

Cloewood Draft Environmental Impact Statement

3.6 VEGETATION AND WILDLIFE

This section analyzes the Project Site's natural resources and biodiversity and includes an assessment of the Project Site's potential to be habitat for endangered flora and fauna as well as the potential for the Project to generate significant adverse environmental impacts upon vegetation and wildlife.

3.6.1 Existing Conditions

The natural resources and biodiversity analysis for the Project Site summarized below is based upon the Endangered and Threatened Species Report and Evaluation conducted by North County Ecological Services ("NCES") found in Appendix C.

The survey dates and times occurred in the fall from April through October as well as in the Spring from June through early July, which is the most appropriate time to observe the identified flora and fauna species. During this period both resident and migratory species of birds were observed and recorded. Also, resident species of reptiles, amphibians, and mammals were identified on the Project Site. All of the field reviews that are relevant to threatened, endangered or rare species were conducted during the appropriate time period when each species is most visible and/or encounters most likely. The dates, times and conditions of the fall surveys are shown below in Table 361.

Table 361			
Fall Survey Conditions			
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
Source: NCES			

The dates, times and conditions of the spring surveys are shown below in Table 362.

Table 362			
Spring Survey Conditions			
Survey Date	Time/Duration	Ambient Air Temp	Weather Condition
6/3/15	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
7/8/15	12:15pm-6:00pm - 5h 45 min	76°F to 86°F	Hazy, Hot & Humid
Source: NCES			

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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 Project Site:

- 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 Project’s ecological communities have been mapped in Figures 361a and 361b and are listed in Table 363.

Table 363		
Ecological Communities		
Ecological Community Type	Size / Length	% of Site
Acidic talus slope woodland	69.00 ± acres	10.00%
Chestnut oak forest	46.10 ± acres	6.50%
Oak-tulip tree forest	162.2 ± acres	23.00%
Successional southern hardwoods	279.4 ± acres	39.50%
Successional old Field	72.10 ± acres	10.00%
Successional shrub land	21.00 ± acres	3.00%
Palustrine forested wetland	10.90 ± acres	1.50%
Palustrine scrub-shrub wetland	10.20 ± acres	1.50%
Palustrine emergent wetland	05.30 ± acres	0.70%
Artificial pond	05.30 ± acres	0.70%
Existing Development	26.90 ± acres	4.00%
Rocky Headwater Stream	22,466 ± linear feet	N/A
Totals	708.2± Acres	100%
Source: NCES		

Some of the dominant species of vegetation observed within the Chestnut oak forest ecological community include, 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 pallidum*), wild sarsaparilla (*Aralia nudicaulis*) and Pennsylvania sedge (*Carex pennsylvanica*). This ecological community is located at the highest elevational portions (at or above 1,240 feet above Median Sea Level) of the ridge that extends along the southeast Project Site boundary.

Figure 361a: Existing Ecological Communities

Existing Ecological Communities			
Symbol	Existing Ecological Community	Overall Acreage	% Of Site
ATS	Acidic Talus Slope Woodland	69.0 ± Ac.	10%
COF	Chestnut Oak Forest	46.1 ± Ac.	6.5%
OTF	Oak-Tulip Tree Forest	162.2 ± Ac.	23%
SSH	Successional So. Hardwood Forest	279.4 ± Ac.	39.5%
SOF	Successional Old Field	72.1 ± Ac.	10%
SSL	Successional Shrub Land	21.0 ± Ac.	3%
PFO	Palustrine Forested Wetland	10.9 ± Ac.	1.5%
PSS	Palustrine Scrub-Shrub Wetland	10.2 ± Ac.	1.5%
PEM	Palustrine Emergent Wetland	5.3 ± Ac.	0.7%
AF	Artificial Pond	5.3 ± Ac.	0.7%
ERD	Existing Residential Development	26.9 ± Ac.	4%
Total Acreage Summary		708.2 ± Ac.	100%
RHS	Existing Rocky Headwater Stream	22,466 ± LF	

General Notes

- Property Boundary And General Proposed Site Plan Information is Derived From Base Mapping Provided By Kirk Rother, P.E.
- Existing Ecological Community Types (Location & Configuration), Were Approximated By NCEs Inc. Utilizing Aerial Imagery Generated By Google Earth.
- Information Provided On This Drawing Is Approximate And Does Not Constitute An Actual Boundary Survey Of The Property Or The Existing Ecological Communities. This Graphic Was Generated For Visual Reference Only And Is Meant To Be Conceptual.

Legend

- Property Boundary
- Ecological Community Types Boundary
- Proposed Limits Of Clearing And Grading
- Existing Rocky Headwater Stream Channel
- Impacted Rocky Headwater Stream Channel

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Clovewood Residential
Development

Village Of South Blooming Grove
Orange County, New York

No.	Narrative	MM/DD/YY
	Description	Date
	Revision Schedule	
Construction Drawing		MM/DD/YY
Bid Drawing		MM/DD/YY
Drawing Log		

DRAWN
BY: Will Miles

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Submitted For Draft EIS Review
02-01-19

It is a violation for any person to alter
the plan in any way, unless acting under the
direction of an appropriately licensed person.

SHEET NAME:

Existing Ecological Communities

FIGURE 361a

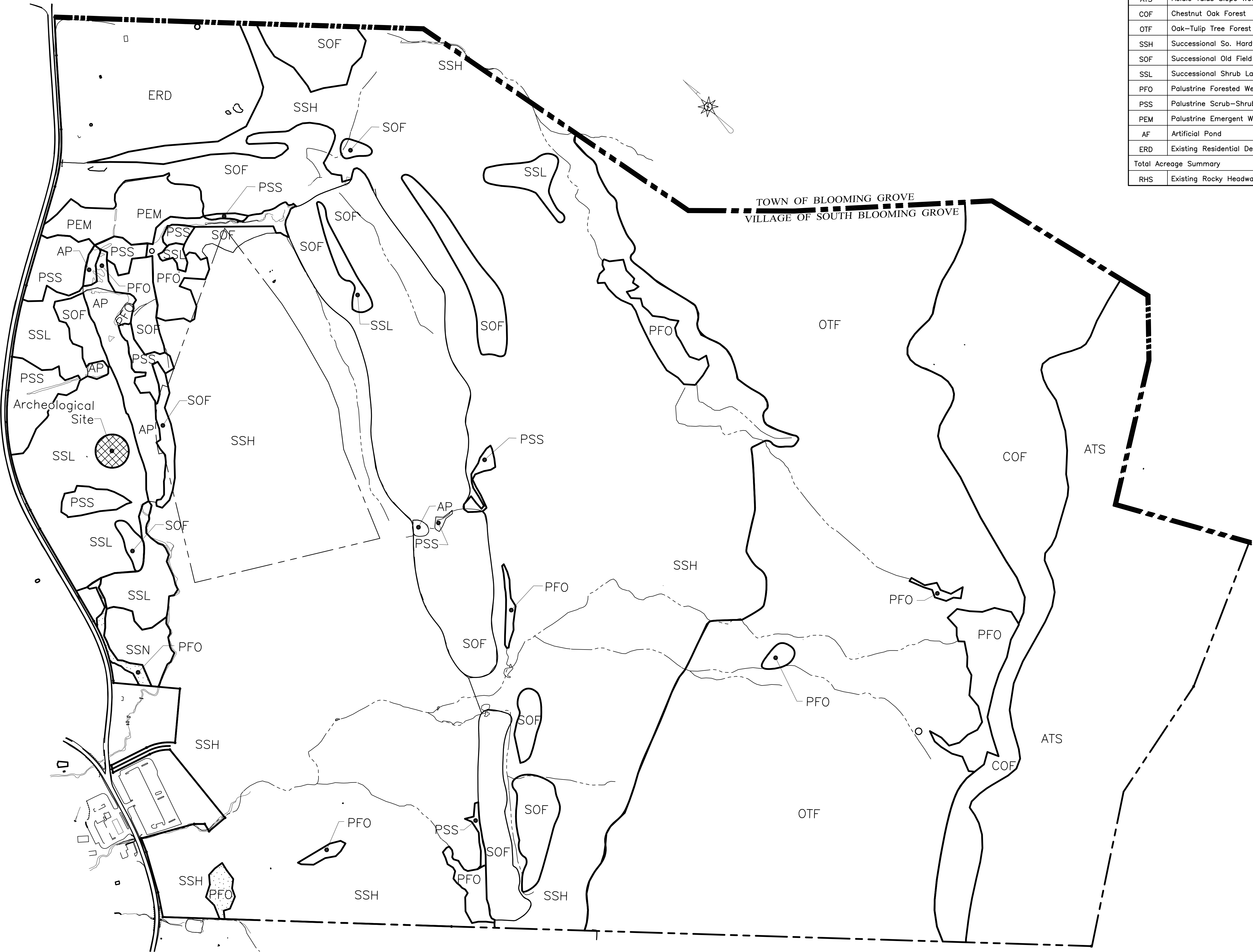




Figure 361b: Existing Ecological Communities Aerial

Existing Ecological Communities			
Symbol	Existing Ecological Community	Overall Acreage	% Of Site
ATS	Acidic Talus Slope Woodland	69.0 ± Ac.	10%
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Legend

- Property Boundary
- Ecological Community Types Boundary
- Proposed Limits Of Clearing And Grading
- Existing Rocky Headwater Stream Channel
- Impacted Rocky Headwater Stream Channel

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SHEET NAME:

Topographic Overlay-
Existing Ecological Communities

FIGURE 361b

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Some of the dominant species of vegetation observed within the Acidic talus slope woodland ecological community include, 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 polypody (*Polypodium virginianum*), wood fern (*Dryopteris intermedia*), and various mosses. This ecological community possesses many rocky outcroppings and is 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 the elevations of 1,020 feet and 1,240 feet.

Some of the prominent species of vegetation observed within the Oak-Tulip tree forest ecological community include, but are not limited to: northern red oak, 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 alatus*), 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, in areas that were not previously developed/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 the elevations of 940 feet and 1020 feet.

Some of the prominent species of vegetation observed within the Successional southern hardwood forest ecological community include, 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 at an elevation below 940 feet.

Some of the prominent species of vegetation observed within the Successional old field ecological community include, 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 syriaca*), ragweed (*Ambrosia artemisiifolia*), little blue stem (*Andropogon scoparius*),

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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 thapsus*) 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 an elevation of 940 feet.

Some of the prominent species of vegetation observed within the Successional shrubland ecological community include, 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, 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.

Some of the prominent species of vegetation observed within the Red-Maple hardwood swamp/Palustrine forested wetland ecological community include, 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, 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 in forested components of the property, where previous disturbances from the golf facility did not occur.

Some of the prominent species of vegetation observed within the Palustrine scrub-shrub and emergent wetland communities include, 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*), fox sedge, NY Aster (*Aster novi-belgii*) and New England Aster (*Aster novae-angliae*). These wetland communities are limited to the western half of the Project Site, in areas that were part of the previous golf course facility.

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The predominant fauna that occupy or use that portion of the Project Site proposed to be developed (20%) include: white-tailed deer, raccoons, muskrats, and woodchucks. Smaller mammals confirmed present are: cottontail rabbit, chipmunk, gray squirrel, and white-footed mice. The largest birds confirmed present are wild turkey, red tailed hawk, turkey vulture, mallard ducks, Canadian geese, and crow. Common bird species confirmed on the Project Site include: red-bellied woodpecker, downy woodpecker, red-winged blackbird, song sparrow, cardinal, blue jay, catbird, mockingbird, ovenbird, Carolina wren, phoebe, white breasted nut hatch, starling, and robins. Amphibians and reptiles confirmed present included painted turtles, green frogs, garter snakes, wood frogs, leopard frogs, salamanders, and newts. None of these species would be negatively impacted in any significant way by development, as 80% of the Project Site would remain undisturbed, and the preserved areas of the Project Site includes substantial suitable habitat for all of these species.

The following species of fauna typically found in and around wetlands, streams and ponds were identified in the Project Site's wetland areas. These species include the following: mink (*Mustela vison*), wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), great blue heron (*Ardea Herodias*), red-winged blackbird (*Agelaius phoeniceus*), green heron (*Butorides striatus*), belted kingfisher (*Megaceryle alcyon*), American Woodcock (*Scolopax minor*), eastern kingbird (*Tyrannus tyrannus*), American toad (*Anaxyrus americanus*), common snapping turtle (*Chelydra serpentine*), painted turtle (*Chrysemys picta*), northern two-lined salamander (*Eurycea bislineata*), gray treefrog (*Hyla versicolor*), northern slimy salamander (*Plethodon glutinosus*), spring peeper (*Pseudacris crucifer*), bull frog (*Lithobates catesbeiana*), green frog (*Lithobates melanota clamitans*) and pickerel frog (*Lithobates palustris*).

Freshwater Wetlands are regulated by the NYSDEC under Article 24 of the Environmental Conservation Law (ECL), streams are regulated under Article 15 of the ECL. The U.S. Army Corps of Engineers regulates all Waters of the United States (WOTUS), including wetlands, streams and open water bodies, under Section 404 of the Clean Water Act. Wetlands are more thoroughly addressed in Section 3.8 and mapped in Figures 381 and 382. Floodplains are not "regulated" (unless they are classified as wetland). Endangered and Threatened species are regulated by the NYSDEC and the USFWS under the Endangered Species Act. Species of Special Concern or candidate species do not receive protection under the Endangered Species Act. General wildlife species may be protected by the NYSDEC, if they are considered game animals or can be regulated pursuant to the Migratory Bird Act

Investigations for endangered or threatened species of flora and fauna referenced by the regulatory agencies and specific reviews of existing ecological communities for habitats conducive to their existence were conducted after consultations with US Fish and Wildlife Service ("USFWS") and the DEC Natural Heritage Office ("NHO"). Specific habitat assessments were then conducted for those species identified in USFWS and NHO correspondence as having been presently/historically

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recorded within Orange County, New York, and which thus had the potential to be found on the Project Site. The information provided by USFWS and NHO is relative to known occurrences. No specific survey for fish or for aquatic invertebrates was warranted for the Project. Likewise, no further studies relating to birds was required by the NYSDEC or USFWS for the Project Site as none of the birds identified on the Project Site are currently listed on the state or federal endangered species lists as either endangered or threatened.

NCES complied with habitat assessment and subsequent species survey guidelines established by the NYSDEC and USFWS. The surveys conducted in the fall of 2014 and the surveys conducted in the spring of 2015 fall within the appropriate time frames defined by these protocols and guideline documents referenced. The surveys were conducted over significant periods of time and encompassed three seasons in order to optimize species observations and encounters. The survey dates were discussed with NYSDEC Biologist, Lisa Masi, and were deemed conducive. The species studied during these surveys are the same species listed on the updated NYSDEC and USFWS lists from 2019 included at the end of Appendix C.

Northern Long-eared Bats and Indiana Bats: NCES reviewed the Project Site in search of habitat suitable as summer roosting sites and foraging habitat for the Indiana and Northern Long-eared Bats. NCES also searched for any caves, mines, or other man-made structures that could be used as potential roosts or as an over-wintering hibernacula. NCES utilized information obtained from USFWS, including the "Indiana Bat Project Review Fact Sheet" and the "Northern Long-eared Bat Fact Sheet," which define 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 USFWS and NYSDEC protocols established for Indiana Bat surveys.

The NCES bat survey identified 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 the 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).

Potential foraging habitat for both bat species was found on the Project Site, including: the forested uplands; over the open emergent marsh community; along the stream corridors; and within the edge habitat that immediately borders the site. These habitat areas are relatively common throughout the geographic region. Therefore, sufficient habitat exists in the vicinity of the Project Site that would sustain healthy populations of a variety of species of bats, in the event of any displacement that might occur with development of a portion of the Site.

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Timber Rattlesnakes: NCES completed a review of the Project Site for the presence of habitats suitable for use by Timber Rattlesnakes during its initial field investigation on September 25, 2014. The field reviews for the Timber Rattlesnake were coordinated with and authorized by the NYSDEC. During the field surveys conducted by NCES during the fall season, no individual Timber Rattlesnakes were found. Temperature conditions during the review period were on the low end of the spectrum, and dropped below 66°F at nights for the duration of the survey period.

During their review, NCES walked the entire Project Site in an attempt to locate suitable habitats conducive to Timber Rattlesnakes, 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 Project Site. 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' AMSL. These potential habitats are located outside of the areas proposed for development and would not be impacted by the Project. These habitats are located within areas that were not disturbed by the previous golf course. The determination made by NCES that the elevation of 940' AMSL contour and above was suitable rattlesnake habitat was based on the field conditions, the observations of individual snakes, as well as the community types encountered above 940' AMSL. This area contains optimal foraging, basking and shedding habitat for the species.

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. NCES concludes that the potential of movement of Timber Rattlesnakes through the Project Site would be within these habitats, primarily along the steep ridge, which is well away from all proposed development. No Timber Rattlesnakes were identified within the wooded habitats during the site assessments.

Since suitable habitat was confirmed present within the property boundaries, NCES, the Applicant, and the Engineers determined that spring field surveys should be undertaken. To comply with the NYSDEC survey protocol for spring reviews, NCES visited the Project Site on June 3, June 10, June 11, June 24, and July 8 of 2015 to document habitat and search for Timber Rattlesnakes. The spring field surveys were undertaken during the known spring emergence, dispersal, and basking periods of Timber Rattlesnakes.

During the spring field surveys, NCES located two individual Timber Rattlesnakes outside of the Project Site boundaries in the Talus slope that is found along the top of the ridge extending parallel with the southern property boundary. The location of one snake was approximately 80 feet outside of the Project Site boundary and the location of the other was approximately 100 feet outside the Project Site boundary. These locations are greater than 0.5 miles (approximately 3,000 feet) from

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the area of proposed development. The snakes were found in the same general location, a basking area near the eastern property line, which was one of the basking areas initially identified by NCES during its fall field survey.

The presence of two individual snakes outside of the Project Site boundaries within the Acidic talus slope woodland community (along the summit of Schunnemunk Mountain) confirms that this area is viable and occupied Timber Rattlesnake foraging, basking and shedding habitat. The steeply-sloped Acidic talus slope woodland area provides the most optimal basking and shedding habitat, and the immediately adjacent forested uplands provide suitable foraging habitat for Timber Rattlesnakes. Both of these areas are located outside the portion of the Project Site proposed for development and would not be impacted by the Project.

After confirming the presence of Timber Rattlesnakes within the suitable habitats through its extensive surveys, NCES then focused its review on the areas of 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. Accordingly, the Project would not have the potential to generate any significant adverse impact upon Timber Rattlesnakes or their habitat.

Bog Turtles - Phase 1: 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 USFWS’s “Bog Turtle Northern Population Recovery Plan” (Klemens, 2001) (the “BTNPRP”).

During the assessment, NCES traversed the entire Project Site and reviewed the onsite wetlands. NCES also reviewed off-site contiguous wetlands that border the Project Site. Based upon 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 onsite wetlands lack soft “mucky” organic soils; suitable, low-lying vegetation; and shallow, spring fed, slow-moving water. The Project Site wetlands are surface water derived and have been manipulated by historical agricultural activities. The wetlands are subject to fluctuating water levels, which is dependent upon the duration and intensity of precipitation events received.

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 Bog Turtle burrowing or foraging activities. During the summer months, these wetlands are typically dry and the soils become rock hard. The vegetation identified within the wetlands is dominated by taller, extremely dense, and invasive emergent vegetation such as common reed, purple loosestrife, joe-pye weed, and various goldenrods. This intense vegetative density is prohibitive to the general movement, basking, and nesting opportunities for Bog Turtles.

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NCES identified the main sources of wetland hydrology, which 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 contributes the most to the wetlands' overall hydrological regime. Many ephemeral and intermittent drainages extend along the slopes associated with Schunnemunk Mountain and lead directly into the wetlands.

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 Project Site.

Dwarf Wedge Mussels: The Dwarf Wedge Mussel is listed as an endangered species by USFWS and 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 1990 as a result of an ecological study 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. No river systems are found within or immediately adjacent to the Project Site, and therefore NCES determined that no potential Dwarf Wedge Mussel habitat exists on the Project Site.

Small-whorled Pogonia: The timing of the surveys for Small Whorled Pogonia were conducted in late May through June and corresponded with the Timber Rattlesnake survey.

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).

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Based upon the existing conditions observed, the Project Site does contain suitable habitat that is typically associated with Small-whorled Pogonia. However, during the site assessment, no Small-whorled Pogonia plants were identified. 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).

Slender Pinweed: Slender Pinweed is a perennial wildflower that typically occupies open, grassy communities, and thrives 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.

During the reviews, NCES identified habitats on the Project Site 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 Project Site. However, during the site reviews, no Slender Pinweed plants were identified by NCES.

Virginia Snakeroot: 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.

During the review, 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, away from proposed areas of development. However, NCES did not locate any individual Virginia Snakeroot plants.

Drummonds Rock Cress and Green Rock Cress: 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, and steep ravines, although it has also 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, and talus slope communities. Associated

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ecological communities include Appalachian Oak Hickory forest, Hemlock, Northern Hardwood forest, Limestone woodlands, White Cedar rocky summits, Shale cliff and Talus communities, Acidic Talus slope woodland, and Calcareous talus slope woodland.

During the review, 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, NCES did not locate any individual Drummonds Rock Cress or Green Rock Cress plants.

Woodland Agrimony: 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). During the review, 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 well away from proposed development areas. However, NCES did not locate any individual Woodland Agrimony plants.

Sterling Forest Bird Conservation Area: According to the NYSDEC website, the Sterling Forest Bird Conservation Area (SFBCA) is part of Sterling Forest State Park. Sterling Forest State Park is within a natural area of state and national importance due to its watershed, wildlife habitat, cultural resources, open space and outdoor recreation significance. A comprehensive inventory by the New York Natural Heritage Program indicates that most of the Park is covered by either ecological communities that have statewide significance or of such quality that they should be protected as significant examples within New York State. The Park has considerable biodiversity including a diversity of bird species. A part of the Hudson Highlands, the area has strong relief ranging from 800-1200' in elevation."

The SFBCA is located in the Towns of Tuxedo, Warwick and Monroe within Orange County, New York. It encompasses approximately 16,833 acres of a variety of habitats including upland forest, wetland complexes (such as the Cedar Pond area), lakes, and patches of early successional habitat. The DEC also identified significant ecological community types including Appalachian oak-hickory forest, hemlock-northern hardwood forest, inland Atlantic white cedar swamp, dwarf shrub bog, and successional old field habitat.

The Project Site is located approximately 8.0± miles from the Sterling Forest Bird Conservation Area (SFBCA). No part of the Cloewood development is contiguous to nor reliant on natural resources of the SFBCA. The SFBCA consists of a variety of natural, undisturbed habitats, as well

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as various roads, residential housing developments, the Village of Greenwood Lake, the Tuxedo Golf Course, the NY Renaissance Fare, as well as numerous other commercial and industrial developments. The SFBCA is 23 times larger than the Project Site and as such, would harbor greater species diversity and richness.

The biological assessment of the Project Site did not identify similar species habitat richness and diversity when compared to the SFBCA. The landscape of the Project Site was consistent with habitats found in the southern portions of Orange County with 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 identified, when compared to SFBCA.

3.6.2 Potential Impacts

A map of the Project's subdivision layout superimposed on the Project Site's ecological communities is found in Figures 362a and 362b. Potential disturbance is listed below in Table 364. Although this table illustrates approximately 178.7 acres would be impacted by the Project, approximately 65 acres would be revegetated and preserved as open space as part of the Project as the Project's development would occur on just approximately 140 acres of the Project Site.

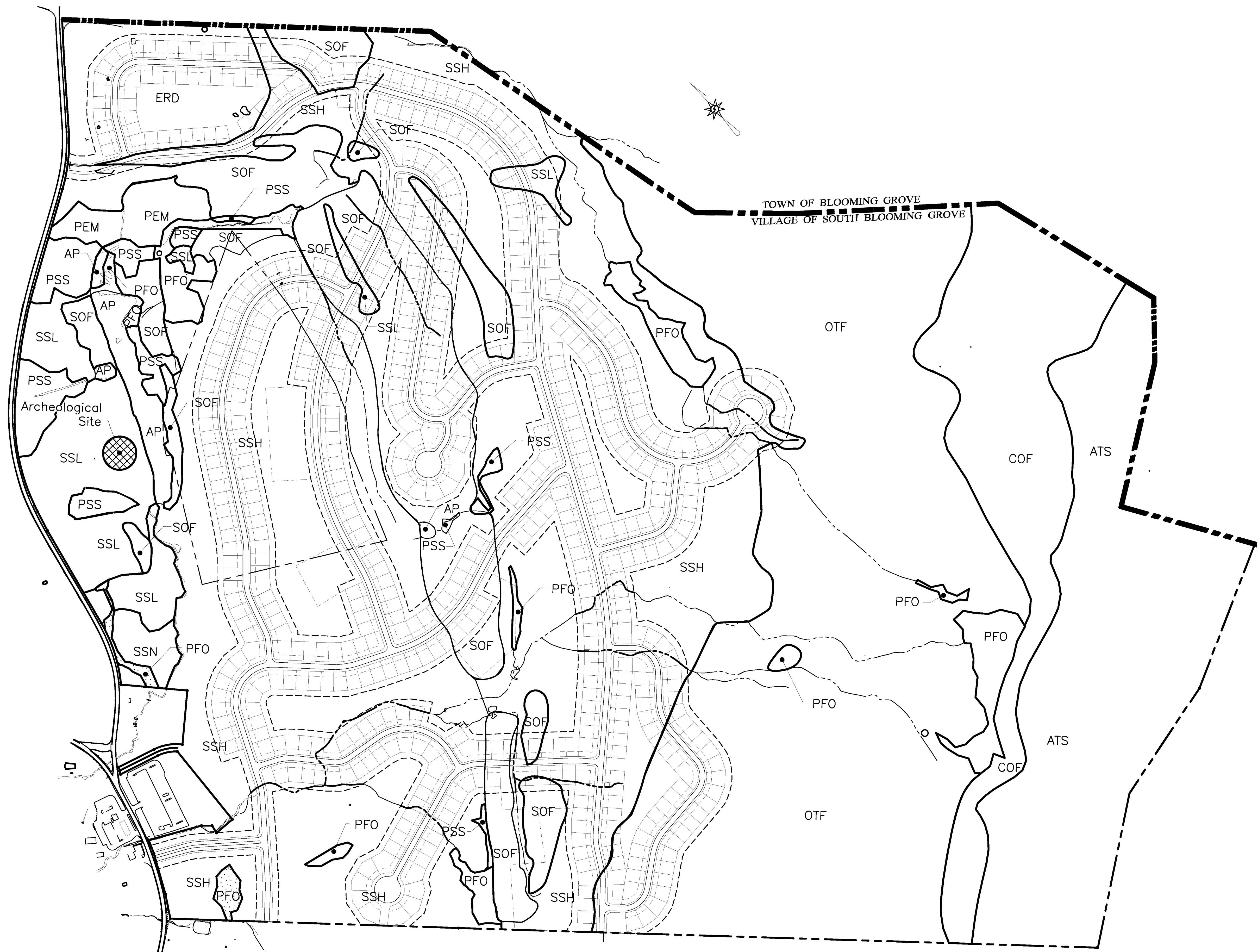
Table 364				
Ecological Communities Potential Impacts				
Existing Ecological Community Type	Overall Acreage	Area to be Impacted (Acres)	Area Not Impacted (Acres)	% to Remain Un-Impacted
Acidic talus slope woodland	69.00 ±	0.000 ±	69.00 ±	100%
Chestnut oak forest	46.10 ±	0.000 ±	46.10 ±	100%
Oak-tulip tree forest	162.2 ±	15.20 ±	147.0 ±	90%
Successional So. hardwoods	279.4 ±	157.3 ±	122.1 ±	44%
Successional old Field	72.10 ±	26.20 ±	45.90 ±	64%
Successional shrub land	21.00 ±	00.00 ±	21.00 ±	100%
Palustrine forested wetland	10.90 ±	00.00 ±	10.90 ±	100%
Palustrine scrub-shrub wetland	10.20 ±	00.00 ±	10.20 ±	100%
Palustrine emergent wetland	05.30 ±	00.00 ±	05.30 ±	100%
Artificial pond	05.30 ±	00.00 ±	05.30 ±	100%
Existing Residential Development	26.90 ±	N/A	N/A	N/A
Rocky Headwater Stream	22,466±L.F.	7,215±L.F.	15,251±LF	68%
Totals	708.2±	178.7±	510.6±	72%
Source: NCES				

The Project would not cause a reduction in population or loss of individuals of, nor a reduction or degradation of any habitat used by, any rare, threatened, or endangered species (as listed by New York State or the federal government). Nor would the Project cause a reduction in population or

Figure 362a: Ecological Communities with Project Layout

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Clovewood Residential
Development
Village Of South Blooming Grove
Orange County, New York



General Notes

1. Property Boundary And General Proposed Site Plan Information is Derived From Base Mapping Provided By Kirk Rother, P.E.
2. Existing Ecological Community Types (Location & Configuration), Were Approximated By NCES Inc. Utilizing Aerial Imagery Generated By Google Earth.
3. Information Provided On This Drawing Is Approximate And Does Not Constitute An Actual Boundary Survey Of The Property Or The Existing Ecological Communities. This Graphic Was Generated For Visual Reference Only And Is Meant To Be Conceptual.

Legend

- Property Boundary
- Ecological Community Types Boundary
- Proposed Limits Of Clearing And Grading
- Existing Rocky Headwater Stream Channel
- Impacted Rocky Headwater Stream Channel

No.	Narrative	MM/DD/YY
	Description	Date
	Revision Schedule	
Construction	Drawing	MM/DD/YY
Bid Drawing		MM/DD/YY
	Drawing Log	

DRAWN BY: Will Miles

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02-01-19

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SHEET NAME:
Impact Assessment
of the Existing
Ecological Communities

FIGURE 362a

Figure 362b: Ecological Communities with Project Layout Aerial

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Orange County, New York



- General Notes**
1. Property Boundary And General Proposed Site Plan Information is Derived From Base Mapping Provided By Kirk Rother, P.E.
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Legend	
	Property Boundary
	Ecological Community Types Boundary
	Proposed Limits Of Clearing And Grading
	Existing Rocky Headwater Stream Channel
	Impacted Rocky Headwater Stream Channel

No.	Narrative	MM/DD/YY
	Description	Date
Revision Schedule		
Construction Drawing		MM/DD/YY
Bid Drawing		MM/DD/YY
Drawing Log		

DRAWN BY: Will Miles

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SHEET NAME:
Topographic Overlay -
Impact Assessment of the
Existing Ecological Communities

FIGURE 362b

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loss of individuals of, or degradation of any habitat used by, any species of special concern or conservation need (as listed by New York State or the federal government).

Potential Indiana and Northern Long-eared Bat habitat was found, and therefore, in accordance with both NYSDEC and USFWS protocol, the Applicant has "assumed presence" of the listed bat species and would implement appropriate measures into the Project, such as time-of-year tree clearing restrictions to avoid direct impact to listed bat species. Consequently, by complying with time of year restrictions and not removing trees when bats are present, specific studies are not required. As a result, tree clearing activities would only be conducted between November 1 and March 31 of a given calendar year in order to avoid impacts to bats. Timber Rattlesnake habitat was located in steeply-sloped upland areas, far from the portion of the Project Site proposed for development.

Further, the Project would not result in the removal of, or ground disturbance in, any portion of a designated significant natural community, or diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect, as there are no such designated natural communities or National Natural Landmarks in the vicinity. The nearest National Natural Landmark is the Ellenville Fault-Ice Caves in Ulster County. There are no National Natural Landmarks located in Orange County.

Based on the information provided from NHO, the NCES study indicates the species of flora referenced in Section 3.6.1, above, have been documented within 2.5 miles of the Project Site, but not near the proposed development areas 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 Project 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.

The presence of wood frogs on the Project Site indicates wood frogs are successfully breeding within some of the defined wetland communities and potentially within the open water ponds that are found in the lower extent of the property. Portions of the wetland communities identified possess inundated conditions during spring thaw and other wet periods of the year. These areas exhibit vernal pool characteristics, such as pooled water, slow moving flow, and a fluctuating water level based on seasonal variations in precipitation. Therefore, these areas are conducive to the existence of and use by wood frogs. However, wood frogs are an unprotected species that do not warrant any special mitigative measures to be incorporated into the design of the Project. Based on the site plans provided, the development has minimized the direct impact to aquatic resources, inclusive of the wetlands that contain inundated conditions, such that viable amphibian breeding habitat is to remain undisturbed and available for use by wood frogs.

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The Project Site is located approximately eight miles from the NYSDEC designated SFBCA. As this area is located far away from the Project Site, the Project would not have the potential to generate any significant adverse impact upon any bird species in the BCA and would have no impact on that area's status as a National Audubon Important Bird Area. Migratory species of wildlife, primarily birds, would utilize both properties (the Project Site and SFBCA) as spring and fall migrations occur.

The undeveloped and preserved portions of the Project Site would provide ample suitable habitat for all migrating birds. The undeveloped portions of the forested communities in the higher elevations, as well as the wetlands and ponds in the lower elevations of the property, would provide roosting, feeding, resting, breeding and foraging habitat for a variety of birds. As a result, the minimal amount of habitat that would be permanently altered by the Project development would have little to no effect will upon residential and migrating birds that utilize the SFBCA. Likewise, based on the overall acreage of the Hudson Highland West Important Bird Area and Project's preservation of open space, the Project would not have a direct impact on bird populations in the Hudson Highlands Bird Area.

The Project would develop approximately 140 acres of the Project Site, and would require conversion of more than 10 acres of forested land; however, none of the areas for development include any regionally or locally important habitat (as identified by USFWS or DEC) that is not preserved in much greater quantity and quality on the remaining acreage of the Project Site. In addition, the Project would be clustered in the lower elevations of the Project Site, where the former Lake Anne Country Club and golf course are located and would avoid the contiguous forested communities. Accordingly, the amount of fragmentation of the forest is kept to a minimum and would be primarily limited to the portions of the Project Site that have been historically cleared, graded and physically manipulated by the establishment of the Lake Anne Country Club and golf course and associated structures. As a result, the majority of the proposed Project's development area would be completed on lands that have been historically disturbed.

The Project would not result in the significant further fragmentation of undeveloped forested habitat, as the prior usage of the Project Site already resulted in the clearing and grading of wooded portions of to create the golf course and country club, etc. Existing, remnant fairways bisect the forested areas on the Project Site. While some forested areas would be impacted by the Project, the vast majority of that impact is to be confined within the successional southern hardwood forest community, which exists as a regenerated stand of trees in an area that was historically cleared. Therefore, it is not pristine in nature.

The undeveloped woodland communities located to the southeast of the property have also been logged and managed by prior owners. However, these woodland communities would not be

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impacted by the Project and would remain as un-fragmented habitat, suitable for use by indigenous and migratory species.

In addition, the Project would not have the potential to result in significant adverse impacts upon any endangered or threatened species, species of special concern or their habitat. The Project would likewise not result in significant adverse impacts upon the nesting/breeding, foraging, or overwintering habitat of any endangered or threatened species, or any species of special concern.

Moreover, the Project would preserve, as open space, approximately 80% of the Project Site including the areas on the slopes and ridges of Schunnemunk Mountain, which is recognized locally as a valuable scenic and biological resource as provided in the Village's Ridgeline, Significant Biological, and Scenic Viewshed Overlay Zones. Any wildlife in these areas would have access to ample permanently preserved open space and would not be adversely impacted by the Project. Because the Project is residential and not commercial, industrial, or recreational, there would be no proposed use of herbicides or pesticides in significant enough quantities to adversely impact wildlife, especially since any wildlife would have access to ample open space and forested areas throughout the majority of the Project Site.

3.6.3 Mitigation

The Project would not result in any significant adverse impacts upon flora and fauna, including those species identified as threatened, endangered, or of special concern. The majority Project's development would take place on previously disturbed lands not defined as pristine forested area and the Project would preserve approximately 80% of the Project Site as open space, with forested areas and other habitats suitable for use by the Project Site's wildlife being preserved.

Similarly, the Project would not adversely impact any bird or aquatic species. The Project would not include any development above 940' MSL, thus confining all development to elevations which are below suitable Timber Rattlesnake Habitat. The Project Site has assumed presence of bats and therefore tree clearing activities would be limited to the period between November 1 and March 31 of a given calendar year, when bats are hibernating in caves and not roosting in trees, in order to prevent adverse impacts to these species.

In addition, the Project's development would follow appropriate best management practices and coordinate with NYSDEC and comply with applicable requirements. The Project would not result in significant adverse impacts upon vegetation and wildlife. Thus, no further mitigation would be necessary.