inspection.
2. Name and title of person(s) performing inspection.
3. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection.
4. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow.
5. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface water body.
6. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance.
7. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced.
8. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection.

9. Indication of the current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards.
10. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s).
11. Identification and status of all corrective actions that were required by previous inspection.
12. Color photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *Qualified Inspector/Qualified Professional* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *Qualified Inspector/Qualified Professional* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *Qualified Inspector/Qualified Professional* shall attach the paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

All inspection reports shall be signed by the *Qualified Inspector/Qualified Professional*. Pursuant to Part II.C.2 of GP-0-15-002, the inspection reports shall be maintained on site with the SWPPP.

7.2.2 *Site Log Book*

The Owner/Operator shall retain a copy of the SWPPP required by GP-0-15-002 at the construction site from the date of initiation of construction activities to the date of final stabilization.

During construction, the Owner's/Operator's Engineer shall maintain a record of all SWPPP inspection reports at the site in the Site Log Book. The Site Log Book shall be maintained on-site and made available to the permitting authority, if necessary.

7.2.3 *Post Construction Records and Archiving*

Following construction, the Owner/Operator shall retain copies of the SWPPP, the complete construction Site Log Book, and records of all data used to complete the NOI to be covered by this permit, for a period of at least five years from the date that the site is finally stabilized. This period may be extended by the NYSDEC, at its sole discretion, at any time upon written notification.

Records shall be maintained of all post construction inspections and maintenance work performed in accordance with the requirements outlined in Appendix F.