

## Exhibit X.C.4 – Storm Water

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*Submit as Exhibit X.C.4. a description of plans for management of storm water including any plans to use Institute for Sustainable Infrastructure techniques to minimize impact of storm water and maximize its reuse.*

### Methodology

The project will be designed in accordance with the criteria presented in the New York State Stormwater Management Design Manual (August 2010) and the State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities (GP-0-10-001).

In order to evaluate the potential impacts associated with the development of the site, existing and proposed condition hydrographs will be generated. The conditions will be modeled using the SCS unit hydrograph method using a type II rainfall distribution. Runoff curve numbers and times of concentration will be computed using standard NRCS TR-55 methodology. Additionally, peak stormwater flows and hydrographs for the existing and post-development conditions will be computed using the Bentley Pondpack Hydrology Program (Version V8i).

The project will be designed to meet the following New York Stormwater Sizing Criteria:

- Water Quality Volume
- Run-off Reduction Volume (Through the use of Green Infrastructure Techniques)
- Channel Protection Volume (24 Hour Extended Detention of post developed 1 year storm)
- Overbank Flood (Peak Flow mitigation of the 10 year storm)
- Extreme Storm (Peak Flow mitigation of the 100 year storm)

### Stormwater Practices

The Stormwater Management Practice Selection Matrices will be utilized to determine the appropriate combination of practices for the site. The factors used to determine the proposed methods include:

- Land Use
- Physical Feasibility Factors
- Watershed Factors
- Stormwater Management Capability
- Community and Environmental Factors

The use of Green Infrastructure Techniques to meet the required Run-Off Reduction Volume (RRv) will be utilized. Practices to be evaluated include bioretention, vegetated swales, green roof, rain garden, planters and porous pavement. The geotechnical investigation indicates shallow rock in areas of the site with underlying soils having limited suitability for infiltration.

Mitigation of the 1, 10 and 100 year storm events will be through standard practices such as micro-pool extended detention ponds. The remaining water quality volume that is not treated through Green Infrastructure Techniques will be treated within the permanent pool and extended detention of the ponds.

The location of proposed stormwater management features is depicted on Exhibit VIII.C.17.e.



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### **Drainage Areas**

Run-off from the existing site encompasses several drainage areas and discharge points. The eastern portion of the site is generally sloped from the west to east with a discharge point along Route 4. The remaining portion of the site is undulating with discharge points to three distinct wetland complexes. The post developed condition will maintain similar drainage areas and discharge points from the site.

