

**APPENDIX D**

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**Natural Resources Survey & Wetland Report**

**By: Ecological Solutions, LLC**

**July 29, 2008**

*Natural Resources Survey*  
&  
*Wetland Report*

Four Seasons at Orangetown  
Blaisdell Road  
Town of Orangetown, New York

July 29, 2008

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## **1.0 INTRODUCTION**

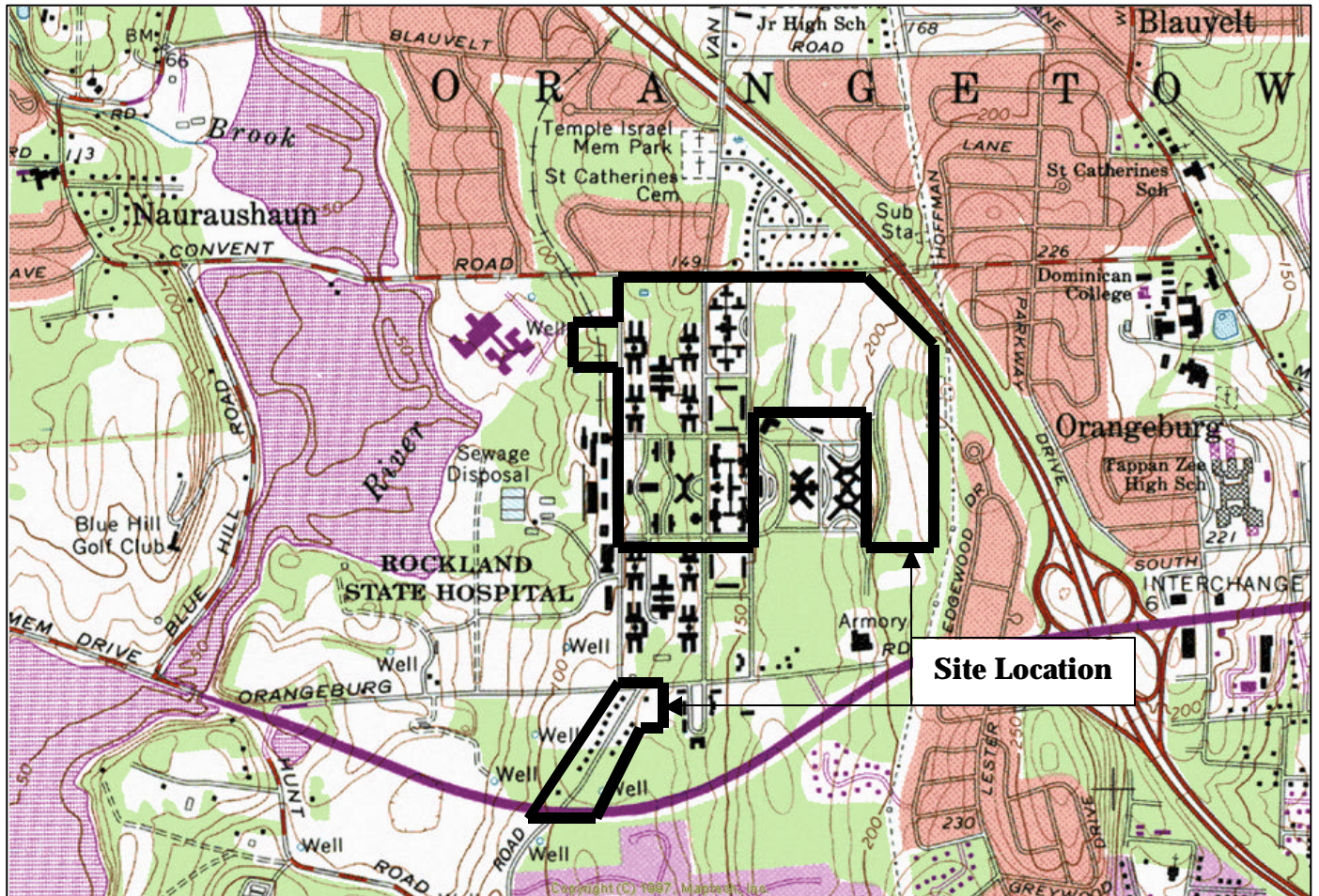
Ecological Solutions, LLC conducted a natural resources survey and wetland investigation on approximately 133 acres of the Rockland Psychiatric Center (RPC) property to be known as the Four Seasons at Orangetown located on Blaisdell Road in the Town of Orangetown, New York on December 18, 2007, March 20, 31, April 11, 16, 25, May 6, 12, 15, 20, June 4, 9, and 24, 2008 (*Figure 1.0-1 Location Map*). The fieldwork occurred generally from 9:30am – 12:00pm or 2:00 – 4:30pm with dawn and dusk surveys on May 20, June 9, and 24, 2008. Weather conditions varied during the field visits from cold to cool rainy days to hot, humid days.

The purpose of the survey was to document existing ecological communities/habitat cover types, evaluate the site wetlands, identify species including vegetation and wildlife and determine if any threatened or endangered species or potential habitat for such species is on the property. In addition, potential impacts to these resources and mitigation for impacts was analyzed.

Ecological Solutions, LLC conducted the inventory and evaluation during March, April, May, and June 2008 and included field surveys for birds, mammals, herpetiles, and vegetation. Methods and findings for this study are outlined below in this report. The remainder of the report focuses on anticipated impacts to these resources, and proposed mitigation measures and alternatives considered to avoid or minimize impacts.

The RPC property currently contains more than thirty large structures in a campus setting with paved roads in a grid pattern occupying the western portion of the property, access driveways, parking lots, utilities and 9-hole golf course occupying the eastern portion of the property. It is estimated that only about 10 percent of the property area reviewed during the field-work is undeveloped or in a more natural setting.

**Figure 1.0-1 Location Map**

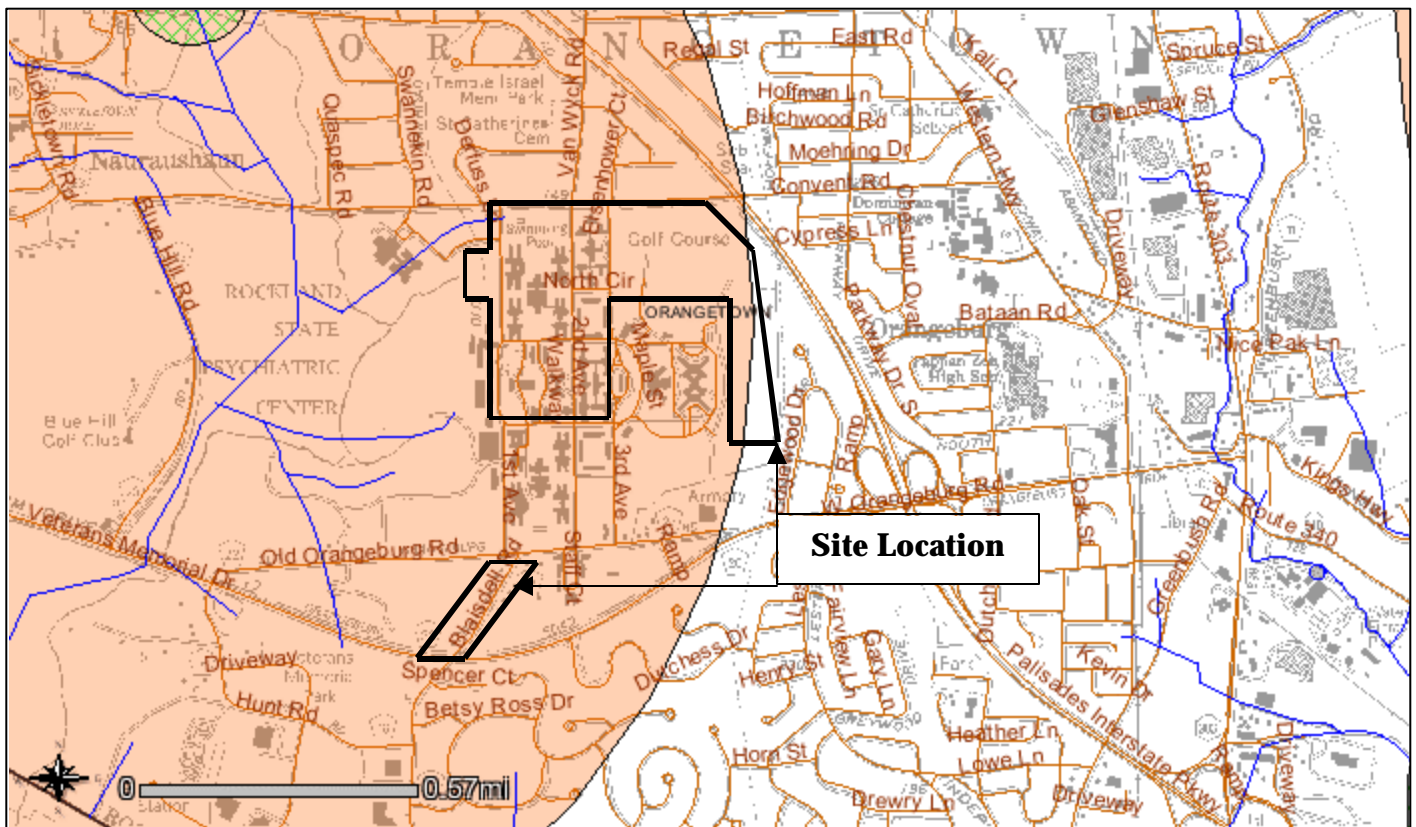


## 2.0 METHODS

### 2.1 Agency Inquiry

As part of the environmental review for the subject site, Ecological Solutions, LLC, reviewed the New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Map regarding the status of rare, threatened, or endangered species on the site and requested information from the NYSDEC Natural Heritage Program. The response letter from the NYSDEC dated July 23, 2008 is attached to this report. A review of the US Fish and Wildlife Service website for threatened and endangered species in Rockland County is attached to the end of this report<sup>1</sup>.

**Figure 2.1-1 NYSDEC Environmental Resource Map**



<sup>1</sup> Bog Turtle and Indiana Bat habitat potential is reviewed in this report. No Bald Eagle, New England Cottontail, or Shortnose Sturgeon habitat is on site and these species were not reviewed.



## 2.2 Ecological Community and Habitat Field Inventory

The vegetation inventory included identification of ecological communities or habitat cover types that involved identifying vegetation on the site. Cover type surveys were conducted by first reviewing an aerial photograph of the site and adjacent properties and subsequently by investigating the habitats on the site to identify and classify each. Cover types were identified, classified, and mapped to show their distributions.

Within each cover type, visual searches for herbaceous and woody plant species or parts thereof, including leaves, bark, twigs, seeds, flowers, fruits, or other identifiable plant structures were conducted to identify and document plant material on the site. The Plot Transect method was employed for the vegetation inventory. The methods used to search for species on the site are outlined in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor*<sup>2</sup>

## 2.3 Wildlife Field Inventory

Field surveys were conducted for wildlife species including mammals, birds, and herpetiles (reptiles and amphibians). Special surveys were also conducted to identify and locate state and federally listed species of special concern and threatened and endangered species and potential habitats for these species. Multiple methods were used in these surveys, as multiple methodologies increase the potential accuracy of surveys. Methods used are outlined below.

A. **Mammals.** The following survey methods that are outlined in detail in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor* were utilized during the field survey:

1. Sign search, in which the observer records any recognizable signs (tracks, droppings, hair, bones, etc.) of mammal species.
2. Opportunistic mammal sightings, in which the observer identifies mammals encountered in the field at random.

Mammals were identified based on visual encounters, vocalizations, tracks, fur, bones, rubs, scrapes, droppings, or other recognizable signs in habitats throughout the property. Sampling routes were established throughout the property to cover all of the identified vegetation cover types. Established sampling routes throughout the site (transects) were walked, and wildlife was recorded as encountered.

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<sup>2</sup> *Hudsonia Ltd., 2001*

B. **Birds.** Field methods used to survey for avian species were based on methods outlined in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor*. This method included:

1. Strip transect, in which the observer records all species encountered (seen/heard) along a trail.
2. Opportunistic bird sighting, in which the observer records birds encountered randomly.
3. Sign search, in which the observer records signs (feathers, nests, droppings, tracks, etc.) of birds encountered in the field.

Birds were detected and identified by visual encounter with individuals, vocalizations, tracks, feathers, bones, droppings, castings, nests, drillings, or other recognizable signs.

C. **Herptiles (Reptiles and Amphibians).** Field methods used to survey for herptile species were based on methods outlined in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor*. This method included:

1. Log rolling (overturning logs, large stones, and other debris to reveal herptiles underneath).
2. Aural surveys were conducted for vocal herptiles. Herptiles were detected and identified by visual encounter, vocalizations, egg masses, and remains.

## 3.0 WETLANDS

### 3.1 Wetland Delineation

The wetland delineation completed on the site was completed in accordance with the specifications of the Routine Delineation Method outlined in the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1*<sup>3</sup>. This included a review of published data and field investigations and sampling. The wetlands on the Four Seasons at Orangetown Property are subject to regulation by the USACE. There are no New York State Department of Environmental Conservation (NYSDEC) mapped wetlands on the site.

**A. Data Review.** The data review for this wetland delineation included the review of NWI maps and NYSDEC Freshwater Wetland Maps for previously identified wetlands on the site. It also included a review of the Rockland County Soil Survey to determine if soils on the site were conducive to wetland formation.

**B. Field Investigation and Sampling.** Federal wetlands were delineated based upon the identification of the three mandatory criteria for wetland determination as outlined in the 1987 Federal Manual: dominant hydrophytic vegetation, hydric soils, and evidence of wetland hydrology. To identify the wetlands, the site was walked and the general characteristics of the property observed. The Routine Methodology procedure for wetland delineation was used. Sample transects were established at each wetland. Each transect consisted of at least two sample points, one in the wetland and one in the adjacent upland. Dominant vegetation around each sample point was identified and its percent cover quantified. Areas with an appropriate landscape position were checked in detail for the presence of wetland hydrologic indicators. Soil profiles were then observed and characterized at each point.

The detailed field investigation included:

1. Identification of vegetation species with a dominance of hydrophytic plants and areas containing transitional but primarily wetland-oriented species.
2. Determination of features of hydric (poorly and very poorly drained) natural soils, transitional but wetland-oriented soils, and disturbed and filled soils that display an aquic (water-saturated) regime (*Figure 3.1-1*).
3. Observation of site features displaying evidence of wetland hydrology based on the presence of inundated areas, apparent high seasonal water tables, and evidence of saturation within 12 inches of the surface (considered the root

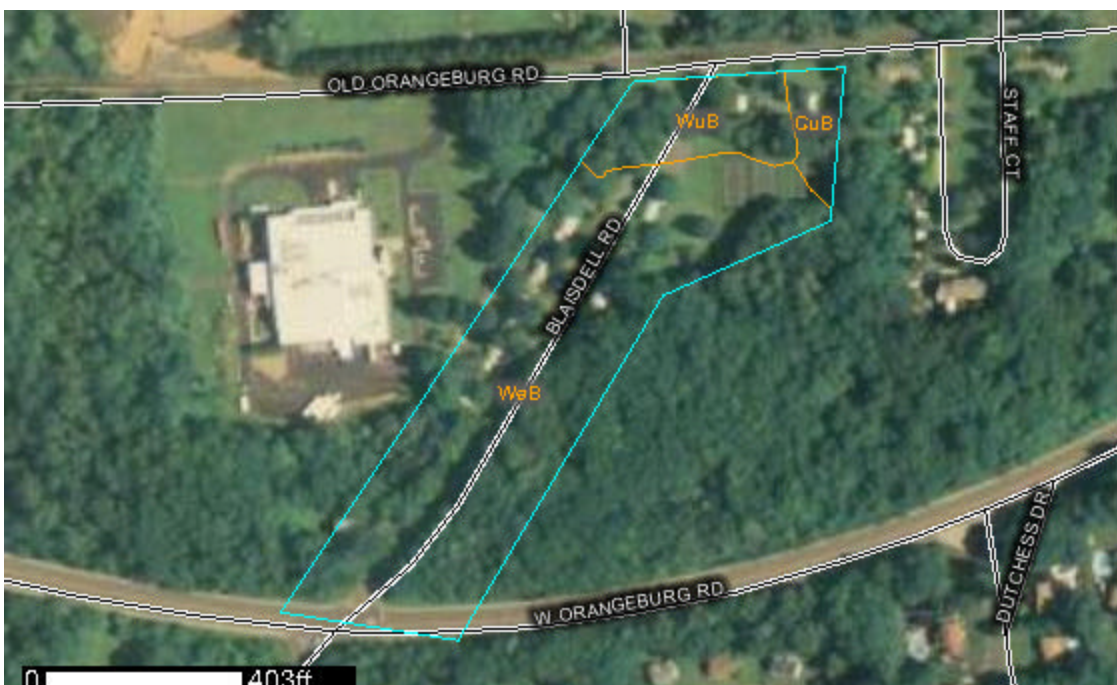
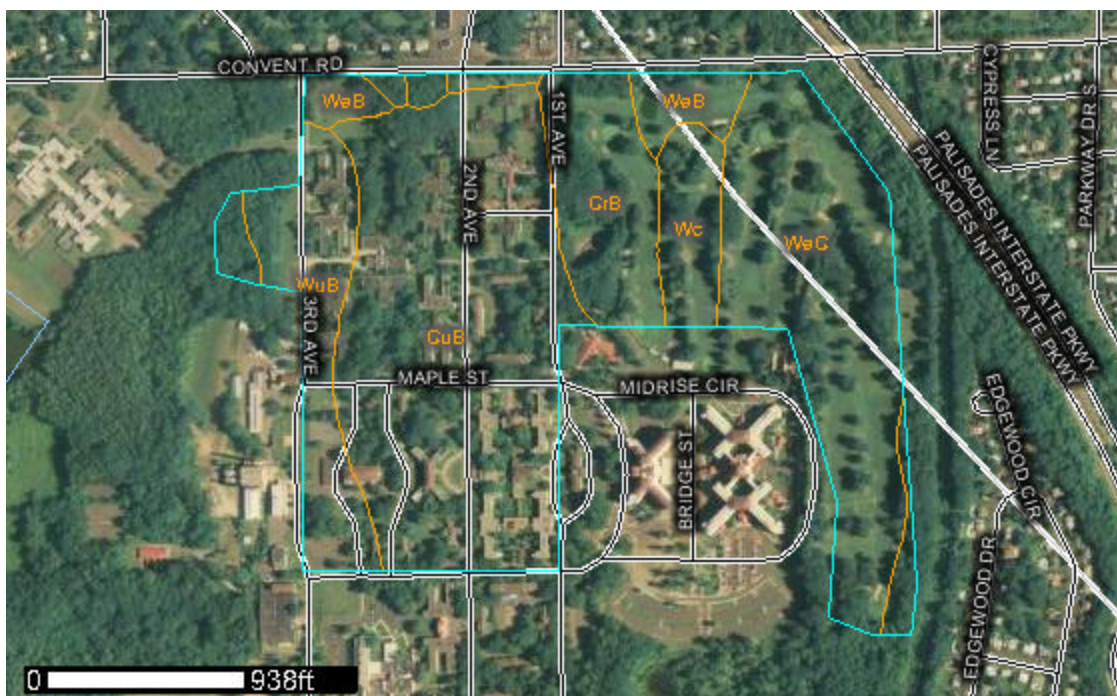
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<sup>3</sup> (U.S. Army Corps of Engineers Environmental Laboratory, 1987) (1987 Federal Manual)

zone) during sufficient periods during the growing season to provide for anaerobic/hydric soil conditions.

Test plots were made at selected locations on the property to identify the various habitat types and to establish the wetland-upland interface. The wetland border was marked with flagging tape marked "WETLAND DELINEATION," and was based on the test plot data and observations made at mini-test plot locations along the wetland border.

**Figure 3.1-1 Soil Maps**



| Map Unit Symbol | Map Unit Name   |
|-----------------|---|
| CrB             | Cheshire gravelly fine sandy loam   |
| CuB             | Cheshire-Urban Land Complex, 2-8 percent slopes                           |
| Wc              | Watchaug fine sandy loam  |
| WeB             | Wethersfield gravelly silt loam, 3 to 8 percent slope                     |
| WeC             | Wethersfield gravelly silt loam, 8 to 15 percent slope                    |
| WuB             | Wethersfield-Urban Land Complex gravelly silt loam, 2 to 8 percent slope  |
| WuC             | Wethersfield-Urban Land Complex gravelly silt loam, 8 to 15 percent slope |

The wetland cover types are described using the classification system found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al., 1979). In the Cowardin System, as it is often called, wetlands are described with a series of letters that describe the Ecological System (wetland type), Class (plant community or structural type), Subclass (vegetation cover type), and sometimes Modifiers (water regime, and disturbance regimes). Letters used in defining wetlands on the site are defined as follows:

**Ecological System: Wetland Type**

P – Palustrine wetland

**Class: Plant Community or Structural Type**

OW – Open Water, EM – Emergent, SS – Scrub/Shrub, FO - Forested

**Subclass: Vegetation/Cover Type**

1-persistent 1-Broad-leaved deciduous 1-Broad-leaved deciduous

**Modifiers: Water Regime and Disturbance Regimes**

**Water Regime**

A-Temporary  
B-Saturated  
C-Seasonal  
E-Seasonal Saturated  
H-Permanent

**Special Modifiers**

b-Beaver  
d-Partially drained/drained  
h-Diked/Impounded

**Site Wetland**

Wetland A, B, C, D, E - Palustrine Emergent (PEM1C) Isolated (Non-Jurisdictional)  
Wetland J Palustrine Forested (PFO1E) Jurisdictional

Five (5) small wetland areas were identified and delineated on the site in the golf course area. The identified wetlands can be characterized as falling under the following

classification: Palustrine Emergent Wetland (PEM1C). The wetlands on the site were identified and delineated on March 20, 2008 and reviewed during each field visit to complete the functions and values assessment. The wetlands on the site are characterized as a shallow emergent marsh cover type. We have assessed the wetlands on the site in light of the US Supreme Court decision in *Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers*, 531 U.S. 159 (2001), and Corps guidance following that decision as well as the *Rapanos* decision relating to the scope of “waters of the United States” under Section 404 of the Clean Water Act. Based on that analysis, we have concluded that wetland areas designated “A”, “B”, “C”, D, and “E” are not waters of the United States under Section 404 because they are isolated, meaning there is no direct connection to any tributary of navigable water. Therefore, these wetland areas are non jurisdictional. Impacts to isolated wetlands are not calculated as a loss of waters of the United States (wetlands) proposed on the site.

Wetland J is located along Blaisdell Road and was also reviewed in the field on March 20, 2008. This wetland is classified as Palustrine Forested Wetland (PFO1E).

### **3.2 Wetland Functional Evaluation**

An assessment of wetland functions and values was conducted on the wetlands identified and delineated on the referenced property. Using a widely accepted method for wetland functions and values assessment developed by the New England District, U.S. Army Corps of Engineers (USACE), 13 distinct wetland functions and values were assessed for the delineated wetlands on the site. This method yielded an objective, descriptive quality index of each wetland rather than a subjective quantified rating of the wetland. This assessment had two major objectives:

1. Objectively identify the functions and values provided by the wetlands identified on the site.
2. Provide baseline data with which the Applicant could work in planning land uses, and against which the Applicant could assess potential impacts of proposed development of the site.

Wetlands are legally protected because of the functions they perform and the benefits that society reaps from those functions. Wetland functions are chemical, physical, and biological processes that wetlands naturally perform as a matter of course, such as absorption of nutrients or floodwaters, or provision of habitat for fish and wildlife. Wetland values are the benefits that society derives from wetland functions, such as flood abatement, or water quality maintenance.

### 3.3 Methods

The functions and values assessment conducted on the Four Seasons at Orangetown Property was based on the method outlined in *The Highway Methodology Workbook Supplement: Wetland Functions and Values, A Descriptive Approach*, by the U.S. Army Corps of Engineers New England District (November 1995). This method was selected over an arbitrary numeric quantifying assessment scheme because it provides an objective, descriptive approach to functions and values assessment based on professional observation and judgment rather than a simple numeric value rating system. Quantified functions and values assessments do not always provide for descriptive information about wetlands and therefore may overlook important aspects of wetland functions and values.

The Highway Method provides for assessment of each wetland for thirteen defined functions and values. Of these, the first eight are considered wetland functions, and the last five are considered to be wetland values. These are:

1. **Groundwater Recharge/Discharge** – the potential for a wetland to serve as a recharge area for an aquifer or as a surface discharge point for groundwater.
2. **Floodflow Attenuation** – A wetland’s ability to store and attenuate floodwaters during prolonged precipitation events, thereby reducing or preventing flood damage.
3. **Fish and Shellfish Habitat** – The ability of permanent or temporary water bodies to provide suitable habitat for fish or shellfish.
4. **Sediment/Toxicant/Pathogen Retention** – The effectiveness of the wetland in trapping sediments, toxicants or pathogens, thereby protecting water quality.
5. **Nutrient Removal/Retention/Transformation** – The effectiveness of the wetland at absorbing, retaining, and transforming or binding excess nutrients, thereby protecting water quality.
6. **Production Export** – The wetland’s ability to produce food or usable products for humans or other living organisms.
7. **Sediment/Shoreline Stabilization** – The wetland’s ability to prevent erosion and sedimentation by stabilizing soils along stream banks or the shorelines of water bodies.

8. **Wildlife Habitat** – The ability of wetlands to provide food, water, cover, or space for wildlife populations typically associated with wetlands or their adjacent areas, both resident and migratory. \*
9. **Recreation** – The value placed on a wetland by society for providing consumptive and non-consumptive as well as active or passive recreational opportunities such as canoeing/boating, fishing, hunting, bird/wildlife watching, hiking, etc.
10. **Education/Scientific Value** – The value placed on a wetland by society for providing subjects for scientific study or research or providing a teaching resource for schools.
11. **Uniqueness/Heritage** – The value placed on a wetland by society for having unique characteristics such as archaeological sites or sites of historical events, unusual aesthetic qualities, or unique plants, animals, or geologic features, etc.
12. **Visual Quality/Aesthetics** – The value placed on a wetland by society for having visual and/or other aesthetic qualities.
13. **Threatened or Endangered Species Habitat<sup>4</sup>** – The value placed on a wetland by society for effectively harboring or providing habitat for threatened or endangered species.

Each function or value in the list has a set list of qualifiers for identifying which functions and values are performed or provided by each wetland. In addition to outlining qualifying rationale for each function and value, the data forms also document information on the wetland size, distance to nearest road or other development, adjacent land uses, position in the watershed, impacts from human activity, tributaries, cover types, connectivity to other wetlands, and general condition. All of these elements factor into the functions and values assessment. Wetland data and observations for this functions and values assessment were collected during 2007 and 2008 to observe herbaceous plant growth and hydrologic characteristics during the growing season to complete the functions and values assessment. Observations and other published data were used to assess the functions and values of the wetland.

### **3.4 Wetland Assessment Results**

Findings of the assessment are outlined below.

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<sup>4</sup> *The Highway Methodology Workbook Supplement suggests that species lists of observed and potential wildlife species should be included with a functions and values assessment. The species lists for this assessment are included separately in the Draft Environmental Impact Statement prepared for the site.*



**Wetlands A, B, and C** – Wetland “A” totals 0.24 acres, Wetland “B” totals 0.06 acres, and Wetland “C” totals 0.10 acres. These wetlands are located at the northeastern property corner and are considered one complex separated by crossings. This wetland complex receives water primarily from overland sheet flow and drains man-made drainage swales that lead to underground drainage structures.

Hydrological indicators identified within the wetlands included soil saturation, watermarks, drift lines, drainage patterns, and water stained leaves. The wetlands are shallow emergent wetlands (PEM1C) located within the golf course area. Each is a reed grass (*Phragmites*) dominated marsh with an understory of skunk cabbage (*Symplocarpus foetidus*) and tussock sedge (*Carex stricta*) and is seasonally inundated. This system is surrounded by the existing golf course and other development. Functions and values provided by the wetlands delineated on the site include sediment trapping, nutrient removal, and wildlife habitat. Of these, the most significant functions of this wetland, based on extent of rationale in identifying functions and values, are sediment trapping and nutrient removal.

**Wetlands D and E** – Wetland “D” totals 0.06 acres and Wetland “E” totals 0.07 acres. This small wetland complex is located at the east-central portion of the property. These wetlands are considered one complex separated by a golf path crossing and receive water primarily from overland sheet flow. Drainage swales also direct flow from this complex to underground drainage structures.

Hydrological indicators identified within the wetlands included soil saturation, watermarks, drift lines, drainage patterns, and water stained leaves. The wetlands are also shallow emergent wetlands (PEM1C) located within the golf course area. Each is a cattail dominated marsh with no overstory or understory. This system is surrounded by the existing golf course and other development. Functions and values provided by the wetlands delineated on the site include sediment trapping, nutrient removal, and wildlife habitat. Of these, the most significant functions of this wetland, based on extent of rationale in identifying functions and values, are sediment trapping and nutrient removal.

**Wetland J** – Wetland “J” totals 3.80 acres and is located south of Blaisdell Road. The wetland is fed through ground water seepage and surface sheet flow, and drains south to an off-site drainage ditch. Hydrologic indicators observed included soil saturation, shallow root systems, drainage patterns, and water stained leaves. This wetland is an intermittently flooded, broad-leafed deciduous forested wetland basin (PFO1). It is surrounded by second growth mixed hardwood forest, dominated by maples, ashes, and oaks. Functions and values of Wetland J include groundwater recharge, floodflow attenuation, sediment trapping, nutrient removal, production export, shoreline

stabilization, wildlife habitat, recreation, educational/scientific resources, uniqueness/heritage, and visual quality. Of these, the most significant functions of this wetland, based on the extent of rationale in identifying functions and values, are: floodflow attenuation and wildlife habitat.

## **Watershed**

Wetlands on the property are within the Hudson River watershed. Wetlands are regulated because they provide functions that are valuable to society. If a wetland is significantly impacted, its functions, and subsequently its values may be lost to society. In most regulatory models, use of wetlands is ordered in a three-step process: avoid, minimize, and mitigate. First, efforts must be made to avoid impacting wetlands. If impacts to wetlands cannot be avoided, they must be minimized to the extent possible and mitigated usually in the form of creating or restoring wetlands at a proximal location so that the functions and values lost as a result of the impacts can be replaced in kind. The wetland identified on the Four Seasons at Orangetown Property performs only minor functions and possesses only minor value. Generally, larger wetlands, or wetlands with more diverse structure possess more values. Special efforts have been utilized to avoid impacting wetlands on the site.

### **3.5 Wetland Impact**

The proposed development of the property may require a Federal Section 404 Nationwide Permit #29 for residential development activities associated with the placement of fill in jurisdictional wetlands on the site. A NYSDEC Section 401 Water Quality Certification is also required if a federal permit or authorization is necessary for the project.

Short-term physical impacts to regulated wetlands on the site will be avoided by the use of erosion controls throughout the property especially in critical areas adjacent to regulated wetlands.

Lake Tappan exists about a half mile west of the site. The existing RPC site drains to Lake Tappan via several watercourses that exist in the vicinity of 3<sup>rd</sup> Avenue. Currently fertilizers used on the golf course, waterfowl droppings, and runoff from impermeable surfaces within the study area drains to Lake Tappan. Re-development activities on the RPC site will have the potential to increase erosion and sedimentation generated from the site.

**TABLE 3.5-1  
PRE AND POST-DEVELOPMENT WETLAND AREAS**

| <b>Wetland</b> | <b>Pre-Development Size (Acres)</b> | <b>Wetland Area Impacted by Proposed Development (Acres)</b> | <b>Post-Development Size (Acres)</b> |
|----------------|-------------------------------------|--|--------------------------------------|
| A              | 0.24                                | 0.24   | 0                                    |
| B              | 0.06                                | 0.06   | 0                                    |
| C              | 0.10                                | 0.10   | 0                                    |
| D              | 0.06                                | 0.06   | 0                                    |
| E              | 0.07                                | 0.07   | 0                                    |
| J              | 3.80                                | 0.10   | 3.70                                 |
| Total          | 4.33                                | 0.63 <sup>5</sup>  | 3.70                                 |

### **3.6 Wetland Mitigation**

During construction appropriate soil erosion and sediment control measures will reduce any potential impacts to these regulated resources.

#### **NYSDEC Permit Requirements**

The project may require a NYSDEC Section 401 Water Quality Certification for activities that impact regulated federal wetlands.

#### **USACE Permit Requirements**

The proposed project may require a NWP #29 and mitigation for jurisdictional wetland impacts greater than 0.10 acres. As mitigation for wetland impacts a wetland establishment will be provided on the site. A wetland habitat consisting of a wooded wetland with a shrub understory, leading to an emergent wetland, to a shallow marsh to a small open pond will be developed as a progression of habitats to establish the area to provide for a varied vegetative and wildlife habitat.

Typical wetland mitigation plantings (shrubs) include: *Cornus stolonifera* - Red Osier Dogwood, *Viburnum dentatum* - Arrowwood, *Cletrha alnifolia* - Sweet Pepperbush, *Ilex*

<sup>5</sup> Total jurisdictional wetland impacts are only 0.10 acres of the 0.63 acres in the table.

verticillata – Winterberry, Lindera benzoin – Spicebush, and Vaccinium corymbosum - Highbush Blueberry.

Additional mitigation to replace any lost functions of the wetlands include Stormwater Quality Management Basins or Detention Ponds that will be provided on the site for nutrient removal and water quality improvement.

The proposed re-development activities will require that erosion and sediment controls will be utilized at the site to mitigate any potential for the flow of particles offsite. In addition, substantial stormwater management basins will be utilized to treat flows prior to discharge from the site. Planted bioswales could also be utilized to remove nutrients from stormwater. Currently there are no stormwater basins utilized at the site.

## 4.0 FINDINGS

The Four Seasons at Orangetown property contains several large landscaped areas or cultural cover types as well as small pockets of distinct mixed upland forest cover type occupying the well-drained areas on the property.

The canopy layer ranges from dense to sparse depending on the age class of the canopy layer on any given point on the site. The understory also ranges from very dense thicket to a more easily traveled zone where the trees are larger diameter. The forest community is young to medium aged and generally consists of trees ranging in size from 4 to 8 inches diameter at breast height (dbh), with larger specimen trees in the 12 to 24 inch dbh range in select locations. Soil moisture was evident in portions of the upland forest areas and was enough in some areas for some herpetiles to use as habitat.

There are six (6) cover types that were observed, identified, and mapped on the Four Seasons at Orangetown property (*Figure 4.0-1Habitat Cover Type Map*). These cover types are classified according to Edinger in Table 4.0-1.

**TABLE 4.0-1  
HABITAT AND OTHER LAND COVER TYPES IDENTIFIED ON THE  
FOUR SEASONS AT ORANGETOWN PROPERTY**

| NO. | EDINGER 2002             |
|-----|--------------------------|
| 1   | Rich Mesophytic Forest   |
| 2   | Shallow Emergent Marsh   |
| 3   | Red Maple Hardwood Swamp |
| 4   | Paved Road/Path          |
| 5   | Mowed Lawn With Trees    |
| 6   | Urban Structure Exterior |

**TABLE 4.0-2  
COVER TYPE IMPACTS  
FOUR SEASONS AT ORANGETOWN PROPERTY**

| <b>NO.</b>   | <b>EDINGER 2002</b>                   | <b>ACRES IDENTIFIED<br/>ON PARCEL</b> | <b>PROPOSED<br/>CONDITION</b> |
|--------------|---------------------------------------|---------------------------------------|-------------------------------|
| <b>1</b>     | Rich Mesophytic Forest                | 3.72                                  | 0.10                          |
| <b>2</b>     | Shallow Emergent Marsh                | 0.53                                  | 0.00                          |
| <b>3</b>     | Red Maple Hardwood Swamp              | 3.80                                  | 0.10                          |
| <b>4</b>     | Paved Road/Path                       | 26.33                                 | 29.71                         |
| <b>5</b>     | Mowed Lawn With Trees                 | 108.26                                | 112.73                        |
| <b>6</b>     | Urban Structure Exterior <sup>6</sup> | Included in #4                        | Included in #4                |
| <b>Total</b> |                                       | 142.64                                | 142.64                        |

Table 4.0-2 indicates the amount of cover types present on the parcel and the proposed impact to each in acres and is based on the Four Seasons at Orangetown Conceptual Plan (*Figure 4.0-1 Conceptual Plan*).

<sup>6</sup> Acreage included in Paved Road/Path calculation.

**Figure 4.0-1 Conceptual Plan**



## **4.1 TERRESTRIAL SYSTEM**

The terrestrial system on the Four Seasons at Orangetown property consists of the upland habitats referenced in Table 4.0-1. These habitats have well-drained soils that are dry to mesic (never hydric), and vegetative cover that is never predominantly hydrophytic, even if the soil surface is occasionally or seasonally flooded or saturated.

### **4.1.1 FORESTED UPLANDS**

This subsystem includes upland communities with more than 60% canopy cover of trees; these communities occur on substrates with less than 50% rock outcrop or shallow soil over bedrock.

#### **4.1.1.1 Rich Mesophytic Forest**

The Four Seasons at Orangetown property contains a mixed forest that resembles the mixed mesophytic forests of the Allegheny Plateau south of New York but is less diverse.. A canopy with a relatively large number of codominant trees characterizes this forest. Canopy codominants include red oak (*Quercus rubra*), red maple (*Acer rubrum*), white ash (*Fraxinus americana*), American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*), and black birch (*Betula lenta*). Less common in the canopy and subcanopy are tulip tree), (*Liriodendron tulipifera*), white oak (*Quercus alba*), white pine (*Pinus strobus*), basswood (*Tilia americana*), bitternut hickory (*Carya cordiformis*), black oak (*Quercus velutina*), and eastern hop hornbeam (*Ostrya virginiana*). This forest has a well-developed shrublayer with a variety of characteristic species including musclewood (*Carpinus caroliniana*), arrow-wood (*Viburnum acerifolium*), and witch hazel (*Hamamelis virginiana*). Characteristic herbs are jack-in-the-pulpit (*Arisaema triphyllum*), early meadow rue (*Thalictrum dioicum*), round-leaf violet (*Viola rotundifolia*), spinulose wood-fern (*Dryopteris spinulosa*), garlic mustard (*Allaria officinalis*), violet (*Viola spp.*), carrion flower (*Smilax herbacea*), wood geranium (*Geranium maculatum*), wild strawberry (*Fragaria virginiana*), clover (*Trifolium spp.*), false Solomon's seal (*Smilacina racemosa*), trout lilly (*Erythronium americanum*), club moss (*Lycopodium spp.*), and Christmas fern (*Polystichum crostichoides*). Bird species observed in the ground layer included brown thrasher (*Orpheus rufus*), veery (*Catharus fuscescens*), ovenbird (*Seiurus aurocapillus*), and turkey (*Meleagris gallopavo*). Herpetiles observed in the upland forest community included red-backed salamander (*Plethodon cinereus*), American toad (*Bufo americanus*), and garter snake (*Thamnophis sirtalis*).

Mammals located in the upland forest and wetland portion of the site included opossum (*Didelphis virginiana*), little brown bat (*Myotis lucifugus*), deer mouse (*Peromyscus maniculatus*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias*



*striatus*), woodchuck (*Marmota monax*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), red fox (*Urocyon cinereoargenteus*), and white-tailed deer (*Odocoileus virginiana*).

#### **4.1.2 TERRESTRIAL CULTURAL**

This subsystem includes communities that are either created and maintained by human activities, or are modified by human influence to such a degree that the physical conformation of the substrate, or the biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence.

##### **4.1.2.1 Paved road/path**

The Four Seasons at Orangetown property contains several paved roads and paths. There is sparse vegetation rooted in cracks in the paved surface. Several trails or paths are also contained within the forested areas on the property.

##### **4.1.2.2 Mowed lawn with trees**

The property contains recreational land (golf course) in which the groundcover is dominated by clipped grasses and forbs, and is shaded by approximately 30% cover of trees. Ornamental and native shrubs are present, with less than 50% cover. The groundcover is maintained by mowing. Characteristic animals include gray squirrel (*Sciurus carolinensis*), American robin (*Turdus migratorius*), mourning dove (*Zenaida macroura*), and mockingbird (*Mimus polyglottos*).

##### **4.1.2.3 Urban structure exterior**

The property contains many structures with exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, apartment buildings, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in an urban or densely populated suburban area. Nooks and crannies provide nesting habitat for birds and insects, and roosting sites for bats. Characteristic birds include American robin (*Turdus migratorius*) and exotic birds such as rock dove (*Columba livia*) and house sparrow (*Passer domesticus*).

#### **4.2 PALUSTRINE SYSTEM**

The palustrine system on the property consists of non-tidal, perennial wetlands characterized by emergent vegetation or forested area. The system includes permanently flooded wetlands and wetlands that are seasonally or intermittently

flooded (these may be seasonally dry). The wetland communities are distinguished by their plant composition (hydrophytes), substrate (hydric soils), and hydrologic regime (frequency of flooding).

#### **4.2.1 OPEN MINERAL SOIL WETLANDS**

This subsystem includes wetlands with less than 50% canopy cover of trees. In this classification, a tree is defined as a woody plant usually having one principal stem or trunk, a definite crown shape, and characteristically reaching a mature height of at least 16 ft (5 m). The dominant vegetation may include shrubs or herbs. Substrates range from mineral soils or bedrock to well-decomposed organic soils (muck). Fluctuating water levels allow enough aeration of the substrate to allow plant litter to decompose, so there is little or no accumulation of peat.

##### **4.2.1.1 Shallow emergent marsh**

This community type occurs within the golf course area on mineral soil that is permanently saturated and seasonally flooded. Water depths ranged from 1-3 feet in each wetland delineated on the site. Cattail (*Typha latifolia*) and reed grass (*Phragmites communis*) dominate the wetlands located on the golf course. Other plants characteristic of shallow emergent marshes include blue flag iris (*Iris versicolor*), sensitive fern (*Onoclea sensibilis*), common skullcap (*Scutellaria galericulata*), and beggarticks (*Bidens* spp). Amphibians found in shallow emergent marshes include frogs such as eastern American toad (*Bufo a. americanus*), green frog (*Rana clamitans melanota*), and salamanders such as northern redback salamander (*Plethodon c. cinereus*). Birds found include red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), and common yellowthroat (*Geothlypis trichas*).

#### **4.2.2 FORESTED MINERAL SOIL WETLANDS**

This subsystem includes a saturated swamp designated as Wetland “J”. This type of swamp typically has at least 50% canopy cover of trees. For the purposes of this classification, a tree is defined as a woody plant usually having one principal stem or trunk, a definite crown shape, and characteristically reaching a mature height of at least 16 ft.

##### **4.2.2.1 Red maple-hardwood swamp**

Wetland “J” is a hardwood swamp that occurs in a poorly drained depression on inorganic soils. Red maple (*Acer rubrum*) is codominant with hardwoods including ashes (*Fraxinus pennsylvanica*, *F. nigra*, and *F. americana*), elms (*Ulmus americana* and *U. rubra*) and swamp white oak (*Quercus bicolor*). Other trees with low percent cover

include ironwood (*Carpinus carolinianus*), and white pine (*Pinus strobus*). The shrublayer is well developed and dense. Characteristic shrubs are winterberry (*Ilex verticillata*), spicebush (*Lindera benzoin*), and highbush blueberry (*Vaccinium corymbosum*). The herbaceous layer is dominated by sensitive fern (*Onoclea sensibilis*) and cinnamon fern (*Osmunda cinnemomea*). Characteristic herbs include skunk cabbage (*Symplocarpus foetidus*), white hellebore (*Veratrum viride*) and jewelweed (*Impatiens capensis*).

Additional species including migratory species located on the site during the field work include the following:

| <b>TABLE 4.0-3<br/>ADDITIONAL SPECIES - FOUR SEASONS AT ORANGETOWN PROPERTY</b> |                                 |
|---|---------------------------------|
| Eastern Phoebe - m <sup>7</sup>   | <u>Sayornis phoebe</u>          |
| Black-capped Chickadee  | <u>Poecile atricapillus</u>     |
| Red-breasted Nuthatch   | <u>Sitta canadensis</u>         |
| White-breasted Nuthatch   | <u>Sitta carolinensis</u>       |
| Brown Thrasher  | <u>Orpheus rufus</u>            |
| Tufted Titmouse   | <u>Parus bicolor</u>            |
| Wood Thrush - m   | <u>Hylocichla mustelina</u>     |
| Red-tailed Hawk - m   | <u>Buteo jamaicensis</u>        |
| Broad-winged Hawk - m   | <u>Buteo platypterus</u>        |
| Barn Swallow - m  | <u>Hirundo rustica</u>          |
| Carolina Wren - m   | <u>Thryothorus ludovicianus</u> |
| Common Grackle  | <u>Quiscalus quiscula</u>       |
| Turkey Vulture  | <u>Cathartes aura</u>           |
| American Robin - m  | <u>Turdus migratorius</u>       |
| Cardinal  | <u>Cardinalis cardinalis</u>    |
| Red Eyed Vireo - m  | <u>Vireo olivaceus</u>          |
| Yellow Warbler - m  | <u>Dendroica petechia</u>       |
| Blackburnian Warbler - m  | <u>Dendroica fusca</u>          |
| Northern Flicker  | <u>Colaptes auratus</u>         |
| Ovenbird - m  | <u>Seiurus aurocapillus</u>     |
| Mourning Dove   | <u>Zenaida macroura</u>         |
| Downy Woodpecker  | <u>Picoides pubescens</u>       |
| Star-nosed Mole   | <u>Condylura cristata</u>       |
| Eastern Chipmunk  | <u>Tamias striatus</u>          |
| Eastern Cottontail  | <u>Sylvilagus floridanus</u>    |
| Red-backed Salamander   | <u>Plethodon cinereus</u>       |
| American Toad   | <u>Bufo americanus</u>          |

<sup>7</sup> M – denotes species is migratory, although some populations have become resident to the northeast.



## 5.0 ANTICIPATED IMPACTS

The study area is the subject of a proposed multiphase, mixed-use residential development. The proposed re-development of the property and its appurtenant features necessarily require minor additional clearing of vegetation beyond the existing developed area. Earth moving (excavation, filling, and grading), operation of heavy machinery, construction, and alteration to existing drainage patterns, addition of impervious surfaces, changes in traffic patterns, and human activity will occur on the subject property. These activities have a potential to adversely impact the existing environmental elements of the site. Anticipated impacts from these activities are outlined below.

### 5.1 Impacts to Vegetation and Cover Types

A. **Forested Wetland.** Development activities have been planned to completely avoid impacts to Federal wetland area.

B. **Habitat Loss.** The proposed activities on the site will require the removal of some natural vegetation in upland areas potentially altering portions of upland cover type areas but not their distribution on the site. The upland forest area will be replaced with cultural cover types that are currently found on the property in abundance such as mowed lawn with trees. Habitat values will be dependent on landscape planting schemes and maintenance regimes of the developed lots, and on availability of protective cover for wildlife. Overall, no significant decrease in natural wildlife habitat value will result from the proposed property re-development, and the species richness of the local wildlife community should continue with little change.

### 5.2 Impacts to Wildlife

A. **All Species.** Direct impacts to wildlife from the proposed re-development will primarily be displacement. Some species found on the site are typically found in suburban settings and have already adapted to proximal human habitation. These species will remain on the site as long as availability of basic habitat features (food, water, cover, and space) remains.

B. **Listed Species.** No state or federally listed threatened or endangered species are found on the site.

## **6.0 MITIGATION MEASURES**

The proposed re-development of the Four Seasons at Orangetown property is anticipated to have the potential for minor environmental impacts that can be minimized through the implementation of mitigative measures. These are actions taken to prevent or lower the probability of adverse effects from the re-development activities. Mitigative measures for the potential impacts are outlined below.

### **6.1 Mitigation For Impacts to Vegetation and Cover Types**

To minimize loss of habitat, the developer will minimize removal of natural vegetation as much as possible to preserve natural cover types on the site. Vegetation clearing will be minimized by establishing undisturbed, naturally vegetated buffers demarcated by orange construction fencing in the field.

Other habitat aspects of the site should be preserved where they do not interfere with the functioning of the re-development activities. Such elements may include existing stonewalls and standing dead trees (snags). Old stonewalls provide microhabitats for small mammals, herptiles, and invertebrates. Snags provide perching, nesting, and feeding sites for a wide variety of wildlife. These elements or parts thereof should be protected where possible. Impacts from habitat and forest fragmentation can be avoided by maintaining connecting cover corridors between natural habitat areas. Connecting corridors do not have to be entirely unbroken, as long as breaks in the natural vegetation are not excessive.

### **6.2 Mitigation for Wildlife Impacts**

Temporary wildlife displacement during construction is a short-term impact. The re-development plan minimizes forest cover removal and orange construction fencing between the areas to be graded and the areas that will be left undisturbed on the site before grading begins will be used.

## **7.0 POTENTIAL THREATENED/ENDANGERED SPECIES REVIEW**

### **7.1 Indiana Bats**

Indiana bat hibernacula and hibernacula characteristics have been well documented by numerous observational studies reported in the literature. Indiana bats spend the winter months in secluded caves or mines. There are eight hibernacula currently known in Albany, Essex, Warren, Jefferson, Onondaga and Ulster Counties. To date there are three known hibernacula located in the immediate vicinity of Kingston, New York. The hibernacula are critical to the survival of this species because so few are known to exist. The USFWS and NYSDEC are continually documenting habitat utilization by this species once emergence occurs.

With the coming of spring, Indiana bats disperse from their winter homes, known as hibernacula, some going hundreds of miles. They feed solely on flying insects and presumably males spend the summer preparing for the breeding season and winter that follows. Females congregate in nursery colonies, only a handful of which have ever been discovered. These were located along the banks of streams or lakes in forested habitat, under the loose bark of mature shagbark hickory trees, and some dead trees that have open or hanging bark to provide shelter for the bats, and which can contain from 50-100 females. A single young is born to each female, probably late in June, and is capable of flight within a month.

Outside the hibernation period, Indiana bats are very mobile and use both live trees greater than 5 inches dbh especially containing dead wood and snags or dead trees in a variety of habitats for roosts during the summer months. Although roosts have been documented in a wide array of hardwood and pine species, trees and snags that have exfoliating bark or crevices, such as Shagbark Hickory and Black Locust, appear to be most important to this species because females and their young rest under the bark. Trees, equal to or greater than 9 inches dbh with exfoliating bark/crevices, southern or western exposure, and solar exposure appear to be the most important habitat for maternal colonies during the summer months.

In August or early September, Indiana bats swarm at the entrance of selected caves or mines. This is when mating takes place. Indiana bats spend the winter months in secluded caves or mines which average 37 to 43 degrees F. Criteria for selecting hibernacula are not clearly understood; many apparently suitable sites are not occupied. Where this species is found, however, it can be extremely abundant, congregating in densities of more than 300/square foot. Year after year, bats often return to exactly the

same spots within individual caves or mines. Hibernation can begin as early as September and extend nearly to June.

According to the literature roost-tree density necessary to support Indiana bats is not understood and negative or positive biological thresholds linked to roost abundance are unknown. Similarly, there are no quantitative studies that adequately describe species composition of forest stands or stand structure surrounding occupied roosts. There is evidence however that Indiana bats return to the same summer foraging and roosting areas and sometime individual tree each year.

**Indiana Bats** - A large percentage of the property is already developed and remaining undeveloped areas are lightly wooded and contain distinct habitat types that can broadly be categorized as mixed upland forest, and shallow emergent wetland. The property has gentle to moderately steep slopes in the mixed upland forest areas. The forested portion of the property contains some trees over 9" dbh that contain tight smooth bark and lack crevices, cavities or holes that are potential Indiana Bat roosting trees. No Indiana Bat roosting or maternal colony trees/habitat were observed on the property and no hibernacula are suspected on the property.

## 7.2 Bog Turtles

### Bog Turtle Habitat (Phase 1) Survey

**Project and Site Information** - The Bog Turtle habitat suitability assessment followed the protocols outlined by the Fish and Wildlife Service (2001)<sup>8</sup> and the Guidelines for Bog Turtle Surveys last revised on April 13, 2006<sup>9</sup>.

Potential bog turtle habitat is recognized by three criteria (*not all of which may occur in the same portion of a particular wetland*):

1. **Suitable hydrology.** Bog turtle wetlands are typically spring-fed with shallow surface water or saturated soils present year-round, although in summer the wet area(s) may be restricted to near spring head(s). Typically these wetlands are interspersed with dry and wet pockets. There is often subsurface flow. In addition, shallow rivulets (less than 4 inches deep) or pseudo-rivulets are often present.

2. **Suitable soils.** Usually a bottom substrate of permanently saturated organic or mineral soils. These are often soft, mucky-like soils (this does not refer to a technical soil type); you will usually sink to your ankles (3-5 inches) or deeper in muck, although in

<sup>8</sup> US Fish and Wildlife Service 2001 Bog Turtle (*Clemmys muhlenbergii*) Northern Population, Recovery Plan. Hadley, Massachusetts

<sup>9</sup> [www.fws.gov/northeast/nyfo/es/btsurvey.pdf](http://www.fws.gov/northeast/nyfo/es/btsurvey.pdf)



degraded wetlands or summers of dry years this may be limited to areas near spring heads or drainage ditches. In some portions of the species' range, the soft substrate consists of scattered pockets of peat instead of muck.

**3. Suitable vegetation.** Dominant vegetation of low grasses and sedges (in emergent wetlands), often with a scrub-shrub wetland component. Common emergent vegetation includes, but is not limited to: tussock sedge (*Carex stricta*), soft rush (*Juncus effusus*), rice cut grass (*Leersia oryzoides*), sensitive fern (*Onoclea sensibilis*), tearthumbs (*Polygonum spp.*), jewelweeds (*Impatiens spp.*), arrowheads (*Sagittaria spp.*), skunk cabbage (*Symplocarpus foetidus*), panic grasses (*Panicum spp.*), other sedges (*Carex spp.*), spike rushes (*Eleocharis spp.*), grass-of-Parnassus (*Parnassia glauca*), shrubby cinquefoil (*Dasiphora fruticosa*), sweet-flag (*Acorus calamus*), and in disturbed sites, reed canary grass (*Phalaris arundinacea*) or purple loosestrife (*Lythrum salicaria*). Common scrub-shrub species include alder (*Alnus spp.*), red maple (*Acer rubrum*), willow (*Salix spp.*), tamarack (*Larix laricina*), and in disturbed sites, multiflora rose (*Rosa multiflora*). Some forested wetland habitats are suitable given hydrology, soils and/or historic land use. These forested wetlands include red maple, tamarack, and cedar swamps.

**Suitable hydrology and soils are the critical criteria (i.e., the primary determinants of potentially suitable habitat).**

### **Wetland Information For Site**

The “waters of the United States” including wetland area and tributary on the property does not contain suitable hydrology or mucky soils substrate often associated with Bog Turtle habitat such as open, early successional habitat wet meadows or open calcareous boggy areas generally dominated by sedges (*Carex spp.*) or sphagnum moss. Like other cold-blooded or ectothermic species, it requires habitats with a good deal of solar penetration for basking and nesting.

Hydrology supporting the wetlands on the site is primarily intermittent surface water and overland flow that appears to fluctuate during each storm event. The fluctuating hydrology and lack of suitable mucky soils negates the potential for bog turtle habitat on the property.

### **7.3 Fairy Wand**

Correspondence from the NYSDEC dated July 23, 2008 indicates that there is a historic record from 1857 of Fairy Wand (*Chamaelirium luteum*) a New York State threatened species on or in the vicinity of the project site. This plant is indigenous to the United States, and is found growing in woodlands from Massachusetts to Michigan. It is an

erect, slender herb, about 1 ½ to 2 feet high, and without branches. The stem is smooth, round, striate, and terminates in a long, slender spike of small white flowers. The lower leaves are obovate-spatulate, smooth, entire, alternate, and exstipulate. They are clustered in at the base of the stem, gradually becoming smaller until the upper are reduced to scales. They are attached at an acute angle to the stem. The radical leaves are obtuse, but those on the upper part of the stem are acute; the veins are parallel, and run lengthwise along the leaf, but are not prominent. The flowers are very small, and the fertile and sterile are on different stems; the fertile stems being much more leafy than the sterile. The female flowers consist, each, of 6 small, linear, white petals, a small, globular ovary, about the size of a grain of hemp seed, with 3 linear stigmas about the length of the ovary; each one is succeeded by a dry, oblong capsule, opening by 3 valves at the apex, and containing numerous minute seeds. The sterile flowers are in spikes much longer than those of the fertile, and are from 4 to 6 inches in length. They have 6 linear petals, and the same number of stamens, which have unequal filaments about twice the length of the petals; the anthers are small and globular.

Reviews of the property revealed no Fairy-Wand specimens on the property and, therefore, no direct, indirect or cumulative impacts to this species will occur from the proposed development.

#### **7.4 American Strawberry-bush**

Correspondence from the NYSDEC dated July 23, 2008 indicates that there is a historic record from 1894 of American Strawberry-bush (*Euonymus americanus*) a New York State endangered species on or in the vicinity of the project site. American strawberry bush is a thin little shrub with narrow, opposite leaves, green stems and tiny, inconspicuous flowers that give way to peculiar crimson red fruits that look like strawberries bursting out of their red winter coats. The bush usually gets no more than 4-6 ft (1.2-1.8 m) tall, and has a loose, sprawling structure with thin, wiry, spreading branches and an open, airy form. There usually are several main upright stems arising in a stoloniferous clump. The twigs are distinctive, four-angled and green. The deciduous leaves are 2-3 in (5.1-7.6 cm) long and have fine teeth on the margins. The springtime flowers are very inconspicuous, only about a third of an inch (0.8 cm) across, with five greenish yellow petals. The fruit is a warty red capsule about 1 in (2.5 cm) across that looks a little like a strawberry. When ripe, the capsule splits open to reveal four or five orange-red seeds framed by the persistent scarlet husks. American Strawberry-bush occurs in the shady understory of moist forests of eastern North America from New York south to Florida, and west to Oklahoma and east Texas. American Strawberry-bush prefers a well drained, humus rich soil, slightly on the acid side and does well in shady situations, tolerating even full shade, and thriving in light, dappled shade.

Reviews of the property revealed no American Strawberry-bush specimens on the property and, therefore, no direct, indirect or cumulative impacts to this species will occur from the proposed development.

### **7.5 Featherfoil**

Correspondence from the NYSDEC dated July 23, 2008 indicates that there is a record of Featherfoil (*Hottonia inflata*) a New York State threatened species on or in the vicinity of the project site. Featherfoil is a short-lived aquatic herb with an entirely submerged, spongy, densely leaved, hollow stem. This unusual species is an aquatic plant with feathery basal leaves. It is a rare species of swamps, and can be found in great abundance in some years, and not at all in other years. At some point in the life cycle, this plant uproots and becomes free-floating.

Reviews of the property revealed no Featherfoil specimens on the property and, therefore, no direct, indirect or cumulative impacts to this species will occur from the proposed development.

### **7.6 Small Whorled Pogonia**

Correspondence from the NYSDEC dated July 23, 2008 indicates that there is one historic record from 1887 of Small Whorled Pogonia (*Isotria medeoloides*) a New York State endangered and federally threatened species on or in the vicinity of the project site. This is an herbaceous plant that is a perennial reaching 25cm in height (10inches). The stem is hollow and the leaves are whorled. Leaves can reach 8cm in length (3inches). Leaves can be as wide as 4 cm (1.6inches). There are usually five elliptic leaves (sometimes more) in a whorl just below the flower. The leaves point down at the time of flowering. The flowers are irregular in shape and green, yellow green, or sometimes white. Blooms first appear in late spring and continue into early summer. There are three green sepals somewhat longer than the flower. The lower lip is bearded. There is usually only a single flower, sometimes two. It is found in open woods, or shaded openings among hardwoods and pine from Maine to Missouri and as far south as north Georgia in very scattered locations.

Reviews of the property revealed no Small Whorled Pogonia specimens on the property and, therefore, no direct, indirect or cumulative impacts to this species will occur from the proposed development.

## **9.0 REFERENCES**

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## 10.0 PHOTOGRAPHS











































**ATTACHMENT 1.0 - USFWS**

| <b>FEDERALLY LISTED ENDANGERED AND THREATENED<br/>SPECIES AND CANDIDATE SPECIES IN NEW YORK (By County)</b>   |                                 |   |               |
|---|---------------------------------|---|---------------|
| This list represents the best available information regarding known or likely County occurrences of Federally-listed and candidate species and is subject to change as new information becomes available. |                                 |   |               |
| <u>COUNTY</u>   | <u>Common Name</u>              | <u>Scientific Name</u>                        | <u>Status</u> |
| <b>QUEENS</b>   |                                 |   |               |
|   | Piping plover                   | <i>Charadrius melodus</i>                     | Y             |
|   | Roseate tern                    | <i>Sterna dougalli dougalli</i>               | DE            |
|   | Norheath acornanth              | <i>Anacanthus plumbeus</i>                    | Y             |
|   | Shortnose sturgeon <sup>2</sup> | <i>Acipenser brevirostrum</i>                 | E             |
| <b>RENSSELAER</b>   |                                 |   |               |
|   | Bald eagle                      | <i>Haliaeetus leucocephalus</i>               | D             |
|   | Indiana bat (S) <sup>3</sup>    | <i>Myotis sodalis</i>                         | E             |
|   | Shortnose sturgeon <sup>2</sup> | <i>Acipenser brevirostrum</i>                 | DE            |
| <b>RICHMOND</b>   |                                 |   |               |
|   | Shortnose sturgeon <sup>1</sup> | <i>Acipenser brevirostrum</i>                 | E             |
| <b>ROCKLAND</b>   |                                 |   |               |
|   | Atlantic sturgeon <sup>3</sup>  | <i>Acipenser oxyrinchus oxyrinchus</i>        | C             |
|   | Bald eagle                      | <i>Haliaeetus leucocephalus</i>               | D             |
|   | Bog turtle                      | <i>Clemmys muhlenbergii</i>                   | Y             |
|   | Indiana bat (S)                 | <i>Myotis sodalis</i>                         | E             |
|   | Shortnose sturgeon <sup>4</sup> | <i>Acipenser brevirostrum</i>                 | E             |
|   | Small whorled pogonia           | <i>Taraxia modestoides (Historic)</i>         | Y             |
| <b>SARATOGA</b>   |                                 |   |               |
|   | Bald eagle                      | <i>Haliaeetus leucocephalus</i>               | D             |
|   | Indiana bat (S) <sup>4</sup>    | <i>Myotis sodalis</i>                         | E             |
|   | Kamei blue butterfly            | <i>Lycoides melissa samuelis</i>              | E             |
| <b>SCHENECTADY</b>  |                                 |   |               |
|   | Indiana bat (S) <sup>5</sup>    | <i>Myotis sodalis</i>                         | E             |
|   | Kamei blue butterfly            | <i>Lycoides melissa samuelis</i>              | E             |
| <b>SCHOHARIE</b>  |                                 |   |               |
|   | Bald eagle                      | <i>Haliaeetus leucocephalus</i>               | D             |
|   | Indiana bat (S) <sup>5</sup>    | <i>Myotis sodalis</i>                         | E             |
| <b>SCHUYLER</b>   |                                 |   |               |
|   | Leedy's roseroot                | <i>Sedum integrifolium</i> ssp. <i>Leedyi</i> | Y             |



**ATTACHMENT 2.0 - NYSDEC**

**New York State Department of Environmental Conservation****Division of Fish, Wildlife & Marine Resources****New York Natural Heritage Program**

625 Broadway, Albany, New York 12233-4757

Phone: (518) 402-8935 • FAX: (518) 402-8925

www.dec.state.ny.us

Alexander B. Grannis  
Commissioner

July 23, 2008

Michael Nowicki  
Ecological Solutions  
1248 Southford Road  
Southbury, CT 06488

Dear Mr. Nowicki:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the Rockland Psychiatric Center Property, and the proposed Development Plan, site as indicated on the map you provided, located in the Town of Orangetown, Orange County.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. The information contained in this report is considered sensitive and should not be released to the public without permission from the New York Natural Heritage Program.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environment impact assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,

*Tara Seoane*  
Tara Seoane, Information Services  
New York Natural Heritage Program

Enc.

cc:

Natural Heritage Report on Rare Species and Ecological Communities



NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor,  
Albany, NY 12233-4757  
(518) 402-8935

**HISTORICAL RECORDS**

The following plants and animals were documented in the vicinity of the project site at one time, but have not been documented there since 1979 or earlier.

There is no recent information on these plants and animals in the vicinity of the project site and their current status there is unknown. In most cases the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown and therefore location maps are generally not provided.

If appropriate habitat for these plants or animals is present in the vicinity of the project site, it is possible that they may still occur there.

Natural Heritage Report on Rare Species and Ecological Communities



**VASCULAR PLANTS**

*Chamaelirium luteum*

Fairy Wand

NY Legal Status: Threatened

Federal Listing:

Last Report: 1857

County: Rockland

Town: Orangetown

Location: Tappantown

Directions: Tappantown.

General Quality and Habitat: Very limited habitat is available.

NYS Rank: S1S2 - Critically imperiled

Global Rank: G5 - Demonstrably secure

EO Rank: Failed to find but search more

Office Use  
7742

*Euonymus americanus*

American Strawberry-bush

NY Legal Status: Endangered

Federal Listing:

Last Report: 1894-05-12

County: Rockland

Town: Orangetown

Location: Tappan

Directions: Tappan.

General Quality and Habitat: This is a small portion of Tappan was searched. More habitat is available.

NYS Rank: S1 - Critically imperiled

Global Rank: G5 - Demonstrably secure

EO Rank: Failed to find but search more

Office Use  
6287



Natural Heritage Report on Rare Species and Ecological Communities

*Hottonia inflata*

Office Use  
6046

Featherfoil

NY Legal Status: Threatened

NYS Rank: S2 - Imperiled

Federal Listing:

Global Rank: G4 - Apparently secure

Last Report: no date

EO Rank: Failed to find but search more

County: Rockland

Town: Orangetown

Location: Tappantown

Directions: Tappantown [probably tappan].

General Quality and Habitat: The aquatic systems were severely altered in the early 1900s. The habitat may have been too disrupted, but continue searches in order to verify the rank.

*Isotria medeoloides*

Office Use  
2371

Small Whorled  
Pogonia

NY Legal Status: Endangered

NYS Rank: SH - Historical

Federal Listing: Threatened

Global Rank: G2 - Imperiled

Last Report: 1887

EO Rank: Failed to find but search more

USFWS

County: Rockland

Town: Orangetown

Location: Tappan

Directions: Specimen label: Tappan.

General Quality and Habitat: Areas within the Tappan area were searched over a 2 day period. No plants were found, but potential habitat was noted.

4 Records Processed

More detailed information about many of the rare and listed animals and plants in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at [www.acris.nynhp.org](http://www.acris.nynhp.org), from NatureServe Explorer at <http://www.natureserve.org/explorer>, from NYSDEC at <http://www.dec.ny.gov/animals/7494.html> (for animals), and from USDA's Plants Database at <http://plants.usda.gov/index.html> (for plants).