CLOVEWOOD

Draft Environmental Impact Statement

Appendix C
Natural Resources Site Survey

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Endangered and Threatened Species Report

Clovewood

Blaggs Cove
South Blooming Grove, Orange County, New York

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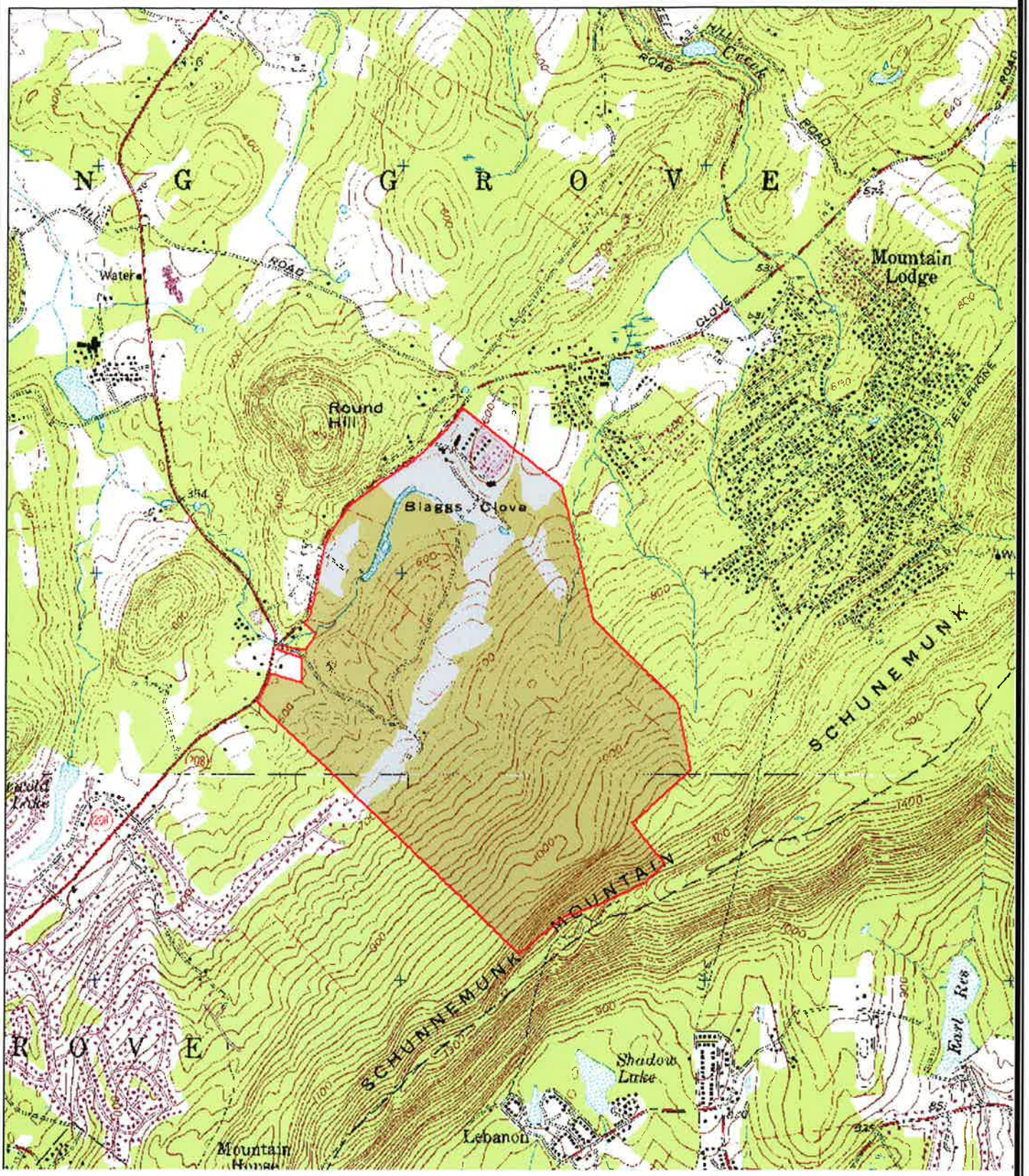
1.0 INTRODUCTION

At the request of CPC, LLC (the "Applicant") North Country Ecological Services, Inc. (NCES) conducted an ecological investigation of the 708± acre property known as "Clovewood" (the "Site"). CPC requested the existing ecological character of the Site be evaluated to provide a baseline of information assessment of the existing condition of the property, the existing habitats present and the potential for the presence of state and federally listed Endangered or Threatened (ET) species of flora and fauna.

The Clovewood parcel is located at 555 Clove Road in the Village of South Blooming Grove, Orange County, New York (Figure 1). The centralized coordinates of the property are 41° 22' 36.0" N Latitude and 74° 9' 42.3" W Longitude. A ridge, known as Schunnemunk Mountain extends along the southeastern property boundary. The elevations within the property range from approximately 1,400 feet above Mean-Sea-Level (MSL), located near the top of Schunnemunk Mountain, to approximately 500 feet above MSL, found near the intersection of Rte 208 and Clove Road, resulting in an elevation difference of approximately 900 feet.

The subject parcel currently exists as a vacant and fallow property. The northwestern portion of the property (approximately 21± acres, or about 3%) was previously developed as a small private golf course known as the Lake Ann Golf Course. The golf course has been abandoned for several years and the land that was previously cleared/graded for the fairways, greens and irrigation ponds are still evident, but fallow. Consequently, much of the old course now exists as early successional field and early successional woodland. Several buildings are found throughout the northwest corner of the property. Most of these structures are believed to be associated with the previous golf facility. Some remnant stone structures found on the property are likely associated with older, agricultural usage of the property.



Base Map: USGS Maybrook and Monroe and 7.5' Quadrangles, Orange County, N.Y. Scale: 1" = 2000'

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FIGURE 1- SITE LOCATION MAP

Until recently, the property had been leased and was utilized for recreational purposes, inclusive of hiking and hunting. Several gravel roadways and trails are interspersed through-out the western half of the site. The majority of the roadways are contained within historically manipulated lands. A few trails extend eastward onto the wooded hillside and the steep ridge that is located in the eastern portion of the property.

2.0 ASSESSMENT METHODOLOGY

A formal endangered and threatened species review was conducted, which included the following:

1) An in-house review of literature sources and direct consultations with regulatory agencies regarding records of known occurrences of state and/or federally listed endangered, threatened or rare species of flora and fauna for the subject property and surrounding area.

2) An on-site formal field review of the existing ecological communities, habitats and indigenous flora/fauna present within the project area to determine the likelihood of endangered, threatened and/or rare species presence.

To initiate the in-house review, NCES and CPC consulted directly with the New York State Department of Environmental Conservation Natural Heritage Office (NHO) and the United States Fish and Wildlife Service (USFWS) to obtain information relative to any existent or historical records of occurrence of endangered, threatened or rare species of flora and fauna. Information pertaining to the potential for presence of significant ecological community types or other sensitive habitats that are known to be found within the immediate geographic area of the project area was also requested.

NCES also reviewed the following technical information to establish a general knowledge of the existing topography, vegetative structure, overall condition, and the types of ecological communities likely to be present and to identify known species of flora and fauna that may occur at the property:

- USDA Soil Survey
- Google Earth Aerial Imagery
- NYSDEC Environmental Resource Mapper
- National Wetland Inventory (NWI) maps
- USGS topographical mapping
- DEC Breeding Bird Atlas
- DEC Herpetological Atlas

The USDA Soil Survey, Google aerial imagery, NWI Maps, NYSDEC Environmental Resource Mapper, and USGS Topographical maps were used to identify baseline data to define existing topography, vegetation, soil composition and structure and potential regulated wetland locations, prior to any site visits. NCES also consulted the New York State Breeding Bird Atlas and the NYSDEC Herp Atlas for known information relative to known fauna that can be found on or within the immediate geographic region.

In addition to the aforementioned literature review, an on-site field investigation for endangered, threatened, and rare species and community types was undertaken. The field investigation included a comprehensive review of the entire Site, not just the area of development. During the field investigation, NCES documented the species of flora and fauna that were observed and the ecological community types that were present.

During the field reviews, NCES utilized opportunistic visual encounter, cover object search and call survey methodologies to search for species of fauna. Visual encounter methodologies were utilized to identify species of flora. NCES visually searched each of the ecological communities found at the site and assessed general habitat conditions and species presence. Where logs, rocks or other natural debris were found, NCES physically moved and/or lifted the debris to search for species. Where talus slopes or overhanging bedrock was exposed, NCES searched rock crevices for specimens. Species were identified visually, by vocalization, or by physical remains (tracks, scat, fur, feathers, bones, etc.). The resumes of the personnel who conducted the literature and field reviews are contained in Appendix A.

3.0 RESULTS

3.1 Literature Review Findings

According to the response obtained from the NHO (dated March 20, 2014) the Natural Heritage Database possesses nine (9) records of "...rare or state-listed animals or plants and significant natural communities, which our databases indicate occur, or may occur on your site or in the immediate vicinity of your site". Specifically, the response indicates that the following species of flora, fauna and/or significant ecological communities have the potential to be found on the Site:

- Northern Long-eared Bat (*Myotis septentrionalis*) - Threatened
- Indiana Bat (*Myotis sodalis*) - Endangered
- Timber Rattlesnake (*Crotalus horridus*) - Threatened
- Slender Pinweed (*Lechea tenuifolia*) - Threatened
- Virginia Snakeroot (*Endodeca serpentaria*) - Threatened
- Drummonds Rock Cress (*Boechera stricta*) - Threatened
- Woodland Agrimony (*Agrimonia rostellata*) - Threatened
- Green Rock Cress (*Boechera missouriensis*) - Threatened
- Chestnut Oak Forest - Unlisted

Based on the information provided from the NHO, the species of fauna referenced have been documented within 2.5 miles of the project Site. The referenced plant species are defined as being extant on Round Hill, which is located immediately northwest of the Site and the Green Rock Cress is also defined as occurring along the top of the ridge of Schunnemunk Mountain, which is found along the southeastern boundary of the Site. The forest community is referenced as occurring within the Schunnemunk Mountain State Park and is documented as being a "high quality occurrence" of the community type. A copy of the information obtained from the NHO is contained in Appendix B.

Upon consultation with the USFWS District Office in Cortland, New York, NCES was directed to review the USFWS website for federally-listed endangered and threatened species and habitat information. Subsequently, the information obtained from the USFWS website indicates five (5) species of flora and/or fauna have the potential to be found on the Site. Specifically, the response indicates the following species of flora, fauna and/or significant ecological communities have the potential to be found on the Site or in the immediate vicinity of the Site:

- Bog Turtle (*Glyptemys muhlenbergii*) - Endangered
- Northern Long-eared Bat (Myotis septentrionalis) - Threatened
- Indiana bat (*Myotis sodalis*) - Endangered
- Small-whorled Pogonia (*Isotria medeoloides*) - Threatened
- Dwarf Wedge Mussel (*Alasmidonta heterodon*) - Endangered

The information provided by the USFWS was not accompanied by any supportive information detailing approximate locations of the listed species or their associated habitats within the County. As a result, the response information provided is not project specific as, according to the USFWS, detailed information regarding precise locations of endangered and threatened species is to remain confidential. However, according to the information provided, the speculated presence of these species and/or significant habitat types is recognized by the USFWS based upon extant populations and/or historically recorded occurrences of the species within all of Orange County, New York. A copy of the information obtained from the USFWS is also contained in Appendix B.

3.2 Field Review Findings

The following sections describe the existing conditions relating to the ecological conditions the Site, as well as the habitat assessments for listed species based upon the field reviews. To encompass multiple seasons, NCES completed both fall and spring surveys on the Site. The fall surveys were conducted in September and October of 2014 and the spring surveys were conducted in June and July of 2015.

During each of the field investigations, NCES actively searched the existing community types for endangered, threatened and/or rare species of flora and fauna. NCES also specifically reviewed the project area for habitats that would be deemed conducive to the presence of those species documented by the NHO and USFWS and also for other unique communities and/or endangered, threatened or rare species that were not specifically referenced by the agencies. During the field review, photographs were taken to document the existing conditions at the time of the survey. A list of the observed flora and fauna was also compiled. Copies of the photographs are contained in Appendix C and the list of observed/identified flora and fauna is contained in Appendix D.

3.2-1 Existing Conditions

3.2-1a Existing Ecological Communities

The Clovewood property exists primarily as forested upland (566± acres, 80%) and Palustrine wetland (35± acres, 5%). Based upon the definitions presented in the *Ecological Communities of New York State* (Edinger, 2002) and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979), the following ecological communities have been identified on the property:

- Chestnut oak forest
- Acidic talus slope woodland
- Oak-tulip tree forest
- Successional southern hardwood forest
- Successional old field
- Successional shrub land
- Red maple hardwood swamp/Palustrine forested wetland
- Palustrine scrub-shrub wetland
- Palustrine emergent wetland
- Artificial pond

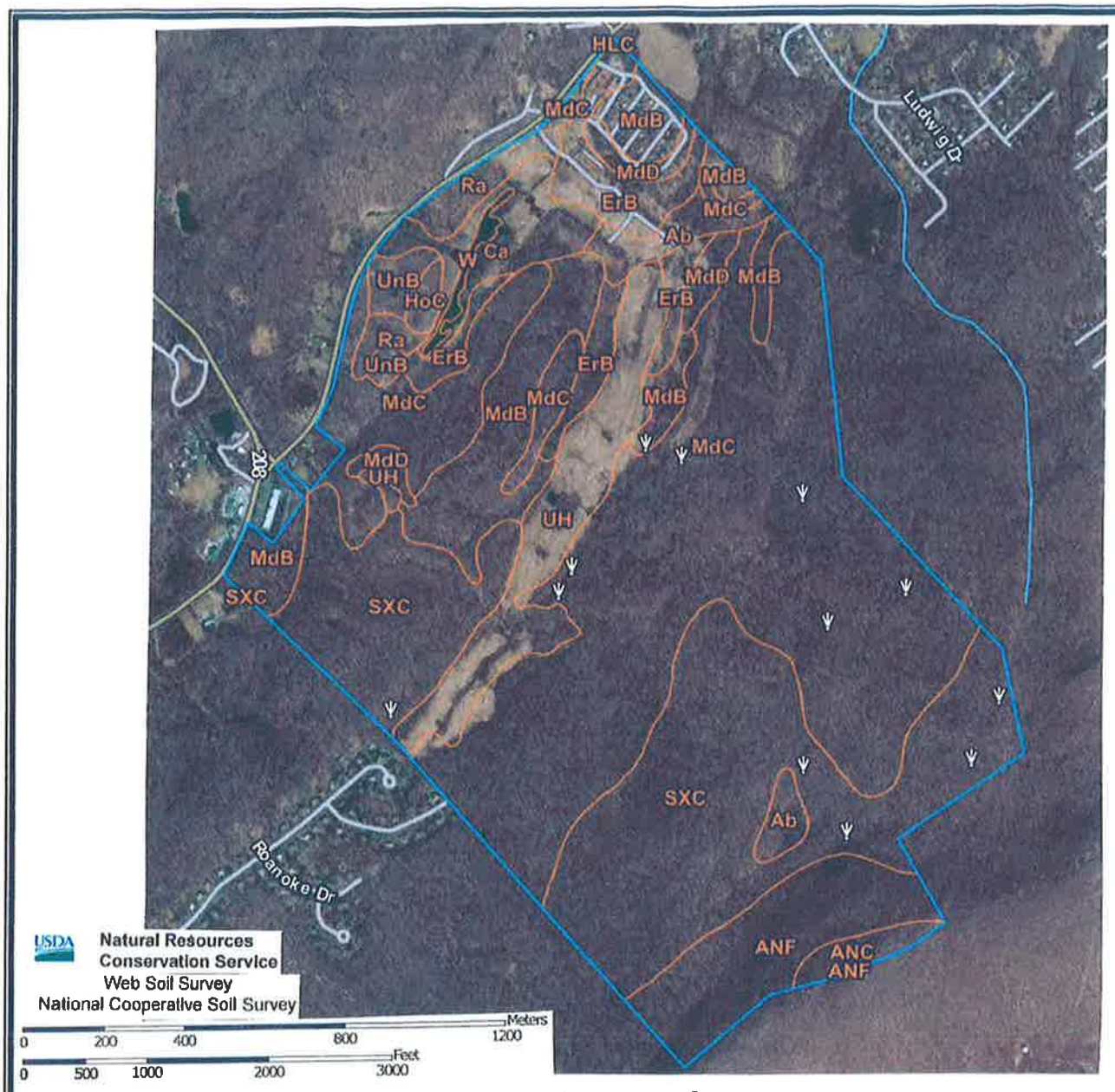
Land use surrounding the property consists of single-family residential and commercial development. The property is bordered by existing, large scale, moderate density, single-family residential developments to the northeast and southwest along Clove Road and Rte. 208, respectively. Other single-family residences and undeveloped forested and agricultural lands are found to the northwest of the site, along Clove Road. Local commercial establishments are located within two separate strip malls that are located at the intersection of Clove Road and Rte. 208. Undeveloped forested land borders the property to the southeast.

3.2-1b Soils

According to the USDA Natural Resources Conservation Service Web Soil Survey 3.0 for Orange County, New York (the "Soil Survey"), eleven (11) different soil series are found within the boundaries of the property. The soil types identified include: Alden silt loam (Ab); Arnot-Lordstown complex, sloping (ANC); Arnot-Lordstown complex, very steep (ANF); Canandaigua silt loam (Ca); Erie gravelly silt loam, with 0 to 8 percent slopes (ErA & ErB); Hoosic gravelly sandy loam, with 8 to 15 percent slopes (HoC); Mardin gravelly silt loam, with 3 to 25 percent slopes (MdB, MdC & MdD); Raynham silt loam (Ra); Swartswood and Mardin soils, sloping, very stony (SXC); Udorthents, smoothed (UH); and Unadilla silt loam, with 0 to 8 percent slopes (UnB) (Figure 2). In addition, the Soil Survey also indicates a few separate areas of standing, open water (W).

3.2-1c Vegetation

During the assessment, NCES identified the above-mentioned ten (10) different ecological communities within the subject property. These ecological communities include: Chestnut oak forest, Acidic talus slope woodland, Oak-tulip tree forest, Successional southern hardwood forest, Successional old field, Successional shrub land, Red maple hardwood swamp/Palustrine forested wetland, Palustrine scrub-shrub wetland, Palustrine emergent wetland, and Artificial pond. The ponds are man/made structures that exist as open bodies of water. The ponds are surrounded by Palustrine scrub-scrub and/or



Soils Legend

Ab	–	Alden silt loam
ANC	–	Arnot-Lorstown complex, sloping
ANF	–	Arnot-Lorstown complex, steep
Ca	–	Canandaigua silt loam
ErB	–	Erie gravelly loam, 3-8% slopes
HLC	–	Hollis soils, sloping
HoC	–	Hoosic gravelly sandy loam, 8-15% slopes
W	–	Open Water
MdB	–	Mardin gravelly silt loam, 3-8% slopes
MdC	–	Mardin gravelly silt loam, 8-15% slopes
MdD	–	Mardin gravelly silt loam, 15-25% slopes
Ra	–	Raynham silt loam,
SXC	–	Swartswood and Mardin soils, sloping
UH	–	Udorthents, smoothed
UnB	–	Unadilla silt loam, 0-8% slopes

Base Map: Web Soil Survey 3.0 – Orange County Soil Survey, N.Y.

Scale: As Noted

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FIGURE 2 - SOIL SURVEY

emergent wetland communities. The predominant species of vegetation observed within each of the identified ecological communities are listed below:

Chestnut Oak Forest

Some of the dominant species of vegetation observed within the Chestnut oak forest ecological community included, but are not limited to: chestnut oak (*Quercus montana*), shrub oak (*Quercus ilicifolia*), red oak (*Quercus rubra*), mountain laurel (*Kalmia latifolia*), rhododendron (*Rhododendron spp.*), black huckleberry (*Gaylussacia baccata*), low-bush blueberry (*Vaccinium pallidium*), wild sarsaparilla (*Aralia nudicaulis*) and Pennsylvania sedge (*Carex pennsylvanica*). This ecological community was located at the highest elevational portions (at or above 1,240' above MSL) of the ridge that extends along the southeast property boundary.

Acidic Talus Slope Woodland

Some of the dominant species of vegetation observed within the Acidic talus slope woodland ecological community included, but are not limited to: chestnut oak, mountain paper birch (*Betula cordifolia*), striped maple (*Acer pensylvanicum*), shrub oak, mountain laurel, rhododendron, witch-hazel (*Hamamelis virginiana*), black huckleberry, low-bush blueberry, wild sarsaparilla, rock polyplody (*Polypodium virginianum*), wood fern (*Dryopteris intermedia*), and various mosses. This ecological community possesses many rock out crops and was located along the steepest sloped portions of ridge that extends along the southeast property boundary. The Acidic talus slope is situated between the Chestnut oak forest and the Oak-Tulip tree forest communities and predominantly occurs between elevations 1,020' and 1,240'.

Oak Tulip Tree Forest

Some of the prominent species of vegetation observed within the Oak-Tulip tree forest ecological community included, but are not limited to: northern red oak (*Quercus rubra*), white oak *(Quercus alba*), tulip tree (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), white ash (*Fraxinus americana*), black birch (*Betula lenta*), black cherry (*Prunus serotina*), shagbark hickory (*Carya ovata*), Japanese barberry (*Berberis thunbergii*), witch-hazel, winged euonymus (*Euonymus atlatus*), wild sarsaparilla, wood fern, Christmas fern (*Polystichum agrostichoides*), garlic mustard (*Alliaria officinalis*), common blue violet (*Viola sororia*), wild geranium (*Geranium maculatum*) and false solomon's seal (*Smilacina racemosa*). This ecological community is contained along the less steep areas of the ridge that extends along the southeastern property boundary. This ecological community is contained in areas that were not previously developed or cleared by the golf facility. This ecological community is positioned between the Acidic-talus slope woodland and the Successional southern hardwood forest and is readily established between elevations 940' and 1020'.

Successional Southern Hardwood Forest

Some of the prominent species of vegetation observed within the Successional southern hardwood forest ecological community included, but are not limited to: sugar maple, red maple, black locust (*Robinia pseudoacacia*), walnut (*Juglans* spp), quaking aspen (*Populus tremuloides*), wild apple (*Malus sylvestris*), common buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera tatarica*), multiflora rose (*Rosa multiflora*), Japanese barberry, red raspberry (*Rubus ideaus*), black raspberry (*Rubus allegheniensis*), Virginia creeper (*Parthenocissus quinquefolia*), oriental bittersweet (*Celastris orbiculata*) poison ivy (*Toxicodendron radicans*), garlic mustard, common blue violet, snakeroot (*Ageritina altissima*) and stick-tight (*Lappula virginiana*). This forested community comprises the majority of the forested lands that are located within and/or immediately adjacent to previously cleared land found below the 940' elevation.

Successional Old Field

Some of the prominent species of vegetation observed within the Successional old field ecological community included, but are not limited to: Canada goldenrod (*Solidago canadensis*), early goldenrod (*Solidago juncea*), timothy (*Phleum pratense*), wild carrot (*Daucus carota*), spotted knapweed (*Centaurea maculosa*), black-eyed susan (*Rudbeckia hirta*), common milkweed (*Asclepias syraca*), ragweed (*Ambrosia artemisiifolia*), little blue stem (*Andropogon scoparius*), quackgrass (*Agropyron repens*), birdsfoot trefoil (*Lotus corniculatus*), orchard grass (*Dactylis glomerata*), evening primrose (*Oenothera biennis*), herbaceous cinquefoil (*Potentilla simplex*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), mullein (*Verbascum thappsus*) and dewberry (*Rubus procumbens*). This ecological community is limited to the areas that were contained within the previous golf course fairways, fringe rough and greens. All of these fields are located below the 940' elevation.

Successional Shrubland

Some of the prominent species of vegetation observed within the Successional shrubland ecological community included, but are not limited to: gray dogwood (*Cornus racemosa*), common buckthorn, tatarian honeysuckle, winged euonymus, multiflora rose, Japanese barberry, oriental bittersweet, catbrier (*Smilax* spp.) summer grape (*Vitis aestivalis*), blackberry (*Rubus occidentalis*), red raspberry (*Rubus ideaus*), Canada goldenrod, early goldenrod, spotted knapweed, ragweed, and dewberry. This ecological community is limited to areas that were cleared for the previous golf facility, but which were not graded and utilized for play. These areas are transitional habitats found between the Successional old field and the Successional southern hardwood ecological communities.

Red Maple Hardwood Swamp / Palustrine Forested Wetland

Some of the prominent species of vegetation observed within the Red-Maple hardwood swamp/Palustrine forested wetland ecological community included, but are not limited to red maple, green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), ironwood (*Carpinus caroliniana*), box elder maple (*Acer negundo*), witch hazel (*Hamamelis virginiana*), highbush blueberry (*Vaccinium corymbosum*) silky dogwood (*Cornus amomum*), tussock sedge (*Carex stricta*), fox sedge (*Carex vulpinoidea*), skunk cabbage (*Symplocarpus foetidus*), sensitive fern (*Onoclea sensibilis*), fowl manna grass (*Glyceria striata*) and moneywort (*Lysimachia nummularia*). This wetland community is located within natural topographical depressions found within forested components of the property, where previous disturbances from the golf facility did not occur.

Palustrine Scrub-shrub and Emergent Wetland

Some of the prominent species of vegetation observed within the Palustrine scrub-shrub and emergent wetland communities included, but are not limited to, silky dogwood, red-osier dogwood (*Cornus stolonifera*), gray dogwood, arrowwood (*Viburnum dentatum*), nannyberry (*Viburnum lentago*), sensitive fern, tussock sedge, late goldenrod (*Solidago gigantea*), slender goldenrod (*Solidago tenuifolia*), jewelweed (*Impatiens capensis*) common reed (*Phragmites australis*), cattail (*Typha latifolia*), purple loosestrife (*Lythrum salicaria*), boneset (*Eupatorium perfoliatum*), joe-pye weed (*Eupatorium maculatum*), willow herb (*Epilobium glandulosum*), fringed sedge (*Carex crinita*), lurid sedge (*Carex lurida*), dark green bulrush (*Scirpus atrovirens*), wool grass (*Scirpus cyperinus*), soft rush (*Juncus effusus*), tussock sedge, fox sedge, NY Aster (*Aster novi-belgii*) and New England Aster (*Aster novae-angilae*). These wetland communities are limited to the western half of the property, in areas that were part of the previous golf course facility.

3.2-2 Agency Referenced Endangered & Threatened Species Evaluations

Investigations for Endangered or Threatened (ET) species of flora and fauna referenced by the regulatory agencies and specific reviews of existing ecological communities for habitats conducive to their existence, was conducted after a formal consultations with the USFWS and the NHO.

The following sub-sections provide specific habitat assessments of those species that were identified in the USFWS and the NHO correspondences as having been presently and/or historically recorded within Orange County, New York, thus having the potential to be found on the Site. The information provided by the USFWS and NHO is only relative to known occurrences. Therefore, any lack of endangered, threatened or rare species information within these sub-sections does not preclude additional endangered, threatened or rare species from having the potential to exist on the Site.

3.2-2a Northern Long-eared Bat and Indiana Bat Habitat Assessment

NCES reviewed the property in search of habitats that exhibit the criteria for potential summer roosting sites and suitable foraging habitat for the Indiana and Northern Long-eared Bat. NCES also searched for any caves, mines or other man-made structures that could be used as a potential roosts or as an over-wintering hibernacula. NCES utilized information obtained from the USFWS, including the "*Indiana Bat Project Review Fact Sheet*" and the "*Northern Long-eared Bat Fact Sheet*", which defines criteria of potential habitat for both species of bats. Being that Indiana and Northern Long-eared bats can occupy similar habitats, NCES conducted the habitat analysis following the recommended procedures outlined by the USFWS and DEC protocols established for Indiana bat surveys.

According to the DEC and the USFWS, suitable and potential Indiana bat summer roosting habitats are characterized as "...trees (dead, dying, or alive) or snags, greater than or equal to 5 inches in diameter at breast height (dbh), with exfoliating or defoliating

bark, or containing cracks, crevices, or holes that could potentially be used by Indiana bats as a roost". Maternal colonies "generally use trees greater than or equal to 9 inches dbh." In addition, "structure appears to be more important than a particular tree species or habitat type." It is also documented that due to the fact roosting sites are "warmed by direct exposure to solar radiation, trees exposed to extended periods of direct sunlight are preferred over those in shaded areas."

Potential foraging habitat for the Indiana bat is defined as "...streams, associated floodplain forests, and impounded water bodies (ponds, wetlands, reservoirs)..." along with "canopies of upland forests, clearings with early successional vegetation, borders of croplands, along wooded fence rows, and over farm ponds in pastures". The USFWS also state that "while Indiana bats appear to forage in a wide variety of habitats, they seem to tend to stay close to tree cover" and that "Indiana bats may fly up to 2-5 miles from upland roosts" to forage and/or locate new roost sites.

According to the USFWS, suitable, potential Northern Long-eared bat summer habitats are characterized as forested communities that possess live and dead trees with "loose bark, cavities or crevices" as well as within "...cooler places like caves and mines". These bats have also been reported to be found roosting in "structures like barns and sheds". Northern Long-eared bats are known to roost independently or within colonies. Wintering habitat for the Northern Long-eared bat is defined as being within "caves and mines" that possess "large passages and entrances; constant temperatures; and high humidity with no air currents". Potential foraging habitat for the Northern Long-eared bat is defined as "...understory of forested hillsides and ridges". This bat species is also known to glean "motionless insects from vegetation and water surfaces".

NCES conducted a review of the property for potential habitat that would be suitable for the roosting of Indiana and Northern Long-eared Bats. NCES did identify trees that appeared suitable for use by both species for roosting activities. These trees included numerous shagbark hickories; black locust trees; damaged red oak, white ash and sugar maple trees; and dead elms. The dead elms are located immediately adjacent to

Palustrine wetland areas that were identified on the property. The remaining trees are sporadically located throughout the forested upland components of the site. No caves or mines were identified within the property boundaries that could be construed as potential over-wintering habitat (hibernaculum). However, several man-made structures are found within the northeast corner of the Site and these structures could potentially be utilized by bats for roosting activities.

Potential foraging habitat for both bat species was found on the property and it includes: the forested uplands; over the open emergent marsh community; along the stream corridors; and within the edge habitat that immediately borders the site. Potential foraging areas consist of a variety of different habitats that are common throughout the geographic region.

Given the abundance of available habitat in the area of the project and surrounding geography, sufficient habitat is available to sustain healthy populations of a variety of species of bats, even in the event of displacement.

3.2-2b Timber Rattlesnake Assessment:

NCES completed a review of the property for the presence of habitats suitable for use by Timber Rattlesnakes. This task was accomplished during an initial field investigation, conducted on September 25, 2014. During that review, NCES walked the entire property in an attempt to locate habitat conducive to Timber Rattlesnakes, such as talus slopes, rock outcrops and adjacent forested uplands where snakes could forage. As a result of the review, it was determined by NCES that suitable basking, foraging and shedding habitat is present on the property and that further study of these habitats was warranted.

NCES biologists spent remaining survey times traversing suitable habitat areas and visually scanning areas for the presence of individual rattlesnakes. During the fall survey, two biologists from NCES surveyed the property on different dates to increase

the likelihood of finding snakes and to comply with survey guidelines established by the DEC - *Guidelines for Reviewing Projects for Potential Impacts to the Timber Rattlesnake* (DEC, 2009). The guidelines suggest a minimum of 4 surveys when assessing suitable basking, foraging, gestating or denning habitat and that surveys should separated by 7 or more days. The guidelines also indicate that surveys should only be completed when ambient air temperature is at or above 66° Fahrenheit and no measurable precipitation is occurring. The guidelines also specify that when surveying around known denning locations they should be conducted between the timeframe of September 15 to October 25 to coincide with snakes moving back to den sites.

To complete the field investigation, NCES utilized opportunistic visual survey methodologies as well as cover object search techniques and auditory monitoring in an effort to locate individual Timber Rattlesnakes.

The dates, times and conditions of the fall survey are shown below:

Survey Date	Time/Duration	Ambient Air Temp	Weather Condition
9/25/14	9:45am-4:30pm - 6 h45 min	68°F to 77°F	sunny, light wind
10/8/14	11:15pm-1:30pm - 2h 15 min	68°F to 71°F	overcast, light rain
10/9/14	10am-3:30pm - 5h 30 min	66°F to 68°F	overcast, light wind
10/16/14	9:45am-5:30pm - 7h 45 min	66°F to 70°F	partly cloudy
10/17/14	9:15am-3:30pm - 6h 15 min	66°F to 70°F	sunny
10/30/14	11am-2:15pm - 3h 15 min	65°F	sunny

Where logs, loose rock outcrops/rock overhangs or other natural debris were found, NCES physically moved/lifted the debris to search for the species. NCES reviewed exposed bedrock ledges at the top of the ridge for basking snakes as well peered/prodded with snake hooks into ledges/crevices were snakes could remain hidden. NCES also listened for auditory responses (rattling) in conjunction with the visual and cover object survey techniques.

During the fall of 2014 field surveys, no individual Timber Rattlesnakes were found by NCES. Despite not having located any Timber Rattlesnakes during the surveys, NCES did confirm the presence of suitable foraging, basking and shedding habitats within certain portions of the property. All of these habitats are located within the southeastern portion of the property and along the steeper slopes of the ridge that extends along the southeastern property boundary, at elevations that are higher than 940' above MSL. These habitats are within areas that have not been disturbed by the previous golf course.

The viable basking and shedding habitats are primarily limited to the Chestnut oak forest and Acidic Talus slope woodland communities found in the easternmost third of the property. These two communities coupled with the Oak-tulip tree forest community also provide viable foraging habitat for Timber Rattlesnakes. It is assumed by NCES that the potential of movement of Timber Rattlesnakes through the Clovewood property would be generally conducted within these habitats and primarily along the steep ridge, away from the proposed development.

Since suitable habitat was confirmed present within the property boundaries, NCES, the Applicant and the Project Engineer determined that a 2015 Spring Survey should be undertaken. To comply with the DEC survey protocol for Spring Reviews, NCES visited the Clovewood Property on 5 additional dates in June and July of 2015 to search the property for the presence of Timber Rattlesnakes and to document habitat. The survey completed by NCES was undertaken during the known spring emergence, dispersal and basking periods of Timber Rattlesnakes.

NCES again complied with survey guidelines established by the DEC (*Guidelines for Reviewing Projects for Potential Impacts to the Timber Rattlesnake* (DEC, 2009). The Spring survey guidelines mimic the fall surveys whereas the guidelines suggest a minimum of 4 surveys when assessing suitable basking, foraging, gestating or denning habitat and indicate that surveys should separated by 7 or more days. The guidelines also establish that surveys should only be completed when ambient air temperature is at or above 66° Fahrenheit and no measurable precipitation is occurring.

The dates, times and conditions of the spring surveys are shown below:

Survey Date	Time/Duration	Ambient Air Temp	Weather Condition
6/03/15	10:15am-4:30pm - 6 h15 min	65°F to 76°F	sunny, light wind
6/10/15	11:15pm-4:30pm - 5h 15 min	70°F to 78°F	sunny, light wind
6/11/15	10am-3:30pm - 5h 30 min	70°F to 83°F	sunny, humid
6/24/15	9:45am-1:30pm - 3h 45 min	66°F to 75°F	overcast, humid
7/08/15	12:15pm-6:00pm - 5h 45 min	76°F to 86°F	hazy, hot & humid

To complete the spring field survey, biologists from NCES utilized opportunistic visual survey methodologies as well as cover object search techniques and auditory monitoring in an effort to locate individual Timber Rattlesnakes. NCES focused the review on the suitable habitats that were identified during the Fall 2014 survey.

NCES biologists spent the survey time traversing the suitable habitat and searching these areas for individual snakes. Where logs, loose rock outcrops/rock overhangs or other natural debris were found, NCES physically moved/lifted the debris to search for the species. NCES reviewed exposed bedrock ledges at the top of the ridge for basking snakes as well peered/prodded with snake hooks into ledges/crevices were snakes could remain hidden. NCES also listened for auditory responses (rattling) in conjunction with the visual and cover object survey techniques.

During the Spring 2015 field surveys, NCES located two (2) individual Timber Rattlesnakes in the Talus slope found along the top of the ridge extending parallel with the southern property boundary. One of these snakes was found during the first survey conducted on June 3, 2015 and the second snake was found on the survey conducted on June 10, 2015. The snakes were found within one of the suitable basking areas identified by NCES during prior surveys. Based on the GPS location of where the snakes were found, it has been determined that they were located near the eastern property line. One snake was found to lie 80± feet from the eastern property boundary and the other was approximately 100± feet from the same property boundary. These locations are greater than 0.5 miles (3,000'±) from the proposed development.

The presence of two individual snakes confirms the information provided by the DEC and it documents the talus slope community (contained along the summit of Schunnemunk Mountain and outside of the areas proposed for development) is viable and occupied habitat. The talus slope provides the most optimal basking and shedding habitat and the immediately adjacent forested uplands provide suitable foraging habitat for Timber Rattlesnakes.

Given that NCES confirmed the presence of Rattlesnakes within the suitable habitats located along the talus slope communities during the first two Spring surveys (6/03 and 6/10/15), during the final three surveys (6/11, 6/24, and 7/08/15) NCES focused the review to the areas of the proposed development. NCES searched the successional woodlands, open fields, and wetland areas that are located within the proposed development envelope. During these reviews, no Timber Rattlesnakes were found in the areas that were surveyed.

3.2-2c Bog Turtle Phase 1 Habitat Assessment:

NCES completed the assessment for potential Bog Turtle habitat following the guidelines presented in *Guidelines for Bog Turtle Surveys* (last revised April 2006) contained within the U.S. Fish and Wildlife Services "Bog Turtle Northern Population Recovery Plan" (Klemens, 2001) (the "BTNPRP"). According to the BTNPRP, potential and suitable habitat for Bog Turtles includes Palustrine emergent or scrub-shrub wetlands that contain a relatively open canopy, and the following three criteria:

1) Suitable hydrology – characterized as "…Typically spring fed with shallow surface water or saturated soils present year round…", "interspersed with dry and wet pockets…", "…sub-surface flow", and "…shallow rivulets (less than 4 inches deep) or pseudo rivulets are often present."

2) Suitable soils – characterized as "… a bottom substrate of permanently saturated organic or mineral soils." "These are often soft, mucky-like soils; you will usually sink to your ankles (3-5 inches) or deeper in muck, although in 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 – characterized as "dominant vegetation of low grasses and sedges (in emergent wetlands), often with a scrub shrub 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*), tearthumb (*Polygonum* spp.), jewelweed (*Impatiens capensis*), 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*) and 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 include red maple, tamarack, and cedar swamps."

During the assessment, NCES traversed the Site and reviewed the on-site wetlands. NCES also reviewed off-site contiguous wetlands that immediately border the Site.

The soils within the wetlands are comprised of dense mineral soils and clay loams that are not associated with suitable Bog turtle habitat. The mineral soils do not allow for suitable burrowing or foraging activities that are required by Bog Turtles. During summer months, these wetlands typically dry and soils become hard. The vegetation identified within the wetlands, was dominated by taller, extremely dense and invasive emergent vegetation such as common reed, purple loosestrife, joe-pye weed and various goldenrods. This type of density can prohibit the general movement, basking and nesting opportunities for Bog turtles.

The main sources of hydrology within the wetlands occur from direct precipitation and surface water runoff. Precipitation events directly influence the wetlands when storms are received. The runoff from the adjacent, steeper uplands contribute the most to the overall hydrological regime of the wetlands. Many ephemeral and intermittent drainages extend along the slopes associated with Schunnemunk Mountain and lead directly into the wetlands within the Site.

Based on the Phase 1 Survey, it was determined by NCES that no portions of the wetlands reviewed exhibit the key characteristics of potential habitat for Bog turtles. The on-site wetlands lack soft "mucky" organic soils; suitable, low lying vegetation: and shallow, spring fed, slow moving water. The wetlands reviewed are surface water derived, have been manipulated by historical agricultural activities and are subject to fluctuating water levels, which is dependant upon the duration and intensity of precipitation events received.

Given the lack of suitable soils, vegetation and hydrology, it is highly unlikely that Bog Turtles would be present and/or have historically utilized the wetland complex found on the Site.

3.2-3d Dwarf Wedge Mussel Habitat Assessment:

The Dwarf Wedge Mussel is listed as an endangered species by the USFWS and the DEC. The Dwarf Wedge Mussel is a species of mollusk that inhabits freshwater areas and it can be found in small creeks and/or large deep rivers (Gabriel 1995). These bivalves are typically located in stable streams/habitats that possess substrates ranging from mixed sand, pebbles, gravel, and or clay (Nedeau, 2006). In the southern portion of its range, these mussels may be imbedded in substrates under logs or root masses (Moser, 1993) and are known to burrow into firmer sand, gravel, or cobble substrates in the northern extremes of their range (Fichtel and Smith 1995). Typical habitat also possesses permanent running water where stream currents/velocities are usually slow to moderate (USFWS, 2004).

The only known populations of these mussels, within New York State, exists within a 10 mile stretch of the Neversink River and portions of the Lower Delaware River system (DEC Fact Sheet, 2008). This population of Dwarf Wedge Mussels was identified in the 1990 as a result of ecological study being undertaken for the Natural Heritage Program (USFWS, 1993). Historically, the Dwarf Wedge Mussel was known to inhabit much of the Delaware River Basin (USFWS, 2004).

During the review NCES searched the Site for the presence of suitable habitat for Dwarf Wedge Mussels. As a result, it was determined that no potential habitat conducive to the existence of Dwarf Wedge Mussels exists at the Site. No river systems are found within or immediately adjacent to the Site and therefore no Dwarf Wedge Mussels would be found on the property.

3.2-2e Small-whorled Pogonia Assessment

Small-whorled Pogonia is a perennial wildflower that possesses 1 or 2 yellowish flowers found on a stem that rises above a whorl of 5 or 6 green leaves (Niering and Olmstead, 1979). This plant is a member of the Orchid family (Britton and Brown, 1970). Small whorled Pogonia grows to a height of only 4 to 10 inches (Niering and Olmstead, 1979). Small-whorled Pogonia is typically found in moist woods and flowers in May-July (Newcomb, 1977).

While this plant typically blooms in mid-June (Britton and Brown, 1970), the plant possesses a seed stalk and capsule, which are identifiable until seed dispersal in mid October (Mass, ESP, 1993). Based upon the existing conditions observed, the Site does contain suitable habitat that is typically associated with Small Whorled Pogonia. During the site assessment, no Small-whorled Pogonia plants were identified.

3.2-2f Slender Pinweed Assessment

Slender Pinweed is a perennial wildflower that typically occupies open, grassy communities, in dry conditions (NYNHP, 2015). Ecological community types associated with this species include natural or disturbed open habitats such as successional old fields, rocky summits, pine and oak barrens and mowed roadsides and pathways. According to the Natural Heritage program, in New York, populations are threatened most by improper maintenance of roadsides and natural succession.

Slender Pinweed plants flower during August and September (Britton and Brown, 1970) and the flowers are arranged in a cluster (panicle) at the top plant (Niering and Olmstead, 1979). Leaves are which are long and narrow in shape (NYNHP, 2015). The flower stalks open inconspicuously and the plant produces fruits, which are the primary means of proper identification of the species (Britton and Brown, (1970). The fruiting period of the plant is defined as being between late August and mid November (NYNHP, 2015).

During the reviews, NCES identified habitats on the property that are conducive to the existence of the species. These communities include the open areas in the talus slope woodlands and adjacent summit of Schunnemunk Mountain, the successional old fields associated with the previous golf resort and the grassy roadways and ATV trails that extend through the property. However, during the site reviews, no Slender Pinweed plants were identified by NCES.

3.2-2g Virginia Snakeroot Assessment

Virginia Snakeroot is a perennial wildflower that inhabits a range of well-drained habitats in New York State. Specifically, the species is most commonly associated with well-drained wooded hillsides, talus slopes found in upland forest communities and other open, moist woodlands (NYNHP, 2015). Associated ecological communities include Appalachian oak-Hickory Forest, Chestnut-Oak Forest, Oak-Tulip Tree Forest and Rich Mesophytic Forest.

Virginia Snakeroot is a plant that possesses unique features that make it distinguishable fro other plant species. Specifically the plant possesses small arrow shaped leaves (Britton and Brown, 1970) that are positioned in an alternate pattern along a central stem, which may be erect above the surface of the ground or not erect, and laying on the surface of the ground (NYNHP, 2015). The plant flowers during late May through early August (Niering and Olmstead, 1979) and possesses small, short purple flower tubes (NYNHP, 2015). The flowers can be inconspicuous, as they are often covered by leaf

litter (NYNHP, 2015). After flowering, the plant produces small fruits, which are evident from mid June though late October.

During the ecological reviews, NCES identified habitats that are conducive to the existence of the species. These habitats include the Chestnut Oak and Oak-Tulip tree forest communities that are located within the southeastern portion of the Site. However, during the reviews, NCES did not locate any individual Virginia Snakeroot plants.

3.2-2h Drummonds Rock Cress and Green Rock Cress Assessment

Both the Drummonds Rock Cress and Green Rock Cress are perennial herbaceous plants that inhabit dry rocky woodlands and cliff communities. Both species rely on tap roots, which extend between rock crevices to obtain required nutrients for growth (Britton and Brown, 1970). Drummonds Rock Cress is most often located along rocky cliffs, rock ledges, steep ravines, although it has been reported along trails and sandy roadsides (NYNHP, 2015). Associated ecological communities include Calcareous cliff communities, Shale cliff and Talus communities and Talus slope woodlands (NYNHP, 2015). Green Rock Cress is typically found in open, rocky upland habitats such as cliffs, ledges, talus slope communities. Associated ecological communities include Appalachian Oak Hickory Forest, Hemlock, Northern Hardwood Forest, Limestone woodlands, White Cedar rocky Summits, Shale Cliff and Talus Community, Acidic Talus slope woodland, and Calcareous talus slope woodland.

Drummonds Rock Cress is characterized by a series of basal leaves, which form a rosette at the top of the taproot (NYNHP, 2015). A single stalk extends from the basal leaves and which possesses the flowers. The flowers are small, white and possess 4 petals (Niering and Olmstead, 1979). The flowering period for Drummond Rock Cress is May through July (NYNHP, 2015). After the flowering period ends, elongated fruits (seed ponds) form holding two distinct rows of seeds (NYNHP, 2015). It is during the flowering and fruiting period that the species is most easily recognizable.

Green Rock Cress is identified by pubescent basal leaves, which form a rosette at the top of the tap root (NYNHP, 2015). Like the Drummonds Rock Cress, a single stalk emerges from the center of the rosette of basal leaves and it is 8-12 inches tall and also possesses small white flowers (Niering and Olmstead, 1979). The flowering period for Green Rock Cress is May through August (NYNHP, 2015). The flowers possess 4 distinct petals (NYNHP, 2015). Once the flowering period is over an elongated seed pod forms and the seed pods are 2 to 3 inches in length. The best time to identify this species is during July, when both flowers and seed pods may be present (NYNHP, 2015).

During the ecological reviews, NCES identified habitats that are conducive to the existence of the species. These habitats include the Chestnut Oak and Ok-Tulip tree forest communities that are located within the southeastern portion of the Site. However, during the reviews, NCES did not locate any individual Virginia Snakeroot plants.

3.2-2i Woodland Agrimony Assessment

According to the Natural Heritage program, Woodland Agrimony is a perennial wildflower that is typically found in rich upland forests, forested slopes located near streams, dry oak woods, shrub thickets and other areas that are wooded and possess calcareous soils. Associated ecological communities include Appalachian Oak Hickory Forests, Hemlock-Northern hardwood Forests, Limestone woodlands, Maple-Basswood Rich Mesic Forests, Beech Maple Mesic Forests, Rich Mesophytic forests, Silver Maple-Ash Swamps and Successional Red Cedar Woodlands (NYNHP, 2015).

Woodland Agrimony plants are typically 1 to 3 feet tall and possess a single stalk where compound leaves extend off of (NYNHP, 2015). Each leaflet possesses 3 to 9 leaflets, which are toothed and oblong; narrowest at the base and widening toward the tip (Britton and Brown, 1970). Woodland Agrimony generates separate flowering and fruiting stems upon which flowers generate, then turning to bell-shaped fruit containing bristles that aid in seed distribution (Niering and Olmstead, 1979). The flowering period extends between mid-June though September and the fruiting period is between mid July and mid

October (NYNHP, 2015). The best time to identify this species is during July through September, when both flowers and fruits may be present (NYNHP, 2015).

During the ecological reviews, NCES identified habitats that are conducive to the existence of the species. These habitats include the Chestnut Oak and Oak-Tulip tree forest communities that are located within the southeastern portion of the Site. However, during the reviews, NCES did not locate any individual Virginia Snakeroot plants.

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Appendix A

Consultant Resumes

Education

B.A. - Environmental Science, Wildlife Management - 1983-1985, SUNY Plattsburgh, *Plattsburgh, NY*

A.A.S. - Natural Resources Conservation/Ecology – 1980 – 1982, SUNY Morrisville, *Morrisville, NY*

Experience

Mr. George possesses a wide range of experience in the fields of Ecology, Biology and Wetland Science. As the President and Senior Ecologist of North Country Ecological Services, Inc., Mr. George is responsible for: completing delineations of state and federal wetlands; compiling endangered and threatened species reports; completing habitat assessments and species inventories for flora and fauna; Environmental Impact Statement preparation; wetland mitigation design, construction, and monitoring; and, the preparation/finalization of reports and permit applications for submission to clients and regulatory agencies.

Work Experience

President & Senior Ecologist

1994–Present North Country Ecological Services, Inc. *Johnstown, NY*

Responsible for planning, execution, and completion of detailed technical reports for ecological studies including regulatory and legal issues. Also responsible for the preparation and execution of Environmental Impact Statements; habitat inventories; federal and state wetland delineations; wetland mitigation design, planting and wetland mitigation monitoring; wetland permit applications; endangered species evaluations; wildlife management plans; stormwater and erosion control plans; and, water quality monitoring.

Environmental Analyst/Ecologist

1989–1994 Smith & Mahoney, P.C. *Albany, NY*

Managed the development and co-authored Environmental Impact Statements for private, municipal, and commercial developments. Projects included residential housing developments, transfer stations, landfills, shopping malls, and industrial facilities. Supervised and conducted ecological studies and impact assessments of aquatic and terrestrial communities. Responsible for the preparation of federal and state wetland delineations, reports, mitigation, and the necessary permits for the clients. Assisted in the landfill siting process for the Saratoga County and the Montgomery-Otsego-Schoharie County Solid Waste Management Authority. Assisted in hazardous waste remediation projects. Duties also included assisting

survey department, construction inspection and monitoring, water quality analysis and monitoring, and methane gas monitoring at landfills.

Engineering Technician/Environmental Analyst
1986-1989 Phillip Clark Engineers and Associates, P.C. Newburgh, NY

Prepared Environmental Impact Statements, assisted the survey crew, and conducted environmental analysis. Resident Engineer and Construction Inspector on the Harriman and Middletown WWTF construction projects. Resident Engineer for several potable water, municipal sewer main projects, water tower installation, and roadway construction. Experience includes pipeline and building layout, directional boring, concrete testing, pressurized and gravity water main testing, and as-built documentation.

Specific Endangered & Threatened Species Experience

- Karner Blue Butterfly evaluations, Timber Rattlesnake field investigations, Bog Turtle Phase 1 and 2 Studies, Indiana Bat and Northern Long-eared Bat habitat evaluations.

Additional Training

- ACOE Regulatory IV Course - Jurisdictional Wetland Delineation
- National Institute for Certification of Engineering Technologies – Highway Construction, Level II
- OSHA – 40 Hour Health and Safety at Hazardous Materials Sites
- Rutgers College – Freshwater Wetland Construction
- Rutgers College – Endangered and Threatened Species of Southern NJ
- Bat Study Techniques Workshop – Hands on training in mist netting and other capture techniques and bat species identification, handling, marking and ecology
- Volunteer to Environmental Defense / Jason Tesauro – Conducted Bog Turtle Surveys in Columbia and Dutchess Counties, New York.
- USFWS – Wallkill River National Wildlife Refuge, New Jersey. Assisted with radio telemetry survey of Bog Turtles.

Special Licenses

- NYSDEC – Nuisance Wildlife Control Operations
- NYSDEC – License to Collect and Possess
- NYSDEC Sportsman's Education Instructor (firearm, archery, trapping, waterfowl identification)
- USGC - Captain

Affiliations

- Society of Wetland Scientists
- NYS Wetland Forum, Co-Founder, Former Board Member
- National Audubon Society Member
- Corporate Wetlands Restoration Partnership NYS Chapter Member
- National Bowhunter Education Foundation, Board Member
- NYSDEC Wilderness Search & Rescue (Team 5-1) Member

Publications

- Wildlife Society Bulletin, Volume 15, No. 2, Summer 1987 – Evaluation of Site Variables Affecting Nest Box Use by Wood Ducks.

Thomas M. Ward, Vice President – Ecologist

NORTH COUNTRY
ECOLOGICAL SERVICES, INC.

Education

1996-2000 SUNY Cobleskill — *Cobleskill, NY*

- B.T. Animal Science - Wildlife Management
- A.A.S. Animal Science - Fisheries & Wildlife Technologies

Experience

Mr. Ward possesses hands-on experience in the fields of Ecology, Biology and Wetland/Environmental Science. As Vice President and Ecologist, Mr. Ward works directly with all clients, municipalities, regulatory agencies and other professionals to identify, assess and overcome environmental requirements needed to develop project sites. Some of these requirements include: federal and state wetland boundary delineations; assessment of wetland function and values; assessment of wetland and biological/ecological impacts; completion of endangered/threatened species surveys, completion of wildlife inventories; conducting ecological habitat reviews/assessments; and, compilation of technical reports, permit applications and formal mitigation plans.

Work Experience

Vice President - Ecologist / Biologist

9/2000–Present North Country Ecological Services, Inc. — *Johnstown, NY*

Responsible for the planning, execution and completion of detailed site assessments and technical reports for ecological studies and permitting processes. Also responsible for the preparation of Environmental Impact Statements; Federal and State wetland delineations and reports; flora/fauna and habitat inventories; preparation of state and federal wetland permit applications; wetland mitigation design, planting and monitoring; endangered/threatened species evaluations and reports; tree surveys; and, wildlife management plans. Also responsible for consultation with private clients and Federal/State/Municipal agencies regarding environmental issues and regulation.

Wetland Specialist

8/1999–9/2000 NYS Department of Environmental Conservation — *Albany, NY*

Responsible for contacting landowners in Saratoga County and conducting delineations of state regulated wetlands, answering related questions on DEC regulations, informing individual landowners on wetland conservation, and making DEC Article 24 wetland map amendments. Also provided with landowners with Article 24 permit applications and requirement guidelines. Assited Regional Biologists with Article 24 and Article 15 permits. Coordinated delineation efforts between regional and central DEC offices.

Wildlife Coordinator

Seasonal-1999 Birdsong Farm — *Delhi, NY*

Responsible for establishing a working Pheasant brooding and release program on the property. Other duties included; building/erecting bluebird houses and wood duck nest boxes, constructing hiking trails, and managing habitat for deer, turkey and pheasants. Initiated a wildlife management plan for the working farm.

Specific Endangered & Threatened Species Experience

- ***Bog Turtle:***
  - Phase 1 Habitat Evaluations and Assessments
  - Phase 2 Presence/Absence Surveys
  - Assisted in Phase 3 Trapping Survey
  - Assisted in Radio-Telemetry Survey
- ***Timber Rattlesnake:***
  - Specific Habitat Evaluations and Assessments
  - Presence/Absence Surveys – Visual Encounter Method
- ***Karner Blue Butterfly and Frosted Elfin:***
  - Specific Habitat Evaluations and Assessments
  - Blue Lupine and nectar source Surveys
  - Presence/Absence Surveys – Visual Encounter Method
- ***Indiana Bat and Northern Long-eared Bat:***
  - Specific Habitat Evaluations and Assessments
- ***Northern Cricket Frog:***
  - Specific Habitat Evaluations and Assessments
  - Presence/Absence Surveys – Visual Encounter and Call/Response Methods
- ***Dwarf Wedge Mussel:***
  - Specific Habitat Evaluations and Assessments

Additional Training

- Rutgers College – Freshwater Wetland Construction
- Rutgers College – Endangered & Threatened Species of Southern NJ
- Bat Study Techniques Workshop – Hands on training in mist-netting and other capture techniques and bat species identification, handling, marking, and ecology
- USFWS – WallKill River National Wildlife Refuge, New Jersey. Assisted with radio telemetry survey of Bog Turtles.
- Hudsonia Reptile/Amphibian Survey Methods Workshop – Hands on Training in various methods to survey species of Amphibians and Reptiles
- Volunteer to Environmental Defense / Jason Tesauro – conducted Bog Turtle Surveys in Columbia and Dutchess Counties, New York.

Special Licenses

- NYSDEC – Nuisance Beaver Training Snare Workshop Certificate
- NYSDEC – Statewide Annual Hunting and Trapping License
- NYSDEC – Nuisance Wildlife Control Operations
- NYSDEC – License to Collect and Possess

Affiliations

- New York State Wetlands Forum, Inc. - Member
- Corporate Wetlands Restoration Partnership – NYS Chapter Secretary
- Quality Deer Management Association – NYS Chapter Member

Appendix B

Correspondences with USFWS and DEC Natural Heritage Office

U.S. Fish and Wildlife Service

Trust Resources List

This resource list is to be used for planning purposes only — it is not an official species list.

Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

New York Ecological Services Field Office
3817 LUKER ROAD
CORTLAND, NY 13045
(607) 753-9334
http://www.fws.gov/northeast/nyfo/es/section7.htm

Project Name:
Clovewood T&E

U.S. Fish and Wildlife Service

Trust Resources List

Project Location Map:

Project Counties:

Orange, NY

U.S. Fish and Wildlife Service

Trust Resources List

Geographic coordinates (Open Geospatial Consortium Well-Known Text, NAD83):

MULTIPOLYGON (((-74.1630396 41.3902959, -74.160469 41.3884961, -74.1587524 41.3888181, -74.1584949 41.3893976, -74.1559157 41.3889436, -74.1541175 41.3869506, -74.1534309 41.3865642, -74.1519718 41.3860491, -74.1501693 41.3851475, -74.1501693 41.3843747, -74.1497402 41.3837952, -74.150856 41.3787719, -74.1476802 41.3749719, -74.1545467 41.3718159, -74.1564349 41.3720736, -74.1649279 41.3651137, -74.1658763 41.3656966, -74.1637306 41.3675647, -74.1671595 41.3726532, -74.1697344 41.3745855, -74.17703 41.3703345, -74.1807207 41.3734262, -74.1801199 41.3736838, -74.1778883 41.3722024, -74.1768584 41.3729109, -74.17703 41.3739414, -74.1790041 41.3752296, -74.1778025 41.3760025, -74.1762575 41.3768397, -74.1750559 41.3760669, -74.173511 41.3771618, -74.1744551 41.3778702, -74.1735968 41.3789007, -74.1728243 41.378321, -74.1721377 41.3795447, -74.1711077 41.3801243, -74.1722235 41.3808328, -74.1711935 41.3818632, -74.1710219 41.3825716, -74.1708502 41.3830868, -74.1705927 41.3840527, -74.1705069 41.3848899, -74.1695627 41.3856627, -74.1682753 41.3864354, -74.1656145 41.3878521, -74.1647562 41.3884317, -74.1630396 41.3902959)))

Project Type:

Development

Endangered Species Act Species List (USFWS Endangered Species Program).

There are a total of **5** threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section below for critical habitat that lies within your project area. Please contact the designated FWS office if you have questions.

Species that should be considered in an effects analysis for your project:

Clams	Status		Has Critical Habitat	Contact
Dwarf wedgemussel (*Alasmidonta heterodon*) Population: Entire	Endangered	species info		New York Ecological Services Field Office
Flowering Plants				
Small Whorled pogonia (*Isotria medeoloides*)	Threatened	species info		New York Ecological Services Field Office
Mammals				

Trust Resources List

Indiana bat (*Myotis sodalis*) Population: Entire	Endangered	species info		New York Ecological Services Field Office
northern long-eared Bat (*Myotis septentrionalis*) Population:	Proposed Endangered	species info		New York Ecological Services Field Office
Reptiles				
Bog Turtle (*Clemmys muhlenbergii*) Population: northern	Threatened	species info		New York Ecological Services Field Office

Critical habitats within your project area:

There are no critical habitats within your project area.

FWS National Wildlife Refuges (USFWS National Wildlife Refuges Program).

There are no refuges found within the vicinity of your project.

FWS Migratory Birds (USFWS Migratory Bird Program).

The protection of birds is regulated by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. For more information regarding these Acts see http://www.fws.gov/migratorybirds/RegulationsandPolicies.html.

All project proponents are responsible for complying with the appropriate regulations protecting birds when planning and developing a project. To meet these conservation obligations, proponents should identify potential or existing project-related impacts to migratory birds and their habitat and develop and implement conservation measures that avoid, minimize, or compensate for these impacts. The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

U.S. Fish and Wildlife Service

Trust Resources List

For information about Birds of Conservation Concern, go to
http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html.

Migratory birds of concern that may be affected by your project:
There are 10 birds on your Migratory birds of concern list. The Division of Migratory Bird Management is in the process of populating migratory bird data with an estimated completion time of Fall 2014; therefore, the list below may not include all the migratory birds of concern in your project area at this time. While this information is being populated, please contact the Field Office for information about migratory birds in your project area.

Species Name	Bird of Conservation Concern (BCC)	Species Profile	Seasonal Occurrence in Project Area
American bittern (*Botaurus lentiginosus*)	Yes	species info	Breeding
Bald eagle (*Haliaeetus leucocephalus*)	Yes	species info	Year-round
Black-billed Cuckoo (*Coccyzus erythropthalmus*)	Yes	species info	Breeding
Canada Warbler (*Wilsonia canadensis*)	Yes	species info	Breeding
Golden-Winged Warbler (*Vermivora chrysoptera*)	Yes	species info	Breeding
Least Bittern (*Ixobrychus exilis*)	Yes	species info	Breeding
Purple Sandpiper (*Calidris maritima*)	Yes	species info	Wintering
Rusty Blackbird (*Euphagus carolinus*)	Yes	species info	Wintering
Wood Thrush (*Hylocichla mustelina*)	Yes	species info	Breeding
Worm eating Warbler (*Helmitheros vermivorum*)	Yes	species info	Breeding

U.S. Fish and Wildlife Service

Trust Resources List

NWI Wetlands (USFWS National Wetlands Inventory).

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

Data Limitations, Exclusions and Precautions
The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery and/or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Exclusions - Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Precautions - Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the

advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

The following wetland types intersect your project area in one or more locations:

Wetland Types	NWI Classification Code	Total Acres
Freshwater Emergent Wetland	PEM1F	1.2063
Freshwater Emergent Wetland	PEM1B	0.3377
Freshwater Emergent Wetland	PEM1Ex	0.5031
Freshwater Forested/Shrub Wetland	PSS1C	1.0222
Freshwater Forested/Shrub Wetland	PFO1E	3.2486
Freshwater Pond	PUBHh	0.9388
Freshwater Pond	PUBHx	0.336

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

Joe Martens
Commissioner

March 20, 2014

Robert G. Torgersen
Robert G. Torgersen, LA, CPESC
Three Main Drive
Nanuet, NY 10954

Re: Clovewood Development
Town/City: Blooming Grove. County: Orange.

Dear Robert G. Torgersen :

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site.

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 as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

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.

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, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Andrea Chaloux

Andrea Chaloux
Environmental Review Specialist
New York Natural Heritage Program

The following state-listed animals have been documented at your project site, or in its vicinity.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing. The list may also include significant natural communities that can serve as habitat for Endangered or Threatened animals, and/or other rare animals and rare plants found at these habitats.

For information about potential impacts of your project on these populations, how to avoid, minimize, or mitigate any impacts, and any permit considerations, contact the Wildlife Manager or the Fisheries Manager at the NYSDEC Regional Office for the region where the project is located. A listing of Regional Offices is at http://www.dec.ny.gov/about/558.html.

The following species and habitats have been documented at or near the project site. Potential onsite and offsite impacts from the project may need to be addressed.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Animal Assemblages				
Bat Colony (The northern long-eared bat was found at this colony within 1 mile of the project site.) *Hibernaculum*				2983
Reptiles				
Timber Rattlesnake (0.5 mi) *basking/shedding area*	*Crotalus horridus*	Threatened		13559

The following species have been documented within 1.5 mi. Individual animals may travel 1.5 mi from documented locations.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Reptiles				
Timber Rattlesnake *hibernaculum*	*Crotalus horridus*	Threatened		9682

The following species have been documented within 2.5 mi. Individual animals may travel 2.5 mi from documented locations.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Mammals				
Indiana Bat *Hibernaculum*	*Myotis sodalis*	Endangered	Endangered	12787

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are

available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at http://www.dec.ny.gov/animals/7494.html.

Information about many of the rare plants and animals, and natural community types, in New York are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NatureServe Explorer at http://www.natureserve.org/explorer.

New York Natural Heritage Program

Report on Rare Animals, Rare Plants, and Significant Natural Communities

The following rare plants, rare animals, and significant natural communities have been documented at your project site, or in its vicinity.

We recommend that potential onsite and offsite impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following significant natural communities are considered significant from a statewide perspective by the NY Natural Heritage Program. They are either occurrences of a community type that is rare in the state, or a high quality example of a more common community type. By meeting specific, documented criteria, the NY Natural Heritage Program considers these community occurrences to have high ecological and conservation value.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Upland/Terrestrial Communities			
Chestnut Oak Forest			High Quality Occurrence

Schunnemunk Mountain State Park: The forest is moderately large and in good condition with excellent physiognomic diversity located in a protected area within a larger landscape that is being developed rapidly. 4524

The following plants are listed as Endangered or Threatened by New York State, and/or are considered rare by the New York Natural Heritage Program, and so are a vulnerable natural resource of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Slender Pinweed	*Lechea tenuifolia*	Threatened	Imperiled in NYS

Round Hill Blooming Grove, 2002-08-21: An open, exposed rock outcrop on a southwest-facing slope. The surrounding area is forested with Juniperus virginiana, Quercus montana, Quercus rubra, and Carya glabra. 1262

Virginia Snakeroot	*Endodeca serpentaria*	Threatened	Imperiled in NYS

Round Hill Blooming Grove, 2002-08-21: This SSW-facing slope is on a ridge that is dominated by Carya glabra, Quercus rubra, and Acer saccharum. Elymus hystrix is abundant in the area. Alliaria petiolata is present. 1100

Drummond's Rock-cress	*Boechera stricta*	Threatened	Imperiled in NYS

Round Hill Blooming Grove, 2002-08-21: The plants are growing on rock outcrops that create an almost vertical face. 1234

Woodland Agrimony	*Agrimonia rostellata*	Threatened	Imperiled in NYS

Round Hill Blooming Grove, 2002-08-21: A rocky forest dominated by Carya glabra and Acer saccharum. 10000

Green Rock-cress	*Boechera missouriensis*	Threatened	Imperiled in NYS

Schunnemunk Mountain, 2002-06-05: The plants occur near the ridge of Schunnemunk Mountain above the steep sided mountain slopes. The area is an oak-hickory forest adjacent to a more open oak-heath rocky summit community with Quercus ilicifolia and Quercus prinoides. Plants in the generalvicinity include Carya glabra, Quercus rubra, Deschampsia flexuosa, Antennaria plantaginifolia, Asplenium platyneuron, Panicum dichotomum, Andropogon gerardii, Quercus montana, Paronychia canadensis, Chenopodium sp., Polygonum scandens, Dryopteris marginlis, Panicum latifolium, Heuchera americana, Viburnum rafinesquianum, Ribes sp., Crataegus cf. pedicellata, and Vaccinium stamineum. 10779

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to http://www.dec.ny.gov/animals/29384.html and click on Draft Ecological Communities of New York State.

Appendix C

Site Photographs

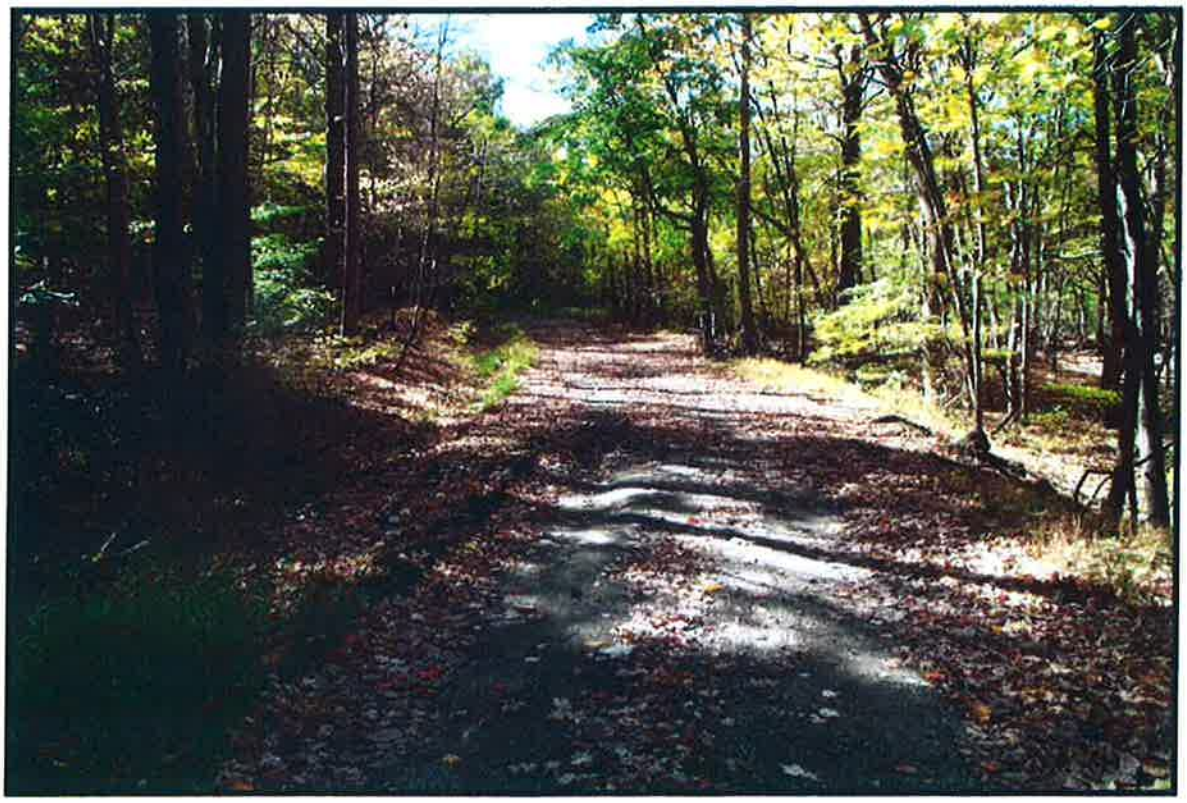
Photograph 1) View of one of the ponds that are found in the northern portion of the property and near Clove Road.

Photograph 2) View of the typical open/fallow field that is found in the northwestern most portion of the property.

Photograph 3) View of a cattail marsh found in the northwest portion of the property.

Photograph 4) View of the open/fallow upland field. Clove Road is visible in the background.

Photograph 5) View of an upland field dominated by knapweed. This field was part of the former golf course fairway.



Photograph 6) View one of the many roads that are found throughout the property.

Photograph 7) View of an upland field that was part of the former golf course's fairways.

Photograph 8) View of an open upland field that was part of the former golf course.

Photograph 9) View of an upland field that is found in the northwest corner of the property.

Photograph 10) View of a site typical upland field and wooded uplands.

Photograph 11) View of an emergent wetland that is found in an open field.

Photograph 12) View of the upland hardwood forest that is found in the western corner of the property.

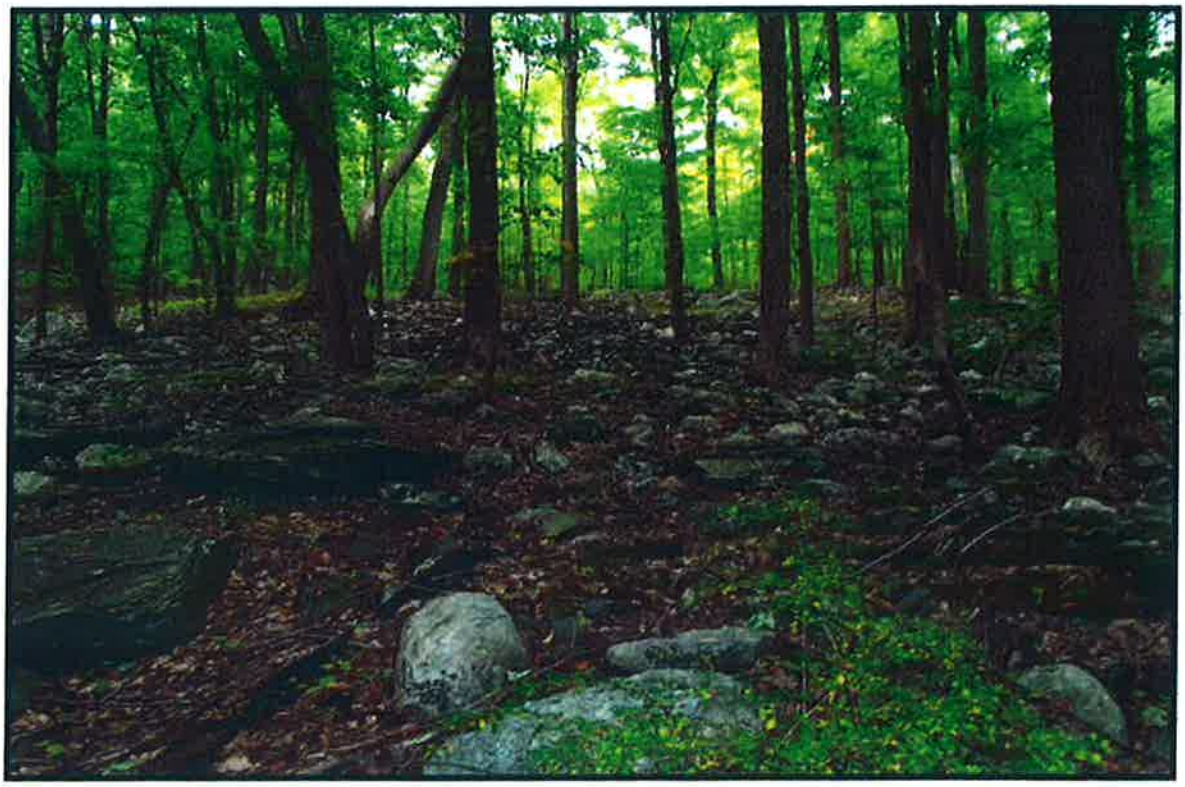
Photograph 13) View of upland open hardwood forest that is found near the center of the property.

Photograph 14) View a rocky drainage and uplands. The drainage flows northward from the higher elevations in the southern end of the property.

Photograph 15) View of open hardwoods that are typical throughout the central portion of the property.

Photograph 16) View open hardwoods that are found along the eastern property line.

Photograph 17) View looking north at an open field and hardwoods that are found along the properties eastern boundary.



Photograph 18) View of the rocky hardwood forest that is found throughout the central and southern extant of the property.

Photograph 19) View of one of the many roads that traverse the properties hardwood forest.

Photograph 20) Slimy salamander that was found in one of the rocky intermittent drainages.

Photograph 21) View of a two-lined salamander that was found in one of the drainages near the center of the property.

Photograph 22) View of a rock wall that was found in the southwest portion of the property. Many stonewalls were noted throughout the property during the various field reviews.

Photograph 23) View of another very typical stone wall on the property.

Photograph 24) View of rocky talus slope that is found in the southern end of the property. This habitat was the main focus of the Timber rattlesnake survey.

Photograph 25) View the trail at the top of the mountain in the Chestnut Oak forest.

Photograph 26) View of the structure of the Chestnut Oak forest community type that is found within the higher elevations found at the southern end of the property.

Photograph 27) View of typical structure of the Chestnut Oak forest community type.

Photograph 28) View of ledges that were encountered within the higher elevations of the southern portion of the property.

Photograph 29) View of the Chestnut Oak forest and rocky structure that was typically found within the southern portion of the property.

Photograph 30) View looking north from the summit of the mountain along the southern property line.

Photograph 31) View of the typical structure of the Chestnut Oak forest that is found at the upper elevations of the property.

Photograph 32) View looking northeast from the summit of the mountain.

Photograph 33) View of talus slope.

Photograph 34) View of a talus slope and potential basking area.

Appendix D

Observed Species List

Observed Flora & Fauna Species List
Clovewood Property

This species inventory lists only the species of flora and fauna that were observed and identified during the 2014 and 2015 site visits associated with the formal endangered/threatened species investigations that were conducted on the property. Most species were identified visually or by vocalization. Species denoted with * indicates that the species were identified by tracks, scat or physical remains confirmed during the site visits.

Fauna

Mammals:

Common Name	Scientific Name
Shorttail Shrew	*Blarina brevicaudata*
Eastern Coyote*	*Canis latrans*
Opossum*	*Didelphis marsupialis*
Woodchuck	*Marmota monax*
Meadow Vole	*Microtus pennsylvanicus*
Mink*	*Mustela vison*
White-tailed Deer	*Odocoileus virginiana*
Deer Mouse	*Peromyscus maniculatus*
Raccoon*	*Procyon lotor*
Eastern Gray Squirrel	*Sciurus carolinensis*
Cottontail Rabbit	*Sylvilagus floridanus*
Eastern Chipmunk	*Tamias striatus*
Black Bear*	*Ursus americanus*
Red Fox	*Vulpes vulpes*

Birds:

Common Name	Scientific Name
Wood Duck	*Aix sponsa*
Mallard	*Anas platyrhynchos*
Great Blue Heron	*Ardea herodias*
Red-winged Blackbird	*Agelaius phoeniceus*
Cedar Waxwing	*Bombycilla cedrorum*
Red-tailed Hawk	*Buteo jamaicensis*
Green Heron	*Butorides striatus*
Northern Cardinal	*Cardinal cardinalis*
American Goldfinch	*Carduelis tristis*
Purple Finch	*Carpodacus purpureus*
Turkey Vulture	*Cathartes aura*
Hermit Thrush	*Catharus guttatus*

Killdeer	*Charadrius vociferous*
Northern Flicker	*Colaptes auratus*
Eastern Wood Pewee	*Contopus virens*
American Crow	*Corvus brachyrhynchos*
Blue Jay	*Cyanocitta cristata*
Yellow Warbler	*Dendroica petechia*
Black-throated Green Warbler	*Dendroica virens*
Pileated Woodpecker	*Dryocopus pileatus*
Gray Catbird	*Dumetella carolinensis*
Common Yellowthroat	*Geothlypis trichas*
Northern Oriole	*Icterus galbula*
Tree Swallow	*Iridoprocne bicolor*
Dark-eyed Junco	*Junco hyemalis*
Belted Kingfisher	*Megaceryle alcyon*
Red-bellied Woodpecker	*Melanerpes carolinus*
Eastern Wild Turkey	*Meleagris gallopavo*
Song Sparrow	*Melospiza melodia*
Northern Mockingbird	*Mimus polyglottos*
Great-crested Flycatcher	*Myiarchus crinitus*
Black-capped Chickadee	*Parus atricapillus*
House Sparrow	*Passer domesticus*
Rose-breasted Grosbeak	*Pheuticus ludovicianus*
Downy Woodpecker	*Picoides pubescens*
Eastern Towhee	*Pipilo erythrophthalmus*
Scarlet Tanager	*Piranga olivacea*
Common Grackle	*Quiscalus quiscula*
Eastern Phoebe	*Sayornis phoebe*
American Woodcock	*Scolopax minor*
Eastern Bluebird	*Sialia sialis*
White-breasted Nuthatch	*Sitta carolinensis*
Tree Sparrow	*Spizella arborea*
Chipping Sparrow	*Spizella passerina*
Barred Owl	*Strix varia*
European Starling	*Sturnus vulgaris*
Winter Wren	*Troglodytes troglodytes*
American Robin	*Turdus migratorius*
Eastern Kingbird	*Tyrannus tyrannus*
Red-eyed Vireo	*Vireo olivaceus*
Mourning Dove	*Zenaida macroura*
White-throated Sparrow	*Zonotrichia albicollis*

Amphibians/Reptiles:

Common Name	**Scientific Name**
American Toad	*Anaxyrus americanus*
Common Snapping Turtle	*Chelydra serpentina*
Painted Turtle	*Chrysemys picta*
Eastern Timber Rattlesnake	*Crotalus horridus*
Northern Two-lined Salamander	*Eurycea bislineata*

Gray Treefrog	*Hyla versicolor*
Red Eft	*Notopthalmus viridescens*
Redback Salamander	*Plethodon cinereus*
Northern Slimy Salamander	*Plethodon glutinosus*
Spring Peeper	*Pseudacris crucifer*
Bull Frog	*Lithobates catesbeiana*
Green Frog	*Lithobates melanota clamitans*
Pickerel Frog	*Lithobates palustris*
Eastern Garter Snake	*Thamnophis sirtalis*

Flora

Trees:

Common Name	**Scientific Name**
Box Elder Maple	*Acer negundo*
Striped Maple	*Acer pensylvanicum*
Norway Maple	*Acer platanoides*
Red Maple	*Acer rubrum*
Silver Maple	*Acer saccharinum*
Sugar Maple	*Acer saccharum*
Tree of Heaven	*Ailanthus altissima*
Yellow Birch	*Betula allegheniensis*
Mountain Paper Birch	*Betula cordifolia*
Black Birch	*Betula lenta*
White Birch	*Betula papyrifera*
Gray Birch	*Betula populifolia*
American Hornbeam	*Carpinus caroliniana*
Pignut Hickory	*Carya glabra*
Shagbark Hickory	*Carya ovata*
American Beech	*Fagus grandifolia*
White Ash	*Fraxinus americana*
Green Ash	*Fraxinus pennsylvanica*
Honey Locust	*Gleditsia triacanthos*
Black Walnut	*Juglans nigra*
Red Cedar	*Juniperus virginiana*
Tulip Tree	*Liriodendron tulipifera*
Wild Apple	*Malus sylvestris*
Hop Hornbeam	*Oystra virginiana*
Pitch Pine	*Pinus rigida*
White Pine	*Pinus strobus*
Quaking Aspen	*Populus tremuloides*
Pin Cherry	*Prunus pennsylvanica*
Choke Cherry	*Prunus virginiana*
Black Cherry	*Prunus serotina*
White Oak	*Quercus alba*
Swamp White Oak	*Quercus bicolor*
Scarlet Oak	*Quercus coccinea*

Chestnut Oak	*Quercus montana*
Pin Oak	*Quercus palustris*
Red Oak	*Quercus rubra*
Black Locust	*Robinia pseudoacacia*
Basswood	*Tilia americana*
American Elm	*Ulmus americana*

Shrubs:

Common Name	**Scientific Name**
Speckled Alder	*Alnus rugosa*
Shadbush	*Amelanchier canadensis*
Japanese Barberry	*Berberis thunbergii*
Silky Dogwood	*Cornus amomum*
Gray Dogwood	*Cornus racemosa*
Red-osier Dogwood	*Cornus sericea*
Winged Euonymus	*Euonymus atlatus*
Black Huckleberry	*Gaylussacia baccata*
Witch Hazel	*Hamamelis virginiana*
Mountain Laurel	*Kalmia latifolia*
Honeysuckle	*Lonicera tatarica*
Shrub Oak	*Quercus ilicifolia*
Common Buckthorn	*Rhamnus cathartica*
Staghorn Sumac	*Rhus typhina*
Multiflora Rose	*Rosa multiflora*
Blackberry	*Rubus allegheniensis*
Red Raspberry	*Rubus idaeus*
Black Raspberry	*Rubus occidentalis*
Purple-flowering Raspberry	*Rubus oderatus*
Pussy Willow	*Salix discolor*
Black Willow	*Salix nigra*
Elderberry	*Sambucus canadensis*
Lowbush Blueberry	*Vaccinium angustifolium*
Highbush Blueberry	*Vaccinium corymbosum*
Maple-leaved Viburnum	*Viburnum acerifolium*
Nannyberry	*Viburnum lentago*
Arrowwood	*Viburnum dentatum*

Vines:

Common Name	**Scientific Name**
Oriental Bittersweet	*Celastris orbiculata*
Ground Ivy	*Glechoma hederacea*
Virginia Creeper	*Parthenocissus quinquefolia*
Poison Ivy	*Rhus radicans*
Common Dewberry	*Rubus procumbens*
Greenbrier	*Smilax spp.*

Bittersweet Nightshade	*Solanum dulcamara*
Summer Grape	*Vitis aestivalis*

Herbaceous Plants:

Common Name	**Scientific Name**
Yarrow	*Achillea millefolium*
Sweet Flag	*Acorus calamus*
Baneberry	*Actaea pachypoda*
Common Agrimony	*Agrimonia gryposepala*
Quack Grass	*Agropyron repens*
Redtop	*Agrostis alba*
Garlic Mustard	*Alliaria officinalis*
Wild Onion	*Allium stellatum*
Water Plantain	*Alisma plantago-aquatica*
Ragweed	*Ambrosia artemisiifolia*
Hog Peanut	*Amphicarpa bracteata*
Little Bluestem	*Andropogon scoparius*
Sarsaparilla	*Aralia nudicaulis*
White Snakeroot	*Ageritina altissima*
Jack-in-the Pulpit	*Arisaema triphyllum*
Common Burdock	*Arctium minus*
Common Mugwort	*Artemisia vulgaris*
Swamp Milkweed	*Asclepias incarnata*
Common Milkweed	*Asclepias syraca*
New England Aster	*Aster novae-angliae*
Small-white Aster	*Aster vimineus*
Bur Marigold	*Bidens cernua*
Beggar Ticks	*Bidens frondosa*
Marsh Marigold	*Caltha palustris*
Brome-like Sedge	*Carex bromoides*
Fringed Sedge	*Carex crinita*
Yellow Nut Sedge	*Carex esculentus*
Bladder Sedge	*Carex intumescens*
Pennsylvania Sedge	*Carex pennsylvanica*
Pointed Broom Sedge	*Carex scoparia*
Awl-fruited Sedge	*Carex stipata*
Tussock Sedge	*Carex stricta*
Bristlebract Sedge	*Carex tribuloides*
Fox Sedge	*Carex vulpinoidea*
Spotted Knapweed	*Centaurea maculosa*
Celandine	*Chelidonium majus*
Canada Thistle	*Cirsium arvense*
Bull Thistle	*Cirsium vulgare*
Orchard Grass	*Dactylis glomerata*
Deptford Pink	*Dianthus armeria*
Evergreen Wood Fern	*Dryopteris intermedia*
Spike Rush	*Eleocharis rostellata*
Joe-pye Weed	*Eupatorium maculatum*

Boneset	*Eupatorium perfoliatum*
Wild Madder	*Galium mollugo*
Sweet-scented Bedstraw	*Galium triflorum*
Wild Geranium	*Geranium maculatum*
Jewelweed	*Impatiens capensis*
Blueflag Iris	*Iris versicolor*
Soft Rush	*Juncus effusus*
Stick-tight	*Lappula virginiana*
Rice-cut Grass	*Leersia oryzoides*
Birdsfoot Trefoil	*Lotus corniculatus*
Bugleweed	*Lycopus americana*
Moneywort	*Lysimachia nummularia*
Purple Loosestrife	*Lythrum salicaria*
Evening Primrose	*Oenothera biennis*
Sensitive Fern	*Onoclea sensibilis*
Yellow Wood Sorrel	*Oxalis stricta*
Reed Canary Grass	*Phalaris arundinacea*
Phlox	*Phlox pilosa*
Pokeweed	*Phytolacca americana*
Clearweed	*Pilea pumila*
Water Smartweed	*Polygonum amphibium*
Tearthumb	*Polygonum sagittatum*
Rock Polyplody	*Polypodium virginianum*
Christmas Fern	*Polystichum agrostichoides*
Herbaceous cinquefoil	*Potentilla simplex*
Black-eyed Susan	*Rudbeckia hirta*
Dark Green Bulrush	*Scirpus atrovirens*
Woolgrass	*Scirpus cyperinus*
Bladder Campion	*Silene vulgaris*
False Solomon's Seal	*Smilacina racemosa*
Canada Goldenrod	*Solidago canadensis*
Late Goldenrod	*Solidago gigantea*
Early Goldenrod	*Solidago juncea*
Rough-stem Goldenrod	*Solidago rugosa*
Slender Goldenrod	*Solidago tenuifolia*
Skunk Cabbage	*Symplocarpus foetidus*
Dandelion	*Taraxacum officinale*
Marsh Fern	*Thelypteris palustris*
Virginia Knotweed	*Tovara virginiana*
White Clover	*Trifolium repens*
Red Clover	*Trifolium pratense*
Coltsfoot	*Tussilago farfara*
Cattail	*Typha latifolia*
Stinging Nettles	*Urtica dioica*
Common Mullein	*Verbascum thappsus*
Blue Vervain	*Verbena hastata*
New York Ironweed	*Vernonia noveboracense*
Common Speedwell	*Veronica officinalis*
Common Blue Violet	*Viola sororia*

CLOVEWOOD

Draft Environmental Impact Statement

Updated USFWS and DEC Natural Heritage Office Correspondence

P.O. Box 2020, Monroe New York 10949
Tel: (845) 774 · 8000 | cpcnynj@gmail.com

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

December 27, 2018

Thomas Ward
North Country Ecological Services, Inc.
25 W. Fulton Street
Gloversville, NY 12078

Re: Clovewood Residential Development
County: Orange Town/City: Blooming Grove

Dear Mr. Ward:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is 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.

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 NYS DEC Region 3 Office, Division of Environmental Permits, at dep.r3@dec.ny.gov, (845) 256-3054.

Sincerely,

Andrea Chaloux

Andrea Chaloux
Environmental Review Specialist
New York Natural Heritage Program

1390

The following state-listed animals have been documented in the vicinity of the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for the project, please contact the NYSDEC Region 3 Office, Department of Environmental Permits, at dep.r3@dec.ny.gov, (845) 256-3054.

The following species has been documented within 1.5 miles of the project site. Individual animals may travel 1.5 miles from documented locations.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Reptiles				
Timber Rattlesnake	*Crotalus horridus*	Threatened		
hibernaculum				9662
basking/shedding area				13559

The following species has been documented within 2.5 miles of the project site. Individual animals may travel 2.5 miles from documented locations. The main impact of concern for the bats is the removal of potential roost trees.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Mammals				
Indiana Bat	*Myotis sodalis*	Endangered	Endangered	12787
Hibernaculum				

The following species has been documented within 2.5 miles of the project site. Individual animals may travel 5 miles from documented locations. The main impact of concern for the bats is the removal of potential roost trees.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Mammals				
Northern Long-eared Bat	*Myotis septentrionalis*	Threatened	Threatened	14145
Hibernaculum				

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following rare plants, rare animals, and significant natural communities have been documented in the vicinity of the project site.

We recommend that potential impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following plants are listed as Threatened by New York State, and are rare in New York State, and so are vulnerable natural resources of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Virginia Snakeroot	*Endodeca serpentaria*	Threatened	Imperiled in NYS
Round Hill Blooming Grove, northwest of project site, 2002-08-21: This SSW-facing slope is on a ridge that is dominated by *Carya glabra*, *Quercus rubra*, and *Acer saccharum*. *Elymus hystrix* is abundant in the area. *Alliaria petiolata* is present.			1100
Drummond's Rock Cress	*Boechera stricta*	Threatened	Imperiled in NYS
Round Hill Blooming Grove, northwest of project site, 2002-08-21: The plants are growing on rock outcrops that create an almost vertical face. Aspect 50 degrees. Slope 50 percent.			1234
Slender Pinweed	*Lechea tenuifolia*	Threatened	Imperiled in NYS
Round Hill Blooming Grove, northwest of project site, 2002-08-21: An open, exposed rock outcrop on a southwest-facing slope. The surrounding area is forested with *Juniperus virginiana*, *Quercus montana*, *Quercus rubra*, and *Carya glabra*.			1262
Woodland Agrimony	*Agrimonia rostellata*	Threatened	Imperiled in NYS
Round Hill Blooming Grove, northwest of project site, 2002-08-21: A rocky forest dominated by *Carya glabra* and *Acer saccharum*.			10000

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to www.dec.ny.gov/animals/97703.html for Ecological Communities of New York State.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To:
Consultation Code: 05E1NY00-2019-SLI-0509
Event Code: 05E1NY00-2019-E-01531
Project Name: Clovewood Residential Development

December 03, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/

eagle_guidance.html). Additionally, wind energy projects should follow the Services wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2019-SLI-0509

Event Code: 05E1NY00-2019-E-01531

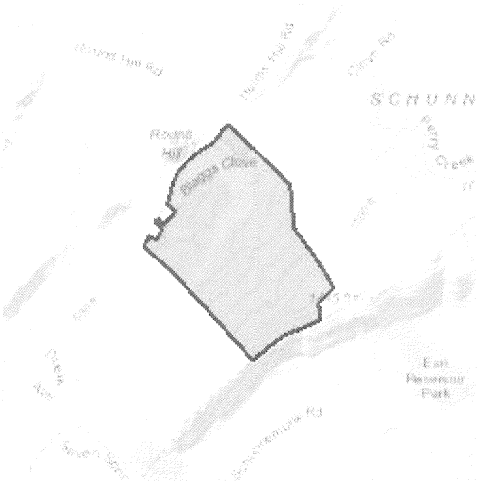
Project Name: Clovewood Residential Development

Project Type: DEVELOPMENT

Project Description: At this time, the project sponsor is proposing a residential development on the property. The development will be limited to the northern portions of the site, where a former golf course once existed.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.37832905894962N74.16380390413735W



Counties: Orange, NY

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Bog Turtle *Clemmys muhlenbergii* Population: Wherever found, except GA, NC, SC, TN, VA No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/182/office/52410.pdf Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/182/office/52410.pdf	Threatened

Clams

NAME	STATUS
Dwarf Wedgemussel *Alasmidonta heterodon*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/784
Species survey guidelines:
https://ecos.fws.gov/ipac/guideline/survey/population/363/office/52410.pdf

Flowering Plants

NAME	STATUS
Small Whorled Pogonia *Isotria medeoloides*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1890
Species survey guidelines:
https://ecos.fws.gov/ipac/guideline/survey/population/742/office/52410.pdf

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.