

## **D. Stormwater Management**

### **1. Existing Conditions**

This section describes existing site conditions on and adjacent to the project site as they relate to surface water runoff and the storm drain system within the existing RPC Campus.

#### *Watercourses*

The Project Site is located adjacent to Lake Tappan. Lake Tappan was formed by a dam placed on the Hackensack River in 1967. It straddles the border between River Vale and Old Tappan, New Jersey. It extends north past the New York state border and into Orangetown, New York. Lake Tappan is owned by United Water, a private utility company. The Lake Tappan reservoir covers 1,255 acres and contains 3.5 billion gallons of water, with up to 12 million to 13 million gallons released per day down stream to the Oradell Reservoir.

Lake Tappan is classified by NYSDEC as a Class A waterbody. The A classification is assigned to waters used as a source of drinking water. The streams flowing through the western portion of the RPC Campus, from the outfall of the site storm drains to the Lake are classified as A for a short distance from the Lake and then become Classification C, waters supporting fisheries and suitable for non-contact activities (Reference: NYSDEC Environmental Resource Mapper).

#### *Floodplains*

The Project Site is located within the Hackensack River drainage basin. A review of the Flood Insurance Rate Maps for Orangetown, NY (Community Panel Numbers 360686 0002 C and 3630686 0004 C effective August 2, 1982) indicate that the proposed development on the site is located within Zone C; areas of minimal flood hazard from the principle source of flood in the area and determined to be outside of the 0.2 percent annual chance (50-year) floodplain.

#### *Landcover*

The majority of the Project Site has been previously developed and extensively disturbed. On-site pervious areas are limited to lawn and grass areas with some trees and the existing golf course. The remainder of the site is composed of impervious features; buildings, parking lots, roads, sidewalks.

#### *Existing Conditions Drainage Area Description*

A detailed investigation of the existing site and surrounding area was undertaken to allow an understanding of the surface runoff patterns on, and adjacent to, the Project Site. The drainage study was only prepared for those portions of the RPC Campus

that will be impacted by the proposed development. Following a review of existing topography and site conditions, nine separate study areas were defined for the Project Site and surrounding area for the stormwater analysis (See Exhibit III.D-1, Existing Conditions Drainage Area Map).

The location of the existing storm drain system within the RPC Campus and the specific outlet locations were obtained from the map entitled *Rockland Psychiatric Center Stormwater System Analysis, Watershed Delineation Map* by C.T. Male Associates, P.C. dated June 1996. The existing RPC Campus has an extensive storm drain system that conveys runoff from the buildings, road and golf course area to outlets west of Third Avenue. The proposed northern development area will impact three storm systems as follows:

- The storm drain system that conveys runoff from the northern portion of the Project Site and offsite areas to the north and east discharges to an existing stream west of Third Avenue and south of Convent Road (identified as Outlet #5).
- The storm drain system in the area of Maple Street which conveys runoff from the golf course and developed portions of the RPC Campus north and south of Maple Street. This system continues west of Third Avenue, through RPC property and discharges to an existing stream, west of the Power Plant building (identified as Outlet #4).
- The storm drain system in the area of Oak Street which conveys runoff from the golf course and developed portions of the RPC Campus north, east and south of Oak Street. This system continues west of Third Avenue, through RPC and Town property and discharges to an existing stream, near the sewer pump station (identified as Outlet #3).

A description of the existing drainage areas (referred to as EX) are as follows below (refer to Exhibit III.D-1). Design points represent the location to which the majority of, or all of, the stormwater runoff drainage area discharges.

EX 1 – Drainage Area EX 1 is an offsite area north of Convent Road and east of the Palisades Parkway, comprised of approximately 3.52 acres of buildings, road and parking area, 2.36 acres of lawn/grass area, and 4.65 acres of woods. Runoff from this area enters the northeast corner of the site and drains to the irrigation pond. During the golf season, much of the runoff from this area is used for irrigation of the golf course. For the purpose of this study, all runoff from this area is assumed to convey to the design point. Stormwater runoff from this area discharges into an open channel on the north east side of the site, and flows through the project site, and discharges to Outfall #5, west of Third Avenue.

EX 2 – Drainage Area EX 2 is an offsite area north of Convent Road and east of the Palisades Parkway that is comprised of approximately 0.60 acres of lawn/grass area, and 2.40 acres of woods. Runoff from this area enters the northeast corner of the site and drains to the irrigation pond. During the golf

season, much of the runoff from this area is used for irrigation of the golf course. For the purpose of this study, all runoff from this area is assumed to convey to the design point. Stormwater runoff from this area discharges into an open channel on the north east side of the site, and flows through the project site, and discharges to Outfall #5, west of Third Avenue.

EX 3 – Drainage Area EX 3 is the portion of the existing golf course that will remain and is comprised of approximately 18.4 acres of lawn/grass area and 0.07 acres of impervious area. Stormwater runoff from this area is conveyed by the existing RPC storm drain system and discharges to Design Point 1, west of Third Avenue.

EX 4 – Drainage Area EX 4 is the portion of the existing golf course that will be developed and is comprised of approximately 6.09 acres of buildings, road and parking, 39.90 acres of lawn/grass area, and 0.69 acres of woods. Stormwater runoff from this area is conveyed by the existing RPC storm drain system and discharges to Design Point 1, west of Third Avenue, at Outfall #5.

EX 5 – Drainage Area EX 5 is the area of the proposed residential development west of Third Avenue and is comprised of approximately 0.58 acres of buildings, road and parking, 0.68 acres of lawn/grass area, and 3.72 acres of woods. Stormwater runoff from this area sheet flows west towards the stream in the northwest portion of the Campus and flows to Lake Tappan.

EX 6 – Drainage Area EX 6 contains portions of the golf course and RPC buildings and roads to remain east of First Avenue and is comprised of approximately 25.43 acres of buildings, road and parking, and 34.99 acres of lawn/grass area. Stormwater runoff flows in the existing storm drain system and discharges west of Third Avenue and west of the power plant building at Outfall #4.

EX 7 – Drainage Area EX 7 is the area of the proposed new golf holes between First and Third Avenues, north of Oak Street and comprised of approximately 2.84 acres of buildings, road and parking and 9.17 acres of lawn/grass area. Stormwater runoff from this area discharges west of Third Avenue and flows towards Outfall #3.

EX 8 – Drainage Area EX 8 contains portions of the golf course and RPC buildings and roads to remain east and south of Oak Street. This area drains to the storm drain system in Oak Street along with area EX 7. This area is comprised of approximately 4.03 acres of buildings, road and parking and 26.13 acres of lawn/grass area. Stormwater runoff from this area discharges west of Third Avenue towards Outfall #3.

EX 9 – Drainage Area EX 9 is comprised of the development parcel along Blaisdell Road and Old Orangeburg Road and contains approximately 1.69 acres

of buildings, road and parking and 8.67 acres of lawn/grass area. All soils in this drainage area are classified as either Class B or Class C hydric soils. Stormwater runoff from this area flows to Old Orangeburg Road to the north or Veterans Memorial Highway to the south.

Design Points have been identified for each of the drainage areas. A Design Point represents the location to which the majority of, or all of, the stormwater runoff drainage area discharges. The design points are indicated on the Existing Conditions Drainage Area Map (see Exhibit III.D-1).

A description of each of the design points follows:

- Design Point 1 – The point west of Third Avenue at the site discharge to the existing stream, Outfall #5.
- Design Point 2 – Runoff at western edge of the development parcel, west of Third Avenue.
- Design Point 3 – The western limit of the development at Third Avenue. Storm water runoff from this location is conveyed by the existing storm drain system to the headwall at Outfall #4.
- Design Point 4 – The western limit of the development at Third Avenue. Storm water runoff from this location is conveyed by the existing storm drain system to the headwall at Outfall #3.
- EX 9 - For the purpose of this evaluation, the runoff from the southern development area is considered as a total combined flow. All of this area generally flows to the wetland area west of Blaisdell Road.

A summary of the existing peak discharge rates from the Project Site is shown in Table IIID-1.

**Table IIID-1  
Existing Peak Stormwater Discharge Rates**

Location	Design Year Storm Discharge (CFS)			
	2-Year	10-Year	25-Year	100-Year
Design Point 1	89.4	170.3	227.3	314.8
Design Point 2	7.3	13.2	17.4	23.6
Design Point 3	95.6	165.2	212.8	284.8
Design Point 4	42.2	81.5	109.5	152.9
Drainage Area 9	18.7	32.7	46.3	60.8

Source: McLaren Engineering Group  
CFS=cubic feet per second

## **2. Potential Impacts**

### *Stormwater Runoff Analyses*

Based on the building program for the Conceptual Plan, an analysis of the proposed runoff conditions was performed to determine the impact of the stormwater runoff from the Project Site and to determine the measures required to meet the General Permit and Town of Orangetown regulations. The project will result in an increase of 7.6 acres (21 percent) of impervious area within the northern development area and 1.9 acres within the southern development area.

The analysis utilized the same design points as the existing conditions. Placement of roadways will alter the on-site drainage areas as shown in Exhibit III.D-2. A description of the impact of the development on the stormwater runoff from each of the study areas is as follows (EX refers to existing drainage areas and P refers to proposed drainage areas):

EX 1 – Drainage Area EX 1 is an offsite area that will remain the same as in existing conditions analysis.

EX 2 – Drainage Area EX 2 is an offsite area that will remain the same as in existing conditions analysis.

EX 3 – Drainage Area EX 3 is an onsite area will remain the same as in existing conditions analysis. Portions of lawn/grass area within the existing golf course in this area will be redeveloped.

P 4 – Drainage Area P 4 will include portions of the proposed northern development area and will be comprised of approximately 20.06 acres of buildings, road and parking and 27.56 acres of landscape/lawn/grass areas. Stormwater runoff from this area will be conveyed in new storm drain systems within the streets and discharge to the existing stream, west of Third Avenue.

P 5 – Drainage Area P 5 will include the residential development west of Third Avenue and will be comprised of approximately 2.93 acres of buildings, road and parking, 4.46 acres of landscape/lawn/grass areas. Stormwater runoff from this area sheet flows west towards Lake Tappan.

P 6 – Drainage Area P 6 includes portions of the northern development and the new golf holes. The area will be comprised of approximately 7.17 acres of buildings, road and parking, and 27.12 acres of landscape/lawn/grass area. Stormwater runoff from this area will be conveyed in a new storm drain system and discharge west of Third Avenue.

P 6A – Drainage Area P 6A contains portions of existing RPC Campus to remain, portions of the golf course to remain, and the portion of the golf course that will

be redeveloped. This area will be comprised of approximately 4.54 acres of buildings, road and parking, and 18.14 acres of grass area. Stormwater runoff from this area will be conveyed in a new storm drain system and discharge west of Third Avenue.

P 7 – Drainage Area P 7 is the portion of the Project Site, located in-between First and Third Avenue, which is to be developed into three new golf holes. Stormwater runoff from this area discharges west of Third Avenue and flows towards Outfall 3.

EX 8 – Drainage Area EX 8 is an offsite area that will remain the same as in the existing conditions analysis.

P 9 – Drainage Area P9 includes the southern residential development along Blaisdell Road and Orangeburg Road. The area will be comprised of approximately 3.59 acres of buildings, road and parking and 6.77 acres of landscape/lawn/grass area. Stormwater runoff from this area flows to Old Orangeburg Road to the north or Orangeburg Road to the south.

*Proposed Stormwater Runoff*

Table IIID-2 summarizes the total peak discharge rates for existing and proposed conditions for the stormwater runoff from the Project at the respective design points. (Refer to Drainage Area Maps, Exhibits III.D-1 and III.D-2, for drainage areas and locations of the design points.)

**Table IID-2  
Comparison of Stormwater Runoff**

	<b>Design Year Storm (CFS)</b>			
	2-Year	10-Year	25-Year	100-Year
<i>Design Point 1</i>				
Existing Condition	89.4	170.3	227.3	314.8
Proposed Condition	115.8	207.2	269.9	364.6
<i>Difference</i>	+26.5	+36.9	+42.7	+49.9
<i>Design Point 2</i>				
Existing Condition	7.3	13.2	17.4	23.6
Proposed Condition	16.6	27.1	34.1	44.6
<i>Difference</i>	+9.3	+13.9	+16.8	+21.0
<i>Design Point 3</i>				
Existing Condition	95.6	165.2	212.8	284.8
Proposed Condition	67.3	129.6	173.9	242.3
<i>Difference</i>	-28.3	-35.6	-39.0	-42.5
<i>Design Point 4</i>				
Existing Condition	42.2	81.5	109.5	152.9
Proposed Condition	40.2	78.9	106.7	149.9
<i>Difference</i>	-2.0	-2.6	-2.8	-3.0
<b>Total Combined Northern Development Area<sup>1</sup></b>				
<b>Existing Condition</b>	<b>232.1</b>	<b>426.7</b>	<b>563.1</b>	<b>771.5</b>
<b>Proposed Condition</b>	<b>234.0</b>	<b>433.6</b>	<b>572.9</b>	<b>785.8</b>
<b><i>Difference</i></b>	<b>+1.9</b>	<b>+6.8</b>	<b>+9.7</b>	<b>+14.2</b>
<i>Drainage Area 9 (Southern Development Area)</i>				
Existing Condition	18.7	32.7	42.4	56.9
Proposed Condition	22.1	36.6	46.3	60.8
<i>Difference</i>	+3.4	+3.9	+3.9	+3.9

Source: Four Seasons at Orangetown SWPPP by McLaren Engineering Group

CFS=cubic feet per second

<sup>1</sup>Total discharge is based on sum of hydrographs.

Drainage Areas that have a net positive increase in total peak discharge offsite will require additional measures to reduce peak discharge as required by the NYSDEC and Town regulations and are described in Section 3, Mitigation below. This can be accomplished by implementing detention systems. Drainage Areas that have a net zero or decrease in total peak discharge will not require any additional detention measures.

#### *Regulatory Requirements*

The Proposed Project will require conformance with the requirements set forth in the New York State Department of Environmental Protection's (NYSDEC) Pollution Discharge Elimination System (SPDES) for Discharges for Construction Activities, General Permit GP0- 08-001 (General Permit), and the Town of Orangetown regulations. The General Permit covers discharges that are associated with construction activity, specifically activities that result in an area within the limit of

disturbance on site equal to or greater than one acre of land. Permit coverage requires conformance with the technical standards pertaining to stormwater quantity and quality controls presented in the New York State Stormwater Management Design Manual (DEC Design Manual).

The General Permit requires provision for addressing Water Quality, Channel Protection (1-year storm event), overbank protection (10-year storm event), and extreme flood (100-year storm event). A description of each of these requirements is as follows:

*Water Quality*

The objective of a WQ management system is to capture and treat 90 percent of the average annual stormwater runoff volume ( $WQ_v$ ). Water Quality criteria will be met through the correct implementation of acceptable Stormwater Management Practices (SMPs) listed in the NYSDEC Design Manual. SMPs systems capture and treat the 100% of the required water quality volume and are capable of 80% total suspended solids (TSS) removal and 40% total phosphorus (TP) removal, have acceptable longevity in the field, and have a pretreatment mechanism.

Large portions of the existing Project Site have been subject to prior development. Redevelopment is distinguished from development or new development in that new development refers to construction on land where there had not been previous construction. Redevelopment specifically applies to constructed areas with impervious surface.

The criteria set forth in Chapter 9: Redevelopment Projects of the NYSDEC Design Manual are applicable for this project. Chapter 9 details alternative stormwater measures that can be used when specific physical constraints are present at a site in reconstruction of an existing impervious area. Where site-specific circumstances do not allow proper sizing and installation of the standard management practices, the Stormwater Pollution Prevention Plan (SWPPP) must identify the design difficulties that meet redevelopment application criteria and provide documented justification for the use of proposed alternative approaches presented in this chapter. To make such determination, the following criteria must be met:

- An already impervious area is reconstructed, and
- there is inadequate space for controlling stormwater runoff from the reconstructed area, or
- the physical constraints of the site do not allow meeting the required elements of the standard practices.

Water Quality treatment objectives can be achieved for redevelopment projects using the following options, which at minimum must be equal to the existing treatment system:



- The plan proposes a reduction of impervious cover by a minimum of 25 percent of the existing total site impervious area.
- The plan proposes that a minimum of 25 percent of the water quality volume (WQv) from the disturbed area is captured and treated by the implementation of standard practices.
- The plan proposes the use of alternative practices to treat 75 percent of the water quality volume from the disturbed area as well as any additional runoff from tributary areas that are not within the disturbed area.
- The plan proposes a combination of impervious cover (IC) reduction and standard or alternative practices that provide a weighted average of at least two of the above methods.

#### *Channel Protection Volume*

Stream Channel Protection Volume Requirements (Cpv) are designed to protect stream channels from erosion through the extended detention of the one-year, 24-hour storm event. The Cpv requirement does not apply in certain conditions, including when recharge of the entire Cpv volume is achieved at a site or the site discharges directly to tidal waters or fourth order (fourth downstream) or larger streams.

#### *Overbank Protection*

The primary purpose of the overbank flood control is to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development. In accordance with Section 4.3 of the NYSDEC Design Manual, overbank control requires storage to attenuate the post development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The overbank flood control requirement (Qp) does not apply in certain conditions including when the site discharges directly to tidal waters or fourth order (fourth downstream) or larger streams.

#### *Extreme Storm*

The purpose of the Extreme Flood Control criteria is to prevent the increased risk of flood damage from large storm events, maintain boundaries of the pre-development 100-year floodplain and protect the integrity of stormwater management practices. The NYSDEC Design Manual requires storage to attenuate the post development 100-year, 24-hour peak discharge rate (Qr) to predevelopment rates. The 100-year storm control requirement can be waived if:

- The site discharges directly to tidal waters or fourth order (fourth downstream) or larger streams.
- Development is prohibited within the ultimate 100-year floodplain.
- A downstream analysis reveals that 100-year control is not needed.

### **3. Mitigation**

#### *Stormwater Runoff*

The proposed development will require the construction of a new storm drain system within the project streets to convey the runoff to discharge points west of Third Avenue, see Exhibits III.D-3 and III.D-4, Conceptual Storm Water Facilities (Northern Development Area and Southern Development Area) for schematic layout of storm drain system. The storm drains would be designed in accordance with the Town of Orangetown Subdivision requirements. The proposed storm drains will discharge to water quality and quantity control facilities prior to discharging offsite, towards Lake Tappan.

The northern development area would either discharge to the existing RPC storm drains (Outfall # 3 and 4) or to a new storm drain in Third Avenue that would discharge to the existing stream, near the development area west of Third Avenue. The feasibility of which discharge location will be used will be determined during the Site Plan design and approval phase of the project. Also, inspection of the existing storm drains will be required to determine that they are in good operating condition and to identify the need for repairs or replacement. If it is determined that the existing RPC storm drains have the capacity to convey the proposed stormwater flow, appropriate easements and maintenance agreements with RPC must be obtained.

Prior to development of all stormwater systems onsite, it will be necessary to analyze all outfall structures and the existing drainage channels from west of Third Avenue to Lake Tappan to determine if these outfalls have adequate capacity and to ensure there will be no erosion.

The proposed storm drain system in the northern development area must also convey runoff from the golf course, offsite areas and existing RPC facilities to the east. Storm drain systems conveying these flows should have appropriate easements and maintenance agreements.

#### *Water Quantity*

The approximate maximum storage volume required to detain the increase in peak stormwater discharge can be achieved by comparing the pre-development drainage area peak flow rate to post-development drainage area peak flow rate.

Post-development Drainage Areas that will have an increase in total peak discharge offsite will require measures to reduce peak discharge to pre-development conditions. Reducing peak discharge can be accomplished by constructing on-site detention or retention systems upstream from the corresponding design point. Exhibits III.D-3 and III.D-4 indicate potential locations for stormwater management facilities. The detailed design and location will be developed during the site plan approval phase of the project. Table IIID-3 indicates the approximate detention storage volumes that

will be required for each on-site Drainage Area to reduce post-development peak storm runoff rates to pre-development peak runoff rates. Drainage Areas that have a decrease in total peak discharge will not require any additional detention facilities.

**Table IIID-3  
Estimated Detention Storage Volume**

<b>Drainage Area</b>	<b>Required Storage Acre-ft</b>
P 4	6.42
P 5	1.73
P 6	0.00
P 6A	0.00
P 7	0.00
P 9	0.38

Source: McLaren Engineering Group

Lake Tappan is a fourth order stream and in accordance with the NYSDEC criteria. The Channel Protection Volume requirement does not apply when the site discharges directly to tidal waters or fourth order (fourth downstream) or larger streams. This also applies to the Overbank and Extreme Flood stormwater volume. However, the site runoff will flow through open streams between the RPC site and Lake Tappan and it will be necessary to provide an analysis to determine that the 10-year and 100-year flows will not create erosion in the existing channels in order to apply this standard.

Where the stormwater discharge is designed to be conveyed by the existing RPC facilities, detention facilities may be required to limit peak flow rates to the capacity of the existing storm drains.

*Water Quality*

Water quality measures must be provided to comply with the conditions of the General Permit. As noted above, portions of the Project Site will be considered a redevelopment project in accordance with Chapter 9 of the NYSDEC Design Manual. The site design will require that runoff from the previously developed areas will capture and treat 25% of the water quality volume by the implementation of standard practices. Additionally, 100% of the water quality volume must be captured and treated for new impervious areas.

Approximate calculations of the required WQv have been performed for the site in proposed conditions. Table IIID-4 summarizes the required water quality volumes for each drainage area.

**Table IID-4  
Estimated Water Quality Volume**

<b>Drainage Area</b>	<b>Water Quality Volume (acre-ft)</b>
P4	1.83
P 5	0.29
P 6A	0.21
P 7	0.05
P 9	0.30

Source: McLaren Engineering Group

Exhibits III.D-3 and III.D-4 provide potential locations for water quality treatment facilities, or Stormwater Management Practices (SMPs).

SMPs, in accordance with the Design Manual, must be designed to capture and treat the required water quality volume, be capable of 80% total suspended solids (TSS) removal and 40% total phosphorus (*TP*) removal, have acceptable longevity in the field, and have a pretreatment mechanism. The overall design and layout of the Project Site must be considered when determining specific types, sizes, and locations of acceptable SMPS. All acceptable SMPs are described in the NYSDEC Design Manual.

SMPs that may be utilized on the northern development area include extended detention ponds, wetlands, bioretention, and sand filters. Where site constraints are present, underground filters and hydrodynamic separation systems may be required. Redevelopment project alternative practices such as porous pavement should also be considered. SMPs that may be utilized in the southern development area include extended detention ponds, wetlands, and infiltration devices. Dry wells may be used for treating roof runoff for the single family residential houses along Blaisdell Road.

*Lake Tappan*

Stormwater runoff from the Project will flow to Lake Tappan. Protecting the drinking water source should be a priority of the Stormwater program. Meeting the standards and guidelines of the NYSDEC General Permit and Design Manual will provide water quality treatment in accordance with regulatory requirements. However, additional measures and practices that provide greater protection can be considered as part of the design and long term maintenance of the facilities. These measures would include the following:

1. Provide long term maintenance and monitoring of all stormwater and water quality facilities. In accordance with the General Permit, the owner or operator of the facilities must ensure one of the following:

- The post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located.
  - An executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).
  - For post-construction stormwater management practices that are privately owned, the owner or operator has a deed restriction in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.
2. Provide street cleaning and sediment removal in inlets on a regular interval.
  3. Encourage the use of larger permanent pools in stormwater ponds and use of infiltration practices to improve phosphorus removal.
  4. Develop Integrated Pest Management (IPM) for the Broadacres Golf Course and the landscape areas maintained by the Homeowners Association or property management company. IPM is an approach to pest control that utilizes regular monitoring and recordkeeping to determine if and when treatments are needed, and employs a combination of strategies and tactics to keep pest numbers low enough to prevent unacceptable damage or annoyance. Biological, cultural, physical, mechanical, educational, and chemical methods are used in site-specific combinations to solve the pest problem. IPM emphasizes that non-chemical methods should be considered before resorting to chemical application. Chemical controls are used only when needed, and in the least-toxic formulation that is effective against the pest.

The term “least-toxic” refers to pesticides that have low or no acute or chronic toxicity to humans, affect a narrow range of species, and are formulated to be applied in a manner that limits or eliminates exposure of humans and other non-target organisms. Fortunately, there are an increasing number of pesticides that fit within this “least-toxic” definition. Examples include products formulated as baits, pastes, or gels which do not volatilize in the air and which utilize very small amounts of the active ingredient pesticide, and microbial pesticides formulated from fungi, bacteria, or viruses that are only toxic to specific pest species but harmless to humans.

An IPM program is built around the following components:

- Monitoring the pest population and other relevant factors
- Accurate identification of the pest
- Determining injury and action levels that trigger treatments
- Timing treatments to the best advantage
- Spot treating the pest (to minimize human and other non-target organism exposure to pesticides and to contain costs)

- Selecting the least-disruptive tactics
  - Evaluating the effectiveness of treatments to fine-tune future actions
  - Educating all people involved with the pest problem
5. Develop education programs for the residents to provide them with an understanding of IPM practices and information about proper use of pesticides on private gardens and lawns. Within the residential development, an affective IPM requires the cooperation of all residents. An important key to their success is getting residents involved in the effort and having property managers attend education and training sessions on IPM.

*Compliance with the NYSDEC SPDES Regulations*

In accordance with the NYSDEC General Permit, it is necessary to prepare a Stormwater Pollution Prevention Plan (SWPPP). It is the responsibility of the Developer, General Contractor, and Subcontractors to comply with all the measures set forth in this SWPPP and implement pollutant control measures set forth by the NYSDEC to maintain surface water quality and prevent sediment-laden runoff from entering rivers, streams, estuaries, wetlands and other sensitive environments. A detailed description of these responsibilities is provided in the SWPPP. The Preliminary SWPPP has been prepared and is included in Appendix E of this DGEIS. The final SWPPP will be submitted during the Site Plan Approval phase of the project.



Exhibit III.D-1  
**EXISTING CONDITIONS  
 DRAINAGE AREA**

**FOUR SEASONS AT ORANGETOWN  
 ROCKLAND PSYCHIATRIC CENTER**  
 Town of Orangetown, New York

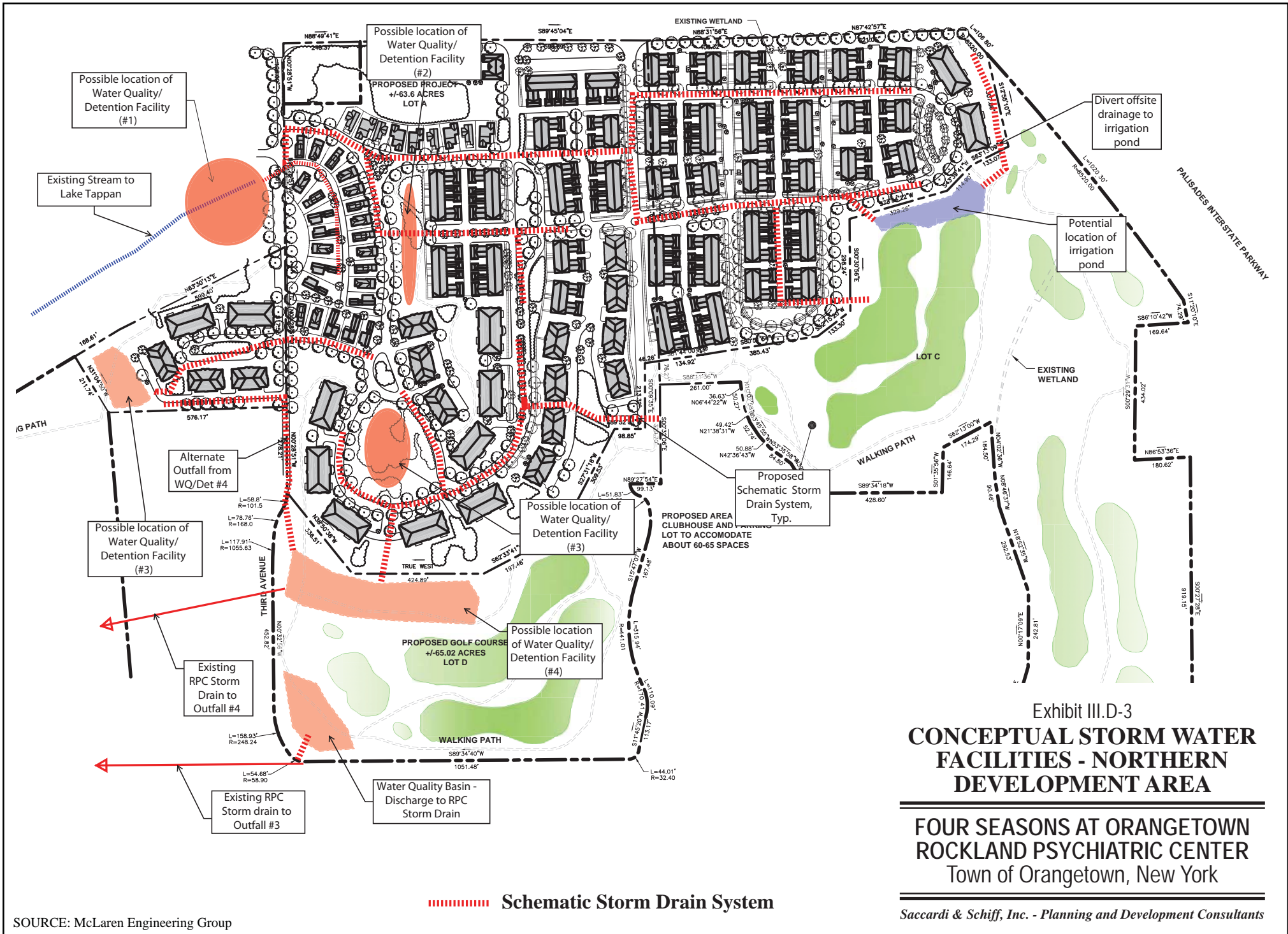




Exhibit III.D-2  
**PROPOSED CONDITIONS  
 DRAINAGE AREA**

**FOUR SEASONS AT ORANGETOWN  
 ROCKLAND PSYCHIATRIC CENTER**  
 Town of Orangetown, New York





..... Schematic Storm Drain System

Exhibit III.D-3  
**CONCEPTUAL STORM WATER FACILITIES - NORTHERN DEVELOPMENT AREA**

**FOUR SEASONS AT ORANGETOWN ROCKLAND PSYCHIATRIC CENTER**  
 Town of Orangetown, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: McLaren Engineering Group

