

**A. INTRODUCTION AND METHODOLOGY**

This chapter describes the plant and animal communities that occupy the approximately 1,538-acre Project Site and the potential impacts to those resources from the development of the Proposed Project and Phase 1. Refer to Chapter 1, "Project Description," for a detailed description of the Proposed Project and Phase 1.

Publicly available and previously published information and aerial photography were used in developing the content of this chapter.

Existing conditions for vegetation, wildlife, and threatened, endangered, and special concern species within the Project Site and Phase 1 Site were summarized from the following:

- For the overall Project Site, comprehensive vegetation, wildlife, and wetland studies were completed by William Kenny Associates and the LA Group in 2006.<sup>1</sup> Information contained in this chapter on the character, species composition, and spatial extent of habitats and wetlands within the larger Project Site are taken from these studies. These studies formed the basis of the natural resources assessment contained in the DGEIS and FGEIS completed for the CALP project in October 2006. Vegetative communities within the Phase 1 development area were revisited in the field in May/June of 2012 to confirm the spatial extent and composition of habitats previously described for the CALP project.
- Published information identified in literature and obtained from governmental and nongovernmental sources, including the New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Mapper; U.S. Fish and Wildlife Service (USFWS) list of threatened, endangered and candidate species; 2000-2005 New York State Breeding Bird Atlas; NYSDEC Herp Atlas Project.
- Plant communities are identified according to the ecological community classification used by the New York Natural Heritage Program (NYNHP) of the NYSDEC (Edinger et al., 2002).
- Responses from the NYNHP to requests for information on rare, threatened, or endangered species recorded in the vicinity of the Project Site (see Appendix E-1).
- Daytime visual encounter survey of birds, mammals, reptiles and amphibians (Manley et al. 2006) and a dusk frog call survey conducted within and immediately surrounding the Phase 1 Site on March 30, 2012. A second daytime visual encounter survey was conducted at the Phase 1 Site on May 24, 2012. Incidental observations of wildlife during May 3 and May 29, 2012, visits to the site for other purposes were also recorded.

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<sup>1</sup> Wetland and Watercourse Evaluation, The Concord Resort, Kiamesha Lake, NY. March, 2006 and related materials, prepared by William Kenny Associates LLC and the LA Group as presented in the Concord Resort, Draft Environmental Impact Statement, August 2006, prepared by Saccardi & Schiff, Inc.

- Consideration of additional species with the potential to occur within the Project Site on the basis of their range within New York, habitat associations, area requirements, and commonness in the region (Kays and Wilson 2002, Mitchell et al. 2006, Gibbs et al. 2007, Freer et al. 2008, McGowan and Corwin 2008).

Impacts from construction and operation of the Proposed Project to vegetation and wildlife were assessed by considering land clearing, visual and noise disturbances, and habitat restoration.

The future without the Proposed Project was evaluated by considering potential impacts to vegetation and wildlife, including threatened and endangered species, from the development of previously approved projects on the Project Site. Similarly, the future of the Phase 1 Site without the proposed Phase 1 development was considered in light of approved developments elsewhere within the greater Project Site and their potential impacts on vegetation and wildlife.

The future with the Proposed Project was evaluated by considering the land disturbance and direct loss of wildlife habitat that would occur on the majority of the 1,538-acre Project Site to develop the EPT Concord Resort. Potential impacts to vegetation and wildlife, including Federally or State-listed species that could result from the Proposed Project, were considered at the individual and population levels, and in the context of cumulative habitat loss. Potential impacts to vegetation, wildlife, and threatened and endangered species at the Phase 1 Site were assessed by considering the direct loss of natural resources within the parcel and bordering Joyland Road, impacts of land clearing within the Phase 1 Site and the widening of Joyland Road on the quality and viability of neighboring habitats and biological communities, and the potential impacts of increased traffic, noise, and other anthropogenic disturbances generated during project operation on wildlife in adjacent habitats.

## **B. COMPREHENSIVE DEVELOPMENT PLAN (DGEIS)**

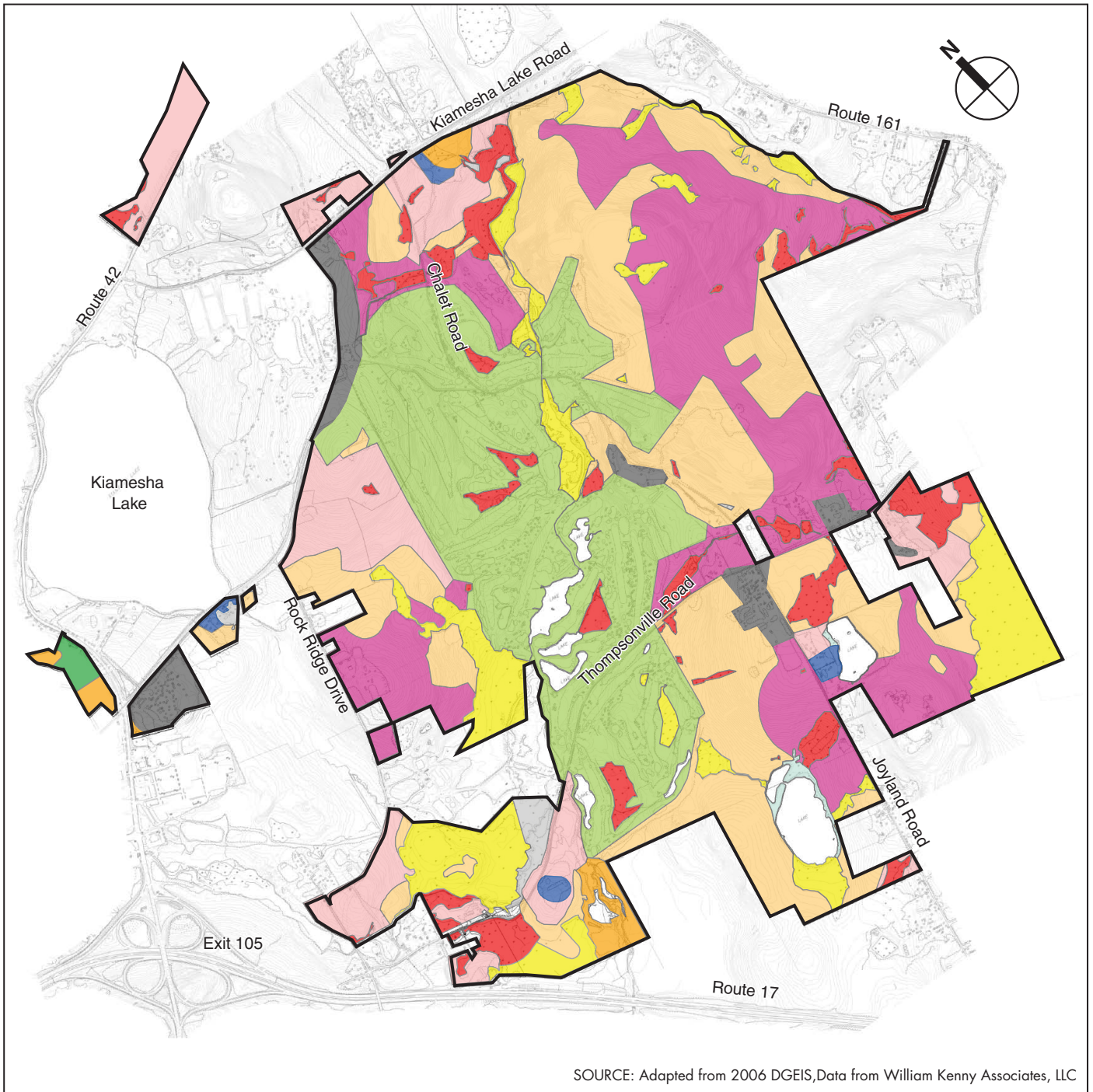
### **EXISTING CONDITIONS**

#### *VEGETATION*

The ecological communities identified on the Project Site are described below based on the species assemblage of their dominant vegetation. Vegetation community names follow the methodology contained in the New York Natural Heritage Program's *Ecological Communities of New York State* (Edinger et al, 2002).

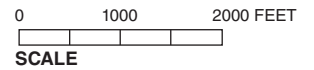
The Project Site contains a total of 13 ecological communities. These are listed in **Table 5-1** and described further below. Mapping of these primary vegetative assemblages was completed by site inspection and review of aerial photographs. The location of these ecological communities is presented in **Figure 5-1**. Additional ecological community types may exist as inclusions within these larger areas.

All ecological communities identified on the Project Site are common to the region and the State according to the New York State Natural Heritage Program (NYNHP). All communities are ranked G4/G5 and S4/S5, indicating they are "apparently" or "demonstrably" secure in the State and globally.



SOURCE: Adapted from 2006 DGEIS, Data from William Kenny Associates, LLC

-  Project Site Boundary
-  Northern Hardwood Forest
-  Hemlock Forest
-  Mowed Lawn/Mowed Lawn with Trees
-  Hemlock Forested Wetland
-  Maple-Beech Forest
-  Wet Meadow
-  Red Maple Swamp
-  Successional Shrub
-  Urban/Vacant Land
-  Quarry/Successional Scrub/Shrub
-  Successional Old Field
-  Lacustine Fringe





**Table 5-1  
Vegetation Communities**

Name	Global Ranking	State Ranking
Hemlock-Northern Hardwood Forest	G4, G5	S4
Beech Maple Mesic Forest	G4	S4
Successional Northern Hardwoods	G5	S5
Successional Old Field	G4	S4
Mowed Lawn/Mowed Lawn With Trees	G5	S5
Pavement & Urban Structure	G5	S5
Rock Quarry/Successional Shrubland	G5	S5
Successional Shrubland	G4	S4
Forested Hemlock Wetlands	G4, G5	S4
Forested Red Maple Wetlands	G5	S4, S5
Sedge Meadow Wetlands	G5	S4
Scrub-Shrub Wetlands	G5	S5
Lacustrine Fringe Wetlands/Pond	NA	NA
<b>Source:</b> William Kenny Associates and the LA Group as presented in the 2006 DGEIS/DEIS by Saccardi & Schiff, Inc.		

*Hemlock–northern hardwood forest:*

This ecological community occupies more area than any other community on the Project Site. These forested areas are variable in composition. Hemlock can range from 20 percent to nearly 100 percent of the tree canopy cover. Trees that may be co-dominant with hemlock include sugar maple, white pine, beech, and red maple. Black cherry, black birch, yellow birch, red spruce, and white ash may be locally common, but are not usually among the dominant species. The shrub layer is mostly occupied by saplings of the canopy trees, but may include rosebay rhododendron, witch-hazel, mountain laurel, winterberry, northern blackberry, and red raspberry. Where the conifers are most dense, the ground layer is very sparse; in places with more deciduous trees, this layer may include common wood sorrel, hay-scented fern, spinulose wood fern, common wood fern, New York fern, Christmas fern, gold thread, mountain aster, white wood aster, and clubmosses (*Lycopodium spp.*).

*Beech–maple mesic forest:*

This community, in general, is floristically similar to the preceding, but hemlock constitutes less than 20 percent of the canopy coverage, or is totally absent. Sugar maple is a dominant tree, usually with some beech, and other trees such as red maple, white pine, black cherry, black birch, basswood, white ash, and red oak. There are inclusions within the forest where white pine dominates the canopy, such as in the western portion of the property, but these areas are small, typically less than 0.5-acres in size. Witch hazel is a common shrub in some places, but usually that layer is rather open. The herbaceous layer is generally dominated by ferns: Christmas fern, hay-scented fern, common wood fern, and New York fern.

*Successional northern hardwoods:*

In a few places, there are patches of young forest with trees such as quaking aspen, bigtooth aspen, white pine, black cherry, gray birch, red maple, and red cedar. There may also be some tall shrubs like staghorn sumac.

*Successional old field:*

In some areas on the property, upland meadows exist in areas that have been cleared and plowed for farming or development and then abandoned. Forbs and grasses dominate the groundcover in these areas, in addition to characteristic herbs such as goldenrods, milkweed, asters, and Queen Anne's lace. Scattered shrubs are also present and comprised of species such as raspberry and cedar.

*Mowed lawn/Mowed lawn with trees:*

Due to the golf course, mowed lawn and mowed lawn with trees comprise a large portion of the Project Site. On the golf course, mowed areas exist up to the banks of Kiamesha Creek.

*Pavement and urban structure:*

Pavement and urban structure exist throughout the Project Site. In some areas, the urban structure is viable and actively used, while in others; the structures are abandoned and dilapidated.

*Rock quarry:*

An inactive rock quarry exists in the southwestern portion of the site. Depressions occur in the rock outcrop where material has been removed. Successional shrub areas occur in areas with suitable soil to the north and south of the mined areas.

*Successional shrubland:*

Successional shrubland exists in areas that have been cleared for development or farming and left fallow. Per the definition, this community has 50 percent cover of shrubs. Shrubland areas exist in areas throughout the Project Site and are comprised of such species as staghorn sumac, raspberry, dogwoods, hawthorne, cedar, multiflora rose, and viburnums.

*Forested hemlock wetlands:*

Eastern hemlock dominated forested wetlands are present throughout the Project Site. In general, these wetlands are found flanking a watercourse within the base of a stream valley, though overflow from the adjacent watercourse is not driving the hydrology in these systems: groundwater is. The dense and persistent canopy cover within the hemlock wetlands limits the extent and diversity of vegetation in the remainder of the forest strata, with little to no groundcover or shrub layer being the most common condition. The characteristic understory shrub within the hemlock forest is a native rhododendron: Rosebay rhododendron. The Rosebay is present in areas with canopy gaps and comprises such dense thickets that passage is impossible except on hand and foot. As described above, in those areas where the canopy is transitioning from red maple to Eastern hemlock dominated, the hemlock may share a co-dominant position with the red maple. There are a few locations on site where a canopy comprised of red maple, white pine, and Eastern hemlock is observed. One of the most visible qualities within a forested hemlock wetland is the homogeneity of the system. Generally, there is a limited diversity of vegetation, and these systems may occupy a large amount of land area. For example, while the Eastern hemlock dominated slope wetlands on-site are noted in nine wetland groups, compared to 26 slope red maple wetlands, the land area occupied by the hemlock slope wetlands occupies 125 acres of land, compared with 80 acres of the red maple.

As described above, these systems are found most often in sloped wetland regimes, where groundwater controls the hydrology and water flow is parallel to the slope vector. As such, the

ground surface within these sloped wetlands is pitched towards the adjacent watercourse or riverine system. The characteristic topography within the larger sloped systems is the “pit and mound” topography characterized by level slopes with alternating depressions and mounds caused by tip-ups (naturally occurring downed trees) forming an undulating ground surface over time. The pit and mound topography observed within the hemlock system is more deeply defined in some areas, with an approximate 3-foot difference between the elevations in the pits versus the elevation in the mounds. These areas are also identified for the shallow depth to bedrock, with a scant amount organic material (fibric and hemic) comprising the interface between the forest floor and the underlying bedrock. Additionally, compared to the red maple dominated wetland systems, the slopes within the slope wetland class with hemlock dominance are generally shallower than that of the red maple dominated slope systems.

*Forested red maple wetlands:*

Red maple dominated forested wetlands are present throughout the Project Site, and are the most represented wetland type on-site, with 23 of the 70 evaluated wetlands systems comprised of a red maple slope system. This wetland ecosystem may be found occupying broad areas with shallow slopes, at the heads of subwatersheds or bordering small feeder streams to Kiamesha Creek, bordering larger stream systems, and in isolated, depressional areas, although the dominant HGM class of this wetland on-site is the slope. The red maple wetlands, in general, display a mature canopy, and may contain scattered individuals of yellow birch, white pine, or Eastern hemlock in the canopy layer. In some wetland systems, white pine may be a co-dominant canopy tree with red maple, while in others Eastern hemlock may occupy a co-dominant position. The transitions between a red maple dominated wetland system and an Eastern hemlock dominated wetland system are the areas where the red maple shares a codominant position with the hemlock. In contrast, as white pine is not a true wetland species, it is typically found in a co-dominant or sub-dominant position within the vegetative assemblage of the wetland (it may, however, dominate the shrub layer). As well, in some areas of the property, particularly in the northeastern portion of the Project Site, American beech displays a strong subdominant, and in one area co-dominant, position with the red maple canopy. The shrub layer within the red maple wetlands is variable: it can be absent, moderately dense, or thick depending upon location on the property. Shrub species are generally comprised of highbush blueberry, white pine, arrowwood, iron wood, winterberry, American beech, yellow birch, and gray birch. Groundcover displays a similar variability, depending upon location, and it is comprised of species such as cinnamon fern, sensitive fern, and sphagnum moss.

*Sedge meadow wetlands:*

Wet meadow ecosystems are located on the Project Site, and cover a limited land area. These meadows are dominated by herbaceous vegetation such as tussock sedge, soft rush, wool grass, various goldenrods, narrowleaved cattail, sensitive fern, and purple loosestrife. The meadow wetlands transition to forested wetland systems or riverine ecosystems.

*Scrub-shrub wetlands:*

Successional scrub/shrub wetlands are located on the Project Site. Some of these areas appear to have been used at one time as a borrow pit, and had since been abandoned. This area is occupied in wetter areas by narrow-leaved cattail, sphagnum moss, common reed, wool grass, and sensitive fern, while in the drier portions of the wetland shrub species such as highbush blueberry and sapling gray birch dominate. Forested upland typically surrounds these systems.

The list of plant species identified on the Project Site is included in Appendix E-2.

### *WILDLIFE*

The Project Site contains a patchy matrix of existing buildings and cleared areas, roads, a golf course, and remaining natural areas which include shrubland, streams and ponds, forested wetlands, and multiple upland forest types. The heterogeneity of the landscape provides resources for wildlife species with various habitat associations and resource needs, but the fragmentation of the site's natural areas limits wildlife communities primarily to species that do not require deep interior forest or extensive, unbroken blocks of other habitat, and can thrive in habitats divided by buildings, roads, and other forms of development. Nevertheless, the degree of fragmentation is minimal, and the sizes and types of habitats present within the Project Site can support a high diversity of native wildlife, including species that are threatened, endangered, or of other significance.

### *BIRDS*

Over 200 species of birds occur in Sullivan County (Freer et al. 2008), owing to the Catskill region's large forest tracts and habitat diversity. Some are present year-round, whereas others only nest in, overwinter in, or migrate through the area. The 2000-2005 Breeding Bird Atlas documented 77 species as possible, probable, or confirmed breeders in Block 5261C, the three square mile census block in which the Project Site is located (see **Table 5-2**). Considering their habitat requirements, nearly all of these have the potential to breed within the Project Site specifically. The birds documented by the Breeding Bird Atlas that are also expected to nest within the Project Site are indicated in Table 5-2 and include those associated with moderate sized blocks of upland, deciduous and mixed coniferous-deciduous forest, old field and early successional shrubland, freshwater streams, ponds, and their associated riparian habitats, manicured areas such as golf courses, and degraded habitats around buildings and along roadsides.

Bird species that are expected to occur within the Project Site during winter include waterbirds such as mallard (*Anas platyrhynchos*) and Canada goose (*Branta Canadensis*), landbirds such as black-capped chickadee (*Poecile atricapillus*), tufted titmouse (*Baeolophus bicolor*), white-breasted nuthatch (*Sitta carolinensis*), dark-eyed junco (*Junco hyemalis*), white-throated sparrow (*Zonotrichia albicollis*), tree sparrow (*Spizella arborea*), downy woodpecker (*Picoides pubescens*), red-bellied woodpecker (*Melanerpes carolinus*), northern flicker (*Colaptes auratus*), and wild turkey (*Meleagris gallopavo*), and raptors such as red-tailed hawk (*Buteo jamaicensis*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), barred owl (*Strix varia*), great-horned owl (*Bubo virginianus*), and saw-whet owl (*Aegolius acadicus*).

Some bird species that are not expected to nest or overwinter within the Project Site may occur briefly during spring and autumn migration. Examples include Swainson's thrush (*Catharus ustulatus*), palm warbler (*Setophaga palmarum*), cerulean warbler (*Setophaga cerulea*), blackpoll warbler (*Setophaga striata*), golden-crowned kinglet (*Regulus satrapa*), and ruby-crowned kinglet (*Regulus calendula*).

Birds observed within the Project Site during October 2004 and reported by William Kenny Associates LLC and the LA Group are listed in **Table 5-3**. As was done for the Phase 1 Site, additional wildlife surveys of the development areas proposed under future phases will be conducted as part of the environmental review of future phase of the Proposed Project.



**Table 5-2**  
**Birds Documented by the 2000-2005 Breeding Bird Atlas**  
**in Block 5261C**

<b>Common name</b>	<b>Scientific name</b>
Canada Goose	<i>Branta canadensis</i>
Wood Duck	<i>Aix sponsa</i>
American Black Duck	<i>Anas rubripes</i>
Mallard	<i>Anas platyrhynchos</i>
Great Blue Heron	<i>Ardea herodias</i>
Turkey Vulture	<i>Cathartes aura</i>
Osprey*	<i>Pandion haliaetus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Killdeer	<i>Charadrius vociferus</i>
Spotted Sandpiper	<i>Actitis macularius</i>
Rock Pigeon	<i>Columba livia</i>
Mourning Dove	<i>Zenaida macroura</i>
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
Chimney Swift	<i>Chaetura pelagica</i>
Ruby-throated Hummingbird	<i>Archilochus colubris</i>
Belted Kingfisher	<i>Megaceryle alcyon</i>
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Northern Flicker	<i>Colaptes auratus</i>
Eastern Wood-Pewee	<i>Contopus virens</i>
Alder Flycatcher	<i>Empidonax alnorum</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Least Flycatcher	<i>Empidonax minimus</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
Blue-headed Vireo	<i>Vireo solitarius</i>
Warbling Vireo	<i>Vireo gilvus</i>
Red-eyed Vireo	<i>Vireo olivaceus</i>
Blue Jay	<i>Cyanocitta cristata</i>
American Crow	<i>Corvus brachyrhynchos</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Tufted Titmouse	<i>Baeolophus bicolor</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Brown Creeper	<i>Certhia americana</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>
House Wren	<i>Troglodytes aedon</i>
Eastern Bluebird	<i>Sialia sialis</i>
Hermit Thrush	<i>Catharus guttatus</i>
Wood Thrush	<i>Hylocichla mustelina</i>
American Robin	<i>Turdus migratorius</i>
Gray Catbird	<i>Dumetella carolinensis</i>
European Starling	<i>Sturnus vulgaris</i>

**Table 5-2 (cont'd)**  
**Birds Documented by the 2000-2005 Breeding Bird Atlas**  
**in Block 5261C**

<b>Common name</b>	<b>Scientific name</b>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Yellow Warbler	<i>Dendroica petechia</i>
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Black-throated Green Warbler	<i>Dendroica virens</i>
Pine Warbler	<i>Dendroica pinus</i>
Black-and-white Warbler	<i>Mniotilta varia</i>
American Redstart	<i>Setophaga ruticilla</i>
Ovenbird	<i>Seiurus aurocapilla</i>
Louisiana Waterthrush	<i>Seiurus motacilla</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Chipping Sparrow	<i>Spizella passerina</i>
Savannah Sparrow*	<i>Passerculus sandwichensis</i>
Song Sparrow	<i>Melospiza melodia</i>
Swamp Sparrow	<i>Melospiza georgiana</i>
Scarlet Tanager	<i>Piranga olivacea</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
Indigo Bunting	<i>Passerina cyanea</i>
Bobolink*	<i>Dolichonyx oryzivorus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Common Grackle	<i>Quiscalus quiscula</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Baltimore Oriole	<i>Icterus galbula</i>
Purple Finch	<i>Carpodacus purpureus</i>
House Finch	<i>Carpodacus mexicanus</i>
American Goldfinch	<i>Spinus tristis</i>
House Sparrow	<i>Passer domesticus</i>
<b>Note:</b> * Occurrence within Project Site improbable on the basis of their habitat associations, area requirements, and/or sensitivity to disturbance.	

**Table 5-3**  
**Bird Observed Within the Project Site During**  
**October 2004**

Common name	Scientific name
Great Blue Heron	<i>Ardea herodias</i>
Canada Goose	<i>Branta canadensis</i>
American Black Duck	<i>Anas rubripes</i>
Mallard Duck	<i>Anas platyrhynchos</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Wild Turkey	<i>Meleagris gallopavo</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Blue Jay	<i>Cyanocitta cristata</i>
American Crow	<i>Corvus brachyrhynchos</i>
Black-capped Chickadee	<i>Parus atricapillus</i>
Tufted Titmouse	<i>Parus bicolor</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Brown Creeper	<i>Certhia americana</i>
Hermit Thrush	<i>Catharus guttatus</i>
European Starling	<i>Sturnus vulgaris</i>
Field Sparrow	<i>Spizella pusilla</i>
Song Sparrow	<i>Melospiza melodia</i>
American Tree Sparrow	<i>Spizella arborea</i>
Dark-Eyed Junco	<i>Junco hyemalis</i>
House Finch	<i>Carpodacus mexicanus</i>
<b>Source:</b> William Kenny Associates and the LA Group as presented in the 2006 DGEIS/DEIS by Saccardi & Schiff, Inc.	

#### REPTILES AND AMPHIBIANS

The Project Site contains streams and ponds that are likely to support numerous amphibians and aquatic or semiaquatic reptiles. Of these, species that breed in aquatic habitats and then migrate to upland areas are also likely to occur in the Project Site's terrestrial habitats outside of the breeding season. The Project Site's woodlands and wetlands are potentially inhabited by several species of reptiles and amphibians associated with these habitat types. The NYSDEC Herp Atlas Project documented 13 species of reptiles and amphibians in the census block in which the Project Site is located (Monticello USGS Quadrangle) (see **Table 5-4**). Each of these species is considered to have the potential to occur within the Project Site. Numerous additional species that also may occur within the Project Site, on the basis of their distribution and habitat associations, are shown in Table 5-3. Northern red-backed salamander (*Plethodon cinereus*) and northern dusky salamander (*Desmognathus fuscus*) were recorded within the Project Site during previous wildlife surveys by William Kenny Associates and the LA Group. The caretaker of the Monster Golf Course has reported observing copperheads (*Agkistrodon contorix*) within the Project Site.

**Table 5-4**  
**Reptiles and Amphibians with the Potential to Occur Within the Project Site**

Common name	Scientific name
Jefferson salamander <sup>1</sup>	<i>Ambystoma jeffersonianum</i>
Blue-spotted salamander <sup>1</sup>	<i>Ambystoma laterale</i>
Spotted salamander <sup>2</sup>	<i>Ambystoma maculatum</i>
Eastern newt <sup>2</sup>	<i>Notophthalmus viridescens</i>
Northern dusky salamander	<i>Desmognathus fuscus</i>
Allegheney dusky salamander	<i>Desmognathus ochrophaeus</i>
Northern redback salamander	<i>Plethodon cinereus</i>
Four-toed salamander <sup>2</sup>	<i>Hemidactylium scutatum</i>
Northern two-lined salamander	<i>Eurycea bislineata</i>
Red salamander	<i>Pseudotriton ruber</i>
Eastern American toad	<i>Bufo americanus</i>
Northern spring peeper <sup>2</sup>	<i>Pseudacris crucifer</i>
Gray treefrog <sup>2</sup>	<i>Hyla versicolor</i>
Bullfrog <sup>2</sup>	<i>Rana catesbeiana</i>
Green frog <sup>2</sup>	<i>Rana clamitans</i>
Wood frog <sup>2</sup>	<i>Rana sylvatica</i>
Northern leopard frog	<i>Rana pipiens</i>
Pickeral frog <sup>2</sup>	<i>Rana palustris</i>
Five-lined skink	<i>Eumeces fasciatus</i>
Copperhead	<i>Agkistrodon contorix</i>
Northern watersnake	<i>Nerodia sipedon</i>
Northern brown snake	<i>Storeria dekayi</i>
Common garter snake	<i>Thamnophis sirtalis</i>
Eastern ribbon snake	<i>Thamnophis sauritus</i>
Redbelly snake	<i>Storeria occipitomaculata</i>
Black racer	<i>Coluber constrictor</i>
Black ratsnake	<i>Elaphe alleghaniensis</i>
Milksnake <sup>2</sup>	<i>Lampropeltis triangulum</i>
Common snapping turtle <sup>2</sup>	<i>Chelydra serpentina</i>
Painted turtle	<i>Chrysemys picta</i>
<b>Notes:</b> <sup>1</sup> NYS species of special concern; <sup>2</sup> Documented in NYNHP Herp Atlas block	
<b>Sources:</b> Klemens 1993, Mitchell et al. 2006, Gibbs et al. 2007	

**MAMMALS**

The golf course and developed areas within the Project Site likely support several species of synanthropic, generalist species of mammals that are tolerant of disturbance, such as gray squirrel (*Sciurus carolinensis*), Norway rat (*Rattus norvegicus*), house mouse (*Mus musculus*), eastern mole (*Scalopus aquaticus*), star-nosed mole (*Condylura cristata*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), woodchuck (*Marmota monax*), eastern cottontail (*Sylvilagus floridanus*), and white-tailed deer (*Odocoileus virginianus*). On the basis of their habitat associations and geographic range (Whitaker 1996, Kays and Wilson 2002), the mammals expected to occur in the Project Site's woodlands, shrublands, wetlands, and/or other native habitats include the species above, as well as: smoky shrew (*Sorex fumens*), least shrew (*Cryptotis parva*), short-tailed shrew (*Blarina brevicauda*), North American porcupine (*Erethizon dorsatum*), muskrat (*Ondatra zibethicus*), American beaver (*Castor canadensis*), northern flying squirrel (*Glaucomys sabrinus*), red squirrel

(*Tamiasciurus hudsonicus*), eastern chipmunk (*Tamias striatus*), North American deermouse (*Peromyscus maniculatus*), southern red-backed vole (*Clethrionomys gapperi*), rock vole (*Microtus chrotorrhinus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), northern myotis (*Myotis septentrionalis*), big brown bat (*Eptesicus fuscus*), bobcat (*Lynx rufus*), eastern coyote (*Canis latrans*), red fox (*Vulpes vulpes*), black bear (*Ursus americanus*), fisher (*Martes pennati*), and long-tail weasel (*Mustella frenata*).

The following mammals (or their tracks or other signs) were observed within the Project Site during autumn of 2004 and reported by William Kenny Associates and the LA Group: white-tail deer, gray squirrel, red squirrel, eastern chipmunk, eastern cottontail, river otter (*Lontra canadensis*), woodchuck, beaver, and eastern coyote. The caretaker of the Monster Golf Course has reported observing eastern coyote and fisher within the Project Site.

#### *THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES*

The USFWS list of Federally threatened, endangered, candidate, or proposed species for Sullivan County includes dwarf wedgemussel (*Alasmodonta heterodon*), northern wild monkshood (*Aconitum noveboracense*), and bog turtle (*Clemmys muhlenbergii*). NHP does not have records of any Federally or State-listed species within 0.5 miles of the Project Site (Pietrusiak 2012) (see Appendix E-1). Non-breeding bald eagles (*Haliaeetus leucocephalus*) have been recorded along an area of the Neversink River, approximately 1.3 miles east of the Project Site's eastern boundary (Sheeran 2012).

The osprey, which is a species of special concern in New York, was the only listed bird species documented by the 2000-2005 Breeding Bird Atlas in the census block in which the Project Site is located. No reptiles or amphibians documented by the Herp Atlas Project in the Monticello quadrangle are Federally or State-listed. No Federally or State-listed wildlife or plant species were observed at the Project Site during previous surveys by William Kenny Associates and the LA Group. The State-listed red-shouldered hawk (*Buteo lineatus*; special concern) was the only listed species observed during site visits by AKRF in the spring of 2012.

On the basis of their habitat associations and range within New York, the following additional State-listed wildlife species are considered to have the potential to occur within the Project Site: sharp-shinned hawk (special concern), Cooper's hawk (special concern), Jefferson salamander (special concern), and blue-spotted salamander (special concern). No Federally or State-listed mammals are expected to occur within the Project Site.

Species of special concern are native species of fish and wildlife found by the NYSDEC to be at risk of becoming threatened in New York based on the criteria for listing in section 182.4(a) of this Part and that are listed species of special concern in subdivision (c) of section 182.5 of this Part. Species of special concern do not qualify as either endangered or threatened, as defined in subdivisions (e) and (y) of this section, but have been determined by the department to require some measure of protection to ensure that the species does not become threatened. Species of special concern are listed in subdivision (c) of section 182.5 of this Part and are protected wildlife pursuant to Environmental Conservation Law section 11-0103(5)(c).<sup>1</sup>

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<sup>1</sup> NYSDEC Website: <http://www.dec.ny.gov/regs/3932.html>, visited 5/10/12.

*Bog Turtle*

The bog turtle is a Federally threatened and New York State endangered species listed by the USFWS as occurring in Sullivan County. Bog turtle was not documented by the NYSDEC Herp Atlas Project in the census block in which the Project Site is located, and the Project Site does not contain appropriate habitat for the species (open areas with cool, shallow, slow-moving water, deep soft muck soils, and tussock-forming herbaceous vegetation). The occurrence of bog turtles within the Project Site is considered improbable.

*Dwarf Wedgemussel*

The dwarf wedgemussel's distribution within New York is limited to the Neversink River (NYNHP 2011). The Neversink River flows through Sullivan County, east of the Project Site, ultimately draining to the Delaware River near the Pennsylvania and New Jersey border. The Project Site is hydrologically connected to the Neversink River by way of Kiamesha Creek and Sheldrake Stream.

*Bald Eagle*

The bald eagle was delisted from the Federal Endangered Species Act in 2007, but bald eagles and their critical habitat remain Federally protected under the Bald and Golden Eagle Protection Act. The bald eagle is listed as threatened in New York State.

Bald eagle populations in New York have grown dramatically over the past few decades (Nye 2008). There were 173 breeding pairs in the State as of 2010 (NYSDEC 2011a). Bald eagles commonly overwinter in New York as well, and typically congregate in areas with unfrozen water such as the Hudson River (Thompson et al. 2005). NYSDEC has recorded the presence of non-breeding bald eagles approximately 1.3 miles east of the Project Site along the Neversink River. No breeding or non-breeding bald eagles are known to occur elsewhere in the immediate vicinity of, or within the Project Site.

*Osprey*

The osprey is a species of special concern in New York. Populations in the State have recovered significantly in recent decades following steep range-wide declines that occurred throughout the mid-1900's (Nye 2008). Osprey was documented by the 2000-2005 Breeding Bird Atlas in the census block in which the Project Site is located, but suitable habitat for ospreys is lacking within the Project Site. Nearby Kiamesha Lake is likely too small to represent attractive breeding habitat for ospreys and levels of disturbance are likely high because the majority of the lake's shoreline is bordered by NYS Route 42 and residential development.

*Sharp-shinned Hawk*

The sharp-shinned hawk is a small, migratory raptor that is common and widely distributed across North America (Bildstein and Meyer 2000), but listed as a species of special concern in New York. Although the species was not documented during the 2000-2005 Breeding Bird Atlas in the block encompassing the Project Site, the site and surrounding landscape contain suitable breeding habitat for sharp-shinned hawks, which typically nest in dense stands of deciduous, coniferous, or mixed forests, near edges or gaps (Bildstein and Meyer 2000). Sharp-shinned hawks may also occur within the Project Site during spring and fall migration, and during winter.

*Cooper's Hawk*

Similar to the sharp-shinned hawk, the closely related Cooper's hawk is one of North America's most widespread and common raptors. Cooper's hawk populations in the eastern U.S. appear to have fully recovered from population declines experienced in the mid-1900s (Curtis et al. 2006). In New York specifically, the density and range of both breeding and overwintering Cooper's hawks have increased markedly in recent decades (Curtis et al. 2006, Hames and Lowe 2008), but the species remains listed as special concern. Cooper's hawk was not documented in the atlas block encompassing the Project Site during the 2000-2005 Breeding Bird Atlas, but the site and surrounding landscape contain deciduous and mixed forests that are generally used by the species for nesting. Cooper's hawks are relatively tolerant of fragmentation and are occasionally found nesting in small woodlots and urban habitats (DeCandido and Allen 2005, Curtis et al. 2006). During migration and winter, Cooper's hawks will utilize a variety of forest habitats, ranging from large woodland tracts to agricultural shelter belts and small parks. As such, the Project Site likely represents suitable stopover and wintering habitat for Cooper's hawks.

*Red-shouldered Hawk*

The red-shouldered hawk is regionally uncommon in many areas and listed as a species of special concern in New York. This species favors large tracts of mature (especially old growth) deciduous and mixed forest in riparian areas or flooded swamps (Dykstra et al. 2008). Breeding Bird Atlas data show a steady increase in red-shouldered hawk populations in New York since the 1980s, as reversion of farmland back to forest has likely increased habitat availability for the species (Crocoll 2008, Dykstra et al. 2008). Red-shouldered hawks now also occasionally nest in suburban areas where forest cover is less contiguous than the species was previously thought to need (Dykstra et al. 2000, 2008). Migration and wintering habitats are similar to breeding habitat preferences, although non-breeding birds occur in fragmented landscapes and open areas more frequently than they do when nesting (Dykstra et al. 2008).

Red-shouldered hawk was not documented in the Breeding Bird Atlas block in which the Project Site is located. A red-shouldered hawk was observed at the Project Site by AKRF on May 3, 2012, but it cannot be determined if this individual was a spring migrant headed towards breeding grounds elsewhere, or a locally nesting bird. The Project Site contains suitable breeding habitat for this species, particularly in lowland areas with wetlands, and red-shouldered hawks are considered to have the potential to nest within the Project Site.

*Jefferson Salamander*

The Jefferson salamander is a species of special concern in New York. Breeding occurs in early spring in ephemeral pools, semi-permanent wetlands and ponds, and outside the breeding season, Jefferson salamanders primarily inhabit upland deciduous and mixed deciduous-coniferous forests (Gibbs et al. 2007), as well as hemlock groves (Klemens 1993). Suitable breeding and non-breeding habitat for Jefferson salamanders is present, and Jefferson salamanders have the potential to occur within the Project Site.

*Blue-spotted Salamander*

The blue-spotted salamander is a species of special concern. In New York, this species is often found in areas of mixed deciduous-coniferous forest that contain small pools, forested wetland, or riparian edges of lakes and ponds that are used for breeding (Klemens 1993, Gibbs et al. 2007). They appear to be less sensitive to habitat fragmentation than Jefferson salamanders, and more commonly occur in suburban landscapes and other areas with light to moderate

development (Klemens 1993). Appropriate habitat for blue-spotted salamanders is present within the Project Site and the species has the potential to occur.

*Northern blue monkshood (Aconitum noveboracense)*

Northern blue monkshood is a flowering plant belonging to the buttercup family (Ranunculaceae). It is listed as a “threatened” species<sup>1</sup> by the USFWS. It grows in specific habitats in portions of New York State and in unglaciated areas of Iowa and Wisconsin. Northern blue monkshood is an herbaceous perennial, 1 to 4 feet in height, with blue, hood-shaped flowers. The species typically blooms between June and September. Degradation and loss of habitat are the primary threats to species survival. Fruiting occurs early August through late September.

This species favors cold microclimates provided by shaded to partially shaded cliffs, algific talus slopes (cold air slopes), or cool, headwater streamside sites. These areas have cool soil conditions, cold air drainage, or cold groundwater flowage. Tolerance to low soil phosphorous and shade may provide monkshood a competitive edge over other species at these sites. New York’s northern monkshood populations are found on shale or conglomerate sandstone of Ordovician age. The common denominator contributing most to habitat preference appears to be the cold soil environment associated with the cliff, talus slope and spring/headwater stream situations. (Read and Hale 1983) The Project Site contains shale and sandstone bedrock, but exhibits few areas of bedrock outcropping. Select bedrock outcrops and headwater streams will be examined during the flowering period in the month(s) of June and/or July to survey for this species.

**THE FUTURE WITHOUT THE PROPOSED ACTIONS AND PROPOSED PROJECT**

*VEGETATION*

In the future without the Proposed Project, existing vegetation communities are expected to continue in their current condition with those habitats at an earlier successional stage advancing slowly to a more climax forest community. Specifically, the hemlock-hardwood forest that predominates on-site would remain largely intact, whereas younger forests, dominated by birch, sugar maple, and beech would likely transition to one containing a greater percentage of mature oaks, hickories, and maples in the decades to come. The existing golf course would be maintained and actively used by golfers. With the exception of the CALP project, no projects in the vicinity of the Project Site are expected to affect the site’s habitats or vegetative communities, directly or indirectly. The CALP project will affect the vegetation of the area proposed to be disturbed by their harness horse racetrack, which is located on the Project Site.

*WILDLIFE*

Because land use and the habitat types represented within the Project Site would not change in the future without the Proposed Project, wildlife communities at the site would remain much the same as at present. Expected development within the CALP parcels (refer to Chapter 1, “Project Description,” for a description of the CALP project) near Kiamesha Lake would occur within areas that are already cleared or otherwise heavily disturbed, and thus no significant changes to wildlife in these and the adjacent areas of the Project Site would occur. Continued operation and

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<sup>1</sup> 16 U.S.C. 1531-1544



maintenance of the golf course would limit wildlife in this area to generalist species that are highly tolerant of highly altered habitats and human disturbance. The largely forested eastern half of the Project Site and its associated wetlands, streams, and ponds would continue to harbor wildlife species that have larger area requirements and are more sensitive to disturbance.

*THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES*

Because the habitat characteristics of the Project Site would remain largely unchanged in the future without the Proposed Project, each listed species known to, or with the potential to, occur within the Project Site would occur with the same likelihood as at present.

**PROBABLE IMPACTS OF THE PROPOSED ACTIONS AND PROPOSED PROJECT**

*VEGETATION*

Construction and operation of the Proposed Project would result in a loss of forested cover of the property and increase in the mowed lawn and urban structure communities. The expected changes in community acreage are summarized in **Table 5-5**.

**Table 5-5  
Disturbance to Vegetative Communities  
Comprehensive Development Plan**

Community Name	Approx. Existing Size (Ac.)	On-site Disturbance (Ac.)
Hemlock-Northern Hardwood Forest	378	201
Beech Maple Mesic Forest	314	180
Successional Northern Hardwoods	153	55
Successional Old Field	9	6
Mowed Lawn/Mowed Lawn With Trees	348	186
Pavement & Urban Structure	49	27
Rock Quarry/Successional Shrubland	5	5
Successional Shrubland	22	4
Forested Hemlock Wetlands	150	4
Forested Red Maple Wetlands	94	4
Sedge Meadow Wetlands	10	0
Lacustrine Fringe Wetlands/Pond	5	0
<b>Total</b>	<b>1,538</b>	<b>672</b>
<b>Note:</b>		
1) Totals may not add due to rounding.		
2) Habitat Disturbance total does not match the project's total footprint of disturbance of approximately 684 acres because it does not include approximately 0.5 acre of disturbance to unvegetated ponds/waters. In addition, some off-site areas which were not designated by habitat would be disturbed for Phase 1 infrastructure improvements.		

The abundance and acreage of forested communities will diminish with the Proposed Project. **Figure 5-2** shows the footprint of the overall Comprehensive Development Plan (CDP) with impacts to existing habitats. Despite the diminishment in natural habitats, the diversity of plant species present on the Project Site is expected to be maintained through the establishment of representative open space areas. In addition, approximately 214 acres of the overall disturbance for the proposed CDP would be located on areas currently disturbed with existing golf course, buildings, or other developments.

As discussed below in more detail under “Mitigation,” some revegetation will take place in those portions of the property where dilapidated structures will be razed and landscaped with native species and, as well, where only temporary construction disturbances are proposed.

### *WILDLIFE*

With the Proposed Project, the majority of the 1,538-acre Project Site would eventually be developed, leaving behind small fragments of remnant habitat. In turn, wildlife community composition, particularly in the largely forested eastern half of the Project Site, would substantially shift from mostly area-sensitive, specialist species towards generalists that are highly tolerant of disturbance and can thrive in degraded areas. The bird, reptile, amphibian, and mammal communities would likely become dominated by common, synanthropic species such as house sparrow, European starling, mourning dove, American robin, blue jay, brown snake, house mouse, gray squirrel, and raccoon. Most other species that are known or expected to presently inhabit the site (see “Existing Conditions”) would no longer occur due to the direct loss of habitat during project construction and the increased levels of human disturbance introduced to the area during project operation. These effects would extend beyond the Project Site’s boundaries into neighboring forests by creating a sharp edge and greatly increasing overall fragmentation in the surrounding landscape. Given its extensive size and embedment within relatively contiguous tracts of forest and other wildlife habitat, development of the site for the Proposed Project would possibly have measurable impacts on the size and viability of these species’ local populations and metapopulations. At a broader scale, the Proposed Project by itself would be unlikely to cause significant adverse impacts to, or jeopardize the continued existence of, these species within the County or the State. Yet, many of these species are in steep decline throughout their range primarily as a result of cumulative habitat loss at the local scale (Klemens 1993, Askins 1995, Gibbs et al. 2007). While the majority are not Federally or State-listed, and are therefore of less regulatory interest, they are of no less ecological importance.

### *THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES*

As discussed above, the following threatened, endangered, or special concern species are considered to have the potential to occur within the Project Site: sharp-shinned hawk, Cooper’s hawk, Jefferson salamander, and blue-spotted salamander. Red-shouldered hawk was observed within the Project Site during an AKRF site visit. In addition, the Federally listed dwarf wedgemussel is known to occur in the Neversink River, to which the Project Site is hydrologically connected via Kiamesha Creek. Non-breeding bald eagles have been recorded 1.3 miles east of the Project Site, along the Neversink River.

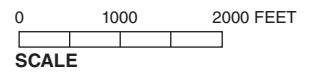
#### *Dwarf Wedgemussel*

Because Kiamesha Creek flows from the Project Site to a tributary of the Neversink River, activities within the Project Site could have the potential to indirectly affect dwarf wedgemussels occurring in the Neversink River. However, with proper measures in place to avoid degradation to Kiamesha Creek, development of the Project Site and subsequent operation will not have any adverse impacts on dwarf wedgemussels in the Neversink River. For example, use of silt fences and straw bales around all active construction areas to control erosion and sedimentation will protect water quality of Kiamesha Creek, and in turn, prevent impacts to areas downstream. A SWPPP for the Project Site will be developed in accordance with the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, and will minimize potential impacts to the water quality of Kiamesha Creek from stormwater runoff during land-disturbing



SOURCE: Adapted from 2006 DGEIS, Data from William Kenny Associates, LLC

- |  |   |
|--|---|
|  Project Site Boundary            |  Red Maple Swamp                 |
|  Northern Hardwood Forest         |  Successional Shrub              |
|  Hemlock Forest                   |  Urban/Vacant Land               |
|  Mowed Lawn/Mowed Lawn with Trees |  Quarry/Successional Scrub/Shrub |
|  Hemlock Forested Wetland         |  Successional Old Field          |
|  Maple-Beech Forest               |  Lacustine Fringe                |
|  Wet Meadow                       |  Limit of Disturbance            |





activities that will occur during site preparation activities. Stormwater best management practices implemented as part of the SWPPP will regulate the discharge rate of any stormwater entering Kiamesha Creek such that the Creek's hydrology and the hydrology of areas downstream will not be significantly altered. With these and other standard water protection measures in place, development of the Project Site will not be expected to have any impact on dwarf wedgemussels occurring in the nearby Neversink River.

#### *Bald Eagle*

Federal guidelines for minimizing disturbances to bald eagles throughout the year call for buffer areas of 330 feet to 0.5 miles (2,640 feet), depending on the type of disturbance (USFWS 2007). Buffer sizes at the lower end of the range (330 feet) recommended by USFWS (2007) apply to small-scale activities, such as tree-felling, landscaping, off-road vehicle and watercraft use, and small building construction, whereas buffer sizes at the upper end of the range (0.5 miles) apply to relatively loud sources of noise, such as helicopters and fixed-wing aircraft, and rock blasting and similar explosions. These buffer distances are consistent with and well supported by the findings of numerous published studies on bald eagle behavior. For example, McGarigal et al. (1991) found that bald eagles in Oregon and Washington were reactive to people and boats up to 1,312 feet away from their nest. Grubb et al. (1992) found that negative responses of eagles to boats, vehicles, and pedestrians faded beyond a distance of 1,640 feet in Michigan. Similarly, Grubb et al. (2002) found eagles nesting in Minnesota reacted to boats once they were within 2,625 feet. Construction of a large industrial facility in Washington located 1,509 feet from bald eagle roosting locations had no effect on their presence at the roosts or flush response (Becker 2002). Wintering bald eagles that were more than 3,280 feet away from a military base were infrequently flushed by loud explosions and helicopters compared to eagles that were closer to the base (Stalmaster and Kaiser 1997). People camping within 328 feet of bald eagle nests in Alaska caused significant, adverse changes to parental behaviors, whereas people camping 1,640 feet from nests did not (Steidl and Anthony 2000).

On the basis of these and other studies, properly distancing human activities from bald eagle nesting and foraging areas can effectively minimize disturbance. Given that the distance between the Project Site and the Neversink River, where non-breeding bald eagles have been recorded by NYSDEC, (1.3 miles) is more than double the maximum buffer size of a half mile recommended by the USFWS, construction and operation of the EPT Concord Resort is not expected to disturb bald eagles occurring in this area.

#### *Northern Blue Monkshood*

The preferred habitat of the northern blue monkshood consists of cool headwater streams and the base of talus slopes or rocky cliffs. These habitats are not abundant on-site, but potential habitat occurs in several areas of rock outcropping and headwater springs in sloped portions of the site. These areas will be examined by trained ecologists during the flowering period of the northern blue monkshood.

#### *Sharp-shinned Hawk*

As mentioned above, the largely forested Project Site may represent suitable breeding habitat for sharp-shinned hawks, although sharp-shinned hawks are far more likely to occur within the Project Site during migration and winter when they are more generalistic in their habitat selection and more common in the region. If sharp-shinned hawks occur within the Project Site, development of the Project Site would result in the conversion of the potential habitat present to

other vegetated habitat, which would support more generalist species, as well as loss to impervious surfaces and buildings. In the context of the abundance of forest cover in the surrounding landscape, development of the Project Site alone is not expected to impact sharp-shinned hawks at the population level. At a local scale, however, development of the 1,538-acre Project Site will reduce local habitat availability for sharp-shinned hawks and contribute to the effects of cumulative habitat loss ongoing throughout the species' range in New York.

*Cooper's Hawk*

Cooper's hawks prefer deep interior forest for nesting, but are increasingly utilizing small woodlots and even city parks as breeding habitats. In turn, Cooper's hawk populations in New York State have grown substantially in recent years. In Sullivan County specifically, Cooper's hawks were documented in more than four times as many Breeding Bird Atlas blocks during the 2000-2005 Atlas as they were documented during the 1980-1985 Atlas (Hames and Lowe 2008). The Project Site contains suitable nesting, wintering, and migratory stopover habitat for Cooper's hawks, and therefore, they have the potential to occur at the site at any time of year. Development of the Project Site would result in the conversion of the potential Cooper's hawk habitat within the Project Site to other vegetated habitat, which would support more generalist species, and loss to impervious surfaces and buildings. This would affect any individuals that may utilize the site during summer, winter, or migration. Given the amount of forest in the surrounding landscape, the apparent increasing tolerance of Cooper's hawks to fragmentation, and the recent County- and State-wide growth in Cooper's hawk numbers, these individual level impacts are not be expected to significantly reduce the size or viability of Cooper's hawk populations at a local, or higher, scale.

*Red-shouldered Hawk*

The Project Site likely represents suitable breeding and non-breeding habitat for the red-shouldered hawk which generally occurs in large tracts of forested wetland. Development of the Project Site would result in the conversion of habitat potentially used by the red-shouldered hawk within the Project Site to other vegetated habitat, which would support more generalist species, and loss to impervious surfaces and buildings. This would affect any individuals that may utilize the site during summer, winter, or migration. Red-shouldered hawk populations in New York have been growing steadily as forest cover has increased and the species has begun accepting smaller and more fragmented habitats (Crocoll 2008; Dykstra et al. 2000, 2008). Given the amount of forest in the surrounding landscape, the apparent increasing tolerance of red-shouldered hawks to fragmentation, and the recent growth in populations, these individual level impacts are not be expected to significantly reduce the size or viability of red-shouldered hawk populations at a local, State, or regional scale.

*Jefferson Salamander*

Jefferson salamanders are difficult to survey because individuals are under ground most of the year, and their presence at the Project Site has not been confirmed. However, Jefferson salamanders are considered to have the potential to occur within the Project Site because the site is within the species' geographic range and contains appropriate breeding and non-breeding season habitat, including deciduous and mixed coniferous-deciduous upland forests and vernal pools and wetlands (Klemens 1993, Gibbs et al. 2007). Development of the Project Site would result in the conversion of all on-site habitat that would be capable of supporting Jefferson salamanders to other vegetated and unvegetated habitats that would not support the species. Construction of the Proposed Project would likely result in direct mortality of any individuals

that happen to be present within the Project Site at the time the site is cleared. Jefferson salamanders can migrate upwards of 0.25 miles between breeding and non-breeding habitats (Faccio 2003); as such, development of the Project Site would also result in the loss of potential habitat for Jefferson salamanders that may breed in aquatic habitats in the surrounding area and then migrate to the Project Site's upland forests during the non-breeding season, or vice versa. Loss of this habitat and any individuals that may be using the Project Site during site clearing activities could impact the size and viability of any local Jefferson salamander population(s) that happen to be present on or in close proximity to the Project Site. From a broader perspective, development of the Project Site alone will be incapable of significantly reducing the abundance of Jefferson salamanders in the County or the State, but would contribute to the cumulative habitat loss and fragmentation that is threatening the persistence of the species throughout its range (Klemens 1993, Herrmann et al. 2005, Gamble et al. 2006, Mitchell et al. 2006, Gibbs et al. 2007).

#### *Blue-spotted Salamander*

Blue-spotted salamanders have not been documented within the Project Site but are considered to have strong potential to occur at the site based on the available habitat. The small ponds and freshwater wetlands in the southeastern and southwestern corners of the Project Site, in particular, may support blue-spotted salamanders. Potential impacts to blue-spotted salamanders from the Proposed Project are essentially the same as those described above for the Jefferson salamander. Following development, the Project Site would lack habitat suitable for blue-spotted salamanders during breeding or non-breeding periods. Development of the Project Site would result in the conversion of any potential on-site habitat for blue-spotted salamanders that may be present in adjacent areas or that may migrate to and from the Project Site during different phases of their life cycle (i.e., breeding and non-breeding) to other vegetated habitats or impervious surfaces and buildings. Conversion of this habitat could impact the size and viability of any local blue-spotted salamander population(s). At the County or State level, development of the Project Site alone will be incapable of significantly reducing the abundance of blue-spotted salamanders, but would contribute to the cumulative habitat loss and fragmentation that is the primary driver of population declines throughout the species' range (Klemens 1993, Herrmann et al. 2005, Gamble et al. 2006, Mitchell et al. 2006, Gibbs et al. 2007).

#### *POTENTIAL CUMULATIVE IMPACTS*

The cumulative impacts to natural resources from the Proposed Action and Proposed Project combined with the impacts related to other approved projects in the area are not expected to be significant. The vegetative communities located on this Project Site are common and exist throughout the region. Potential impacts to wildlife would generally be the same as that described above for the development of the Project Site. Although habitat for species other than disturbance-tolerant generalists would no longer be available to other species that may be present on and in the vicinity of the Project Site, comparable habitat would remain available in the surrounding landscape following the development of the Proposed Project and other approved projects in the area. Similarly, the Proposed Project, in combination with other approved projects in the area, would reduce potential habitat for some State-listed species, but similar habitat would remain abundant elsewhere within the landscape and the projects would not jeopardize the continued existence of any such species in the region.

## **MITIGATION**

Potential adverse impacts to vegetation, ecological communities, and wildlife would be minimized and offset to the fullest extent that is feasible through maintenance of buffers along Kiamesha Creek and other water features on-site, preservation of areas of open space, and revegetation and landscaping with native plant species that are relatively resistant to deer browsing but beneficial to other native wildlife. (See Sections III.A.3 and III.A.4 of the CDP for additional information on the Proposed Project's landscaping plan.) Additional measures that would be considered include the provision of large box culverts with sunlight penetration at stream and wetland crossings to facilitate the passage of amphibians and other small animals and reduce road mortality, use of low-profile curbing that does not impede movements of reptiles and amphibians across roads and other paved surfaces, and use of shielded and directional lighting to minimize ecological light pollution of wildlife habitats within and adjacent to the Project Site.

With the exception of the Phase 1 Site, this DGEIS only provides a generic assessment of the natural resources present within the Project Site and the potential impacts to those resources from subsequent phases of the CDP. Independent review and site-specific assessment will be needed for each future phase of the CDP. This assessment will be conducted as part of the site-specific environmental review that will be undertaken for each future phase of the Proposed Project, as required by SEQRA. As part of this environmental review, mitigation for potential adverse impacts that are identified as resulting from future phases of the Proposed Project will be developed. The process and criteria for identifying and mitigating potential adverse impacts to natural resources from future phases of the Proposed Project not addressed in this DGEIS will be the same as those documented and used in the site specific Phase 1 DEIS below.

## **C. SITE-SPECIFIC DEVELOPMENT OF PHASE 1 (DEIS)**

### **EXISTING CONDITIONS**

#### *VEGETATION*

Based on site-specific surveys and existing materials, the Phase 1 Site contains a subset of the overall habitat types found on the Project Site. Specifically, Phase 1 contains Hemlock-Northern Hardwood Forest, Beach-Maple Mesic Forest, Forested Hemlock Wetlands, and Forested Red Maple Wetlands. In addition, it contains Mowed Lawn with Trees consisting of the existing golf course. Approximately half of the habitat available to wildlife within the Phase 1 Site is limited to the manicured lawn, shade trees, wooded borders, and water traps of the golf course on the parcel's western side, whereas the eastern half of Phase 1 contains forested land.

The species composition of these vegetation habitats are described above for the Comprehensive Development Plan.

#### *WILDLIFE*

A subset of the wildlife species expected to occur within the entire Project Site is likely to inhabit the Phase 1 Site and associated Infrastructure Improvement Areas specifically.



**BIRDS**

Birds that commonly utilize golf courses for breeding and are expected to occur on the Phase 1 Site's western side include Canada goose, house sparrow, European starling, mourning dove, northern mockingbird, American crow, American robin, blue jay, northern flicker, downy woodpecker, red-bellied woodpecker, tree swallow, barn swallow, eastern bluebird, white-breasted nuthatch, tufted titmouse, black-capped chickadee, and house wren (scientific names given in Table 5-2). Breeding birds that are typically found in mixed hemlock forests of New York, and considered to have the potential to occur on the Phase 1 Site's eastern side (including the Infrastructure Improvement Area east of Joyland Road) include pine warbler (*Setophaga pinus*), black-throated green warbler (*Setophaga virens*), magnolia warbler (*Setophaga magnolia*), blackburnian warbler (*Setophaga fusca*), hermit thrush (*Catharus guttatus*), blue-headed vireo (*Vireo solitarius*), red-breasted nuthatch (*Sitta canadensis*), brown creeper (*Certhia americana*), Acadian flycatcher (*Empidonax vireescens*), and pine siskin (*Carduelis pinus*). At the southern extent of the Phase 1 Site's boundary, riparian habitat surrounding a freshwater pond likely supports additional breeding birds such as wood duck (*Aix sponsa*), hooded merganser (*Lophodytes cucullatus*), belted kingfisher (*Megaceryle alcyon*), red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), and warbling vireo (*Vireo gilvus*).

Most of the birds that are expected to occur in the golf course areas of the Phase 1 Site are non-migratory and likely to also occur at the site during winter. Exceptions include tree swallow, barn swallow, house wren, and American robin. Snow bunting (*Plectrophenax nivalis*) and horned lark (*Eromophila alpestris*) have the potential to occur in the golf course area during winter. The winter bird community in the mixed hemlock forest of the Phase 1 Site is likely composed of species such as golden-crowned kinglet, red-breasted nuthatch, white-throated sparrow, brown creeper, pine siskin, and saw-whet owl.

Migratory birds that do not breed or overwinter in the area but may briefly occur during migration are unlikely to utilize the golf course habitat within the Phase 1 Site as a stopover site due to the availability of more natural, higher quality habitats nearby. Migrants that may stop over in the mixed hemlock forest of the Phase 1 Site include species such as blackpoll warbler, yellow-rumped warbler (*Setophaga coronata*), ruby-crowned kinglet, olive-sided flycatcher (*Contopus cooperi*), and yellow-bellied flycatcher (*Empidonax flaviventris*).

During the March 30, 2012, wildlife survey, black-capped chickadee, brown creeper, red-breasted nuthatch, dark-eyed junco, song sparrow, tree swallow, killdeer, American robin, downy woodpecker, yellow-bellied sapsucker, pileated woodpecker, blue jay, pine siskin, and yellow-rumped warbler were observed within or immediately adjacent to the Phase 1 Site and Infrastructure Improvement Areas. Additional incidental observations made on May 3, 2012, included red-shouldered hawk, ovenbird, wood thrush and eastern phoebe. During the May 24, 2012, wildlife survey, the following birds were observed, and presumed to be nesting, within or immediately adjacent to the Phase 1 Site and Infrastructure Improvement Areas: ovenbird, common yellowthroat, black-throated green warbler, American robin, black-capped chickadee, blue jay, wood thrush, red-winged blackbird, common grackle, hairy woodpecker, yellow-bellied sapsucker, chipping sparrow, song sparrow, gray catbird, mourning dove, tree swallow, great blue heron, eastern kingbird, scarlet tanager, eastern wood pewee, red-eyed vireo, blue-headed vireo, cedar waxwing, Canada goose, blackburnian warbler, chestnut-sided warbler, yellow warbler, black and white warbler, alder flycatcher, veery, Baltimore oriole, and ruby-throated hummingbird (scientific names in Table 5-2).

*REPTILES AND AMPHIBIANS*

Herpetofauna richness within the area of the Phase 1 Site currently occupied by the golf course is likely low because aquatic habitat is limited to the manmade water traps and their connecting watercourses on the fairways. These waterbodies lack substantial emergent vegetation and vegetated margins, and are likely to have poor water quality due to the fertilizers and pesticides used to maintain the golf course. Therefore, these aquatic habitats are only expected to support generalist reptile and amphibian species that are highly tolerant of degraded conditions, such as bullfrog. Conversely, the mixed forest on the Phase 1 Site's eastern side contains a stream (that drains the pond to the south) and several vernal pools surrounded by upland forest. The forest also adjoins a freshwater pond to the south and is in proximity to various other wetland habitats throughout the greater Project Site. Reptiles and amphibians that are considered to have the potential to occur in this part of the Phase 1 Site include American toad, eastern racer, ring-neck snake, black rat snake, brown snake, redbelly snake, garter snake, ribbon snake, green frog, bull frog, wood frog, spring peeper, Jefferson salamander (NYS special concern), blue-spotted salamander (NYS special concern), four-toed salamander, and red salamander (scientific names given in Table 5-4). The Infrastructure Improvement Area west of Thomsonville Road (location of the proposed sewer line) contains a stream and pond that likely support species such as bullfrog, green frog, garter snake, ribbon snake, red-eared slider, and painted turtle.

During the March 30, 2012, wildlife survey, northern redback salamander and wood frog (egg masses) were observed within the forested section of the Phase 1 Site, and northern dusky salamander, eastern newt (eft stage), and the shell and bones of a common snapping turtle were observed immediately south of the site boundary, near the pond. During the May 24, 2012, wildlife survey, northern two-lined salamander, wood frog (adults, tadpoles, and eggs), and eastern newt (adults) were observed immediately south of the site boundary, and wood frog egg masses, green frog, and bullfrog were observed within the Phase 1 Site. Green frogs and bullfrogs were observed in or near the water features on the golf course fairways, and in the vicinity of the proposed sewer line west of Thomsonville Road. On June 7, 2012, a painted turtle was observed incidentally along Thomsonville Road where the proposed sewer line would cross. Incidental observations of American toad and black racer were made near the pond, adjacent to the southern site boundary during a May 29, 2012 site visit.

*MAMMALS*

As mentioned above, the mammals expected to occur on the golf course sections of the Phase 1 Site include gray squirrel, house mouse, eastern mole, star-nosed mole, raccoon, striped skunk, Virginia opossum, woodchuck, muskrat, eastern cottontail, and white-tail deer. Red fox and eastern coyote may also occur on the fairways or along their wooded borders. The mammal community in forested section of the Phase 1 Site and adjacent freshwater pond potentially includes smoky shrew, least shrew, short-tailed shrew, North American porcupine, muskrat, American beaver, northern flying squirrel, red squirrel, eastern chipmunk, North American deer mouse, southern red-backed vole, rock vole, eastern red bat, hoary bat, silver-haired bat, northern myotis, big brown bat, bobcat, eastern coyote, red fox, black bear, fisher, and long-tail weasel. Red squirrel and gray squirrel were the only mammals observed within the Phase 1 Site during the March 30, 2012 wildlife survey. Signs of American beaver (felled trees and stumps) and North American porcupine (scat and tree damage) were observed in the area of the freshwater pond adjacent to the Phase 1 Site's southern boundary. During the May 24, 2012, wildlife survey, mammals observed within the site included white-tailed deer, gray squirrel, red squirrel, and woodchuck.

*THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES*

Of the Federally or State-listed species with the potential to occur within the greater Project Site, sharp-shinned hawk (special concern), Cooper's hawk (special concern), red-shouldered hawk (special concern), Jefferson salamander (special concern), and blue-spotted salamander (special concern) may occur within the Phase 1 Site specifically. The golf course fairways on the Phase 1 Site's western side do not represent suitable habitat for these species, whereas the mixed forest on the site's eastern side could potentially support these birds and amphibians given its connectivity with the surrounding forested landscape, and its vernal pools and freshwater wetlands.

None of these species were observed during the March 30 or May 24, 2012, field surveys, but detection probability was likely low. Jefferson and blue-spotted salamanders remain well below ground for the majority of the year and are usually only observable above ground during spring evenings with light rain when adults migrate to breeding pools. Although the March 30, 2012, wildlife survey extended into the twilight hours and occurred during the time of year when these salamanders typically migrate, there was no precipitation that evening. Sharp-shinned hawks and Cooper's hawks are secretive forest birds that are also difficult to observe outside of the migration period. On May 3, 2012, a red-shouldered hawk was observed by AKRF on the northern edge of the Phase 1 Site, along Thompsonville Road, within the trees in the wetlands along Kiamesha Creek.

**THE FUTURE WITHOUT THE DEVELOPMENT OF PHASE 1**

*VEGETATION*

Vegetation communities within the Phase 1 development area will remain largely unchanged in the future without the Phase 1 development. The beech-maple forest would transition to a more mature, climax forest with a greater percentage of oaks, maples and fewer birch and beech. Or it may transition through the process of natural succession to an eastern hemlock dominated forest, which is the climax forest most prevalent on the Project Site. No projects in the vicinity of the Project Site are expected to affect the vegetation or habitats of the Phase 1 development area.

*WILDLIFE*

Similar to the greater Project Site, wildlife within the Phase 1 Site will be expected to be the same as at present in the future without Phase 1. The golf course on the site's western side will continue to provide habitat for disturbance-tolerant generalists while the mixed forest and adjacent pond on the site's eastern side is expected to continue to represent suitable habitat for more sensitive, specialist species, including pond-breeding reptiles and amphibians.

*THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES*

Wildlife habitat within the Phase 1 Site is not expected to change in the future without Phase 1. Therefore, any listed species currently with the potential to occur within the Phase 1 Site will occur with the same likelihood in the future without the Phase 1.

**PROBABLE IMPACTS OF THE DEVELOPMENT OF PHASE 1**

The Phase 1 Site is anticipated to be developed with a casino, hotel, harness horse racetrack, parking, and related facilities. As shown in **Table 5-6**, this would require the conversion of 52

acres of upland forest habitat to buildings, pavement, and adjacent graded areas. Approximately 45 acres of existing golf course would be disturbed. In addition, approximately 4.5 acres of forested hemlock and forested red maple wetlands would be disturbed to facilitate construction of the harness horse racetrack. Infrastructure improvements east of Joyland Road would require disturbance of approximately 1 acre of mixed forest for the water storage facility and approximately 0.5 acres of mixed forest to establish the access road. Installation of the sewer line west of Thomsonville Road would require a 20-foot-wide corridor of disturbance to trench the line from Thomsonville Road to the stream crossing behind the wastewater treatment facility. The trench would be approximately 10 feet wide and require an additional 10 feet of vegetation clearing north of the trench for construction equipment access. The line would be directionally bored under the stream, and then trenched the remainder of the distance to the treatment facility.

**Table 5-6  
Disturbance to Vegetative Communities  
Phase 1**

Community Name	Existing Size (Ac.)	Approximate Disturbance (Ac.)
Hemlock-Northern Hardwood Forest	45	37
Beech Maple Mesic Forest	15	15
Forested Hemlock Wetlands	3	3
Forested Red Maple Wetlands	6	1.5
Mowed Lawn with Trees & Residential Structures	55	45
<b>Total</b>	<b>124</b>	<b>101</b>
<p><b>Note:</b> Vegetated Habitat Disturbance total does not match the Phase 1 footprint of disturbance of 125 acres because it does not include the two existing ponds (water features for the golf course) that are on the Phase 1 Site.</p>		

In addition, disturbance to construct the infrastructure necessary to support Phase 1, both on- and off-site, will occur. Approximately 31 acres will be disturbed to allow for the installation of water and wastewater lines and construction of roadway improvements. Approximately 15 of those acres are forested, 2 acres are golf course, 2 acres are vacant land, and roughly 1.5 acres is wetland. An additional 10 acres of disturbance is located off-site and the habitat communities of those areas have not been surveyed, though they are expected to be similar in composition to the on-site areas described above.

**WILDLIFE**

Phase 1 of the Proposed Project would entail altering the majority of the roughly 125-acre Phase 1 Site to build a casino and parking lot, and small areas of land disturbance adjacent to the site for infrastructure improvements. As detailed in Table 5-6, a mix of different existing habitat types would be cleared and built upon, including upland forest, wetlands, and manicured lawn with trees (i.e., golf course fairway). As described above, the latter represents poor quality wildlife habitat that only supports primarily generalist species such as American robin, blue jay, and gray squirrel. These extremely abundant and ubiquitous species would be unlikely to experience significant adverse impacts from the construction or operation of Phase 1 of the Proposed Project. Some species and individuals would likely be displaced by the site, but would easily find suitable alternative habitat elsewhere on the golf course or in other human-modified areas nearby. The most disturbance-tolerant species, such as house sparrow, are expected to

continue to occur within the Phase 1 Project Site following construction, and may actually increase in abundance.

Clearing the mixed forest on the Phase 1 Site's eastern side would result in the loss of potential habitat for the above-described wildlife species that are known or expected to occur in this area. The footprint of the impacts would extend beyond the site's actual limit of disturbance, and into the wildlife habitat to the south and east. The size of the forest that will remain south of the Phase 1 Site's boundaries will likely be too small to continue supporting woodland species currently known or expected to occur in the area such as Cooper's hawk, black-throated green warbler, Canada warbler, blue-headed vireo, Acadian flycatcher, wood frog, red squirrel, North American porcupine, northern myotis, and big brown bat. Wildlife species composition closest to the Phase 1 Site's boundaries are expected to gradually shift towards species that are associated with forest edges and are tolerant of human disturbance, including nest predators (e.g., blue jays) and brood parasites (brown-headed cowbirds) that would gain increased access to the interior and likely reduce the reproductive success of any forest birds that attempt to continue nesting in the area. Construction and operation of Phase 1 would have adverse impacts on the biotic integrity of wildlife communities and impact wildlife at the individual level, but given the small size of the area to be affected and the quantity of comparable habitat that will remain elsewhere within the Project Site and surrounding landscape, no significant impacts to wildlife at the population level are expected to occur.

The limit of disturbance for the Phase 1 Site would nearly reach the northern edge of the freshwater pond to the south, leaving a 100-foot buffer between the wetland and parcel boundaries. Clearing the forest on the Phase 1 Site up to within 100 feet of the pond will compromise the ability of the pond to support the same assemblages of wildlife species as at present. The pond will be more vulnerable to invasive species colonization and is expected to receive markedly increased levels of anthropogenic noise and artificial light during operation of Phase 1. Degradation of this habitat has the potential to displace some wildlife species from the pond area, such as American beaver, warbling vireo, Jefferson salamander, and blue-spotted salamander.

Clearing the forested sections within the Phase 1 Site would substantially reduce the amount of habitat available to any pond-breeding reptiles and amphibians that potentially migrate to upland forest on the Phase 1 Site during the non-breeding season. Upland habitat adjoining the pond would become limited to the areas to the south and west; the buffer maintained on the northern perimeter of the pond would be of inadequate depth to provide upland habitat for these species which migrate hundreds to thousands of feet from their breeding site (Faccio 2003, Gamble et al. 2006, Harper et al. 2008). Improving Joyland Road to a 120-foot-wide primary access road and establishing a parallel access road to the water storage area would further isolate this pond from the pond, forested wetland, and upland forest that are present to the east. Reptiles or amphibians attempting to cross the expanded Joyland Road would be at increased risk of mortality during project operation due to the significant increase in its width and traffic flow (see Mitigation below). With the clearing of the Phase 1 Site to the north and substantial widening of Joyland Road to the east, the pond will only remain connected to upland habitat on two of its four sides, which would reduce its accessibility and viability as amphibian breeding habitat (Calhoun et al. 2005). Each of these potential adverse impacts to pond wildlife would occur at the individual level; such impacts are not expected to be capable of significantly affecting local or State populations of these or other species that may presently inhabit the area. Similar freshwater habitats are present elsewhere in the Project Site and surrounding landscape. Cumulatively, however, impacts to the pond from Phase 1 would contribute to the ongoing effects of breeding

habitat loss and road mortality on pond-breeding amphibian and reptile declines throughout New York State and elsewhere in the northeast (Klemens 1993, Calhoun and Klemens 2005, Mitchell et al. 2006).

Trenching the sewer line west of Thomsonville Road would require widening the existing dirt road that extends from the access gate on Thomsonville Road towards the rear of the water treatment facility by approximately 10 feet. The majority of the length of this dirt road is not located on the Project Site; rather it is located on land owned by the Town of Thompson. With the exception of the existing dirt road, this area is densely vegetated with blueberry and other woody shrubs, and inhabited by wildlife species associated with early successional habitats, such as gray catbird, common yellowthroat, chestnut-sided warbler, and yellow warbler. During construction, some wildlife presently inhabiting the area may be displaced by the increased levels of human activity. This would impact those individuals by requiring them to find alternative habitat elsewhere, but any such displacement would be temporary and unlikely to significantly impact these species. Widening of the existing dirt road would represent a temporary and negligible loss of habitat that would not be expected to have significant impacts to individuals or populations. Revegetation of the area to facilitate its return to the present State would be considered.

Operation of Phase 1 Project would introduce new sources of artificial light to the area. Change to natural light regimes caused by artificial lighting is known as ecological light pollution. Ecological light pollution can imbalance the circadian rhythms of wildlife species, which often manifests in altered feeding patterns, predator-prey interactions, communication, orientation and navigation ability, and reproductive cycles. The ultimate effects that these observed changes to individuals have at the population level are poorly understood (Longcore and Rich 2004).

Light pollution affects a variety of taxa, from birds and mammals to insects. In birds, artificial lighting can induce singing outside of normal time periods (e.g., Miller 2006). Nocturnally migrating birds can be disoriented by strong directional lights, such as those on lighthouses and extensive sky glow over major cities (Gauthreaux and Besler 2004). In some mammals, such as rodents, rabbits, and hares, artificial lighting may inhibit nighttime foraging and increase vulnerability to predation (Gilbert and Boutin 1991, Lima 1998). Amphibians, such as frogs, are often attracted to artificial light (Longcore and Rich 2004), which may lead them away from appropriate habitats and into areas where they experience heightened mortality. Artificial lighting may also alter frog foraging behavior (Hailman 1984). Insects attracted to artificial light are impacted by the increased exposure to foraging bats and birds (Longcore and Rich 2004).

Because development of Phase 1 would cause potential habitat on the Phase 1 Site for species other than the disturbance-tolerant generalists discussed above to be converted to other types of habitats, lighting will not have significant impacts to wildlife occurring within the Phase 1 Site. Spillage of light from the Phase 1 Site into adjacent woodland and wetland habitats may potentially affect wildlife occurring in these areas. Use of directional and shielded lighting will minimize spill beyond the Phase 1 Site and avoid sky glow, and thereby reduce the potential for alterations to the behaviors of wildlife in the neighboring areas. The most likely biological consequence of directional and shielded nighttime lighting at the Phase 1 Site will be an attraction of insects to the lights and an exploitation of this food source by bats and insectivorous nocturnal birds. Additionally, frogs occurring in wetlands and pond south of the Phase 1 Site and in the pond to the west of Joyland Road may broadcast mating calls less frequently when artificial lights are in use at the Phase 1 Site (Baker and Richardson 2006), but what effect this may have on their pairing success has yet to be studied (Wise 2007).

*THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES*

Sharp-shinned hawk (special concern), Cooper's hawk (special concern), Jefferson salamander (special concern), and blue-spotted salamander (special concern) are considered to have the potential to occur within the Phase 1 Site, but their presence at the site or elsewhere within the greater Project Site has not been confirmed. Red-shouldered hawk was observed on the northern boundary of the Phase 1 Site on May 3, 2012. Non-breeding bald eagles have been recorded approximately one mile east of the Phase 1 Site, along the Neversink River.

Northern blue monkshood requires talus slopes and cool headwater streams – these habitats do not occur within the Phase 1 development area.

*Bald Eagle*

As discussed above for the Project Site, the distance between the Phase 1 Site and the Neversink River, where non-breeding bald eagles have been recorded by NYSDEC, is more than double the maximum buffer size of a half mile recommended by the USFWS. As such, construction and operation of the Phase 1 project is not be expected to disturb bald eagles occurring in this area.

*Sharp-shinned Hawk*

The mixed forest fragment on the eastern half of the Phase 1 Site may provide suitable nesting habitat for sharp-shinned hawks because it is nearly contiguous forest that extends well north and east of the site. The Phase 1 Site also represents suitable wintering and migration stopover habitat for sharp-shinned hawks, and they are most likely to occur within the Phase 1 Site during these times of year.

Development of the Phase 1 Site would cause potential sharp-shinned hawk habitat on the parcel to be unavailable to any individual(s) of this species that may utilize the area and fragment the relatively contiguous tract of forest that currently extends from NYS Route 17 to Pleasure Lake. The widening of Joyland Road, and the increased traffic and overall levels of human disturbance that will be generated during operation of Phase 1 may also reduce habitat suitability for sharp-shinned hawks in the forested area east of Joyland Road. This direct loss of habitat and potential displacement of sharp-shinned hawks from the forest edge along Joyland Road is not expected to have any significant adverse impacts on sharp-shinned hawks at the individual or population levels, given the small size of the disturbance area relative to the amount of suitable habitat that will remain available elsewhere within the greater Project Site and surrounding landscape. Cumulatively, development of the Phase 1 Site will contribute to local-scale habitat loss and fragmentation. The loss and alteration of habitat at this site in combination with similar impacts resulting from other development projects has the potential to result in a decline in sharp-shinned hawk abundance in New York and elsewhere in its range (Bildstein and Meyer 2000).

*Cooper's Hawk*

The mixed forest fragment on the eastern half of the Phase 1 Site represents suitable nesting, migration, and wintering habitat for Cooper's hawks. Development of the Phase 1 Site would remove all Cooper's hawk habitat within the Phase 1 Site. As a species that prefers interior forest, the widening of Joyland Road and the increased levels of human disturbance generated during project operation would reduce any potential Cooper's hawk habitat east of Joyland Road as well. However, suitable habitat for nesting, wintering, or migrating Cooper's hawks will remain abundant elsewhere on the Project Site and surrounding landscape, such that development of the Phase 1 Site is not expected to have significant adverse impacts on the size or viability of local Cooper's hawk populations.

*Red-shouldered Hawk*

The mixed forest fragment on the eastern half of the Phase 1 Site may provide suitable breeding and non-breeding habitat for red-shouldered hawks because it is nearly contiguous forest that extends well north and east of the site, and contains areas of wetland. Development of the Phase 1 Site would result in the loss any potential red-shouldered hawk habitat on the parcel that may be used by an individual(s) of this species and fragment the relatively contiguous tract of forest that currently extends from NYS Route 17 to Pleasure Lake. The widening of Joyland Road, and the increased traffic and overall levels of human disturbance that will result during operation of the Phase 1 project may also reduce habitat suitability for red-shouldered hawks in the forested area east of Joyland Road. This direct loss of habitat and potential displacement of red-shouldered hawks from the forest edge along Joyland Road is not expected to have any significant adverse impacts on the species at the individual or population levels, given the small size of the disturbance area relative to the amount of suitable habitat that will remain available elsewhere within the greater Project Site and surrounding landscape. Cumulatively, development of the Phase 1 Site and other approved projects will contribute to local-scale deforestation that may cause declines in red-shouldered hawk abundance in New York and elsewhere in its range.

*Jefferson and Blue-Spotted Salamanders*

As discussed above, development of the Phase 1 Site would cause the disturbance of all potential Jefferson and blue-spotted salamander habitat that may be present within the site. Development of the Phase 1 Site may also reduce the potential for the adjacent pond to support pond-breeding amphibians that require upland habitat during the non-breeding season, including Jefferson and blue-spotted salamanders. The 100-foot buffer that will be maintained between the limit of disturbance and the pond's northern boundary would be insufficient to meet the upland habitat requirements of non-breeding adults or juveniles emigrating from their natal pool (Faccio 2003, Herrman et al. 2005). The widening of Joyland Road would further disconnect and isolate the pond from the large forest tract extending to the east, leaving upland, non-breeding habitat available to salamanders in only two directions from the pond (south and west). The size of the existing upland forest in these two directions may already be insufficient for migrating Jefferson and blue-spotted salamanders due to the boundary with Route 17 to the south and transition to non-forested, open wetland to the west. The loss of the Phase 1 Site's vernal pools and associated upland forest as potential Jefferson and blue-spotted salamander habitat would impact any individuals that may be present in the area unless they can successfully locate and occupy alternative habitat elsewhere. At the population level, development of the Phase 1 Site is unlikely to have significant adverse impacts to either salamander species, but would contribute to the cumulative impacts of habitat loss and fragmentation on their populations in New York and throughout their range (Klemens 1993, Faccio 2003, Calhoun et al. 2005).

**MITIGATION**

While not significant, potential adverse impacts to vegetation, ecological communities, and wildlife from Phase 1 will be minimized and offset to the fullest extent feasible. Green spaces within the limit of disturbance will be vegetated with native plant species that are relatively resistant to deer browsing but beneficial to other native wildlife. Large box culverts with sunlight penetration are anticipated to be provided under Joyland Road to help reduce road mortality of amphibians and other small wildlife, and increase connectivity of habitat on eastern and western sides of the road. Low-profile curbing is anticipated to also be used to avoid



impediment of reptile and amphibian movements. Directional and shielded lighting are anticipated to be used to minimize spillage from the Phase 1 Site into neighboring habitats.

With the implementation of the measures noted above, the potential cumulative impacts on the natural resources on or in the vicinity of the Project Site resulting from the development of the Proposed Project in conjunction with those associated with other approved projects in the area are not expected to be significant.

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