United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, NY 13045

December 14, 2017

Ms. Rosita Miranda
Chief, Western Permits Section
New York District, Corps of Engineers
Jacob K. Javits Federal Building
New York, NY 10278-0090

Attn: Brian Orzel, Regulatory Branch, Western Permits Region

Dear Ms. Miranda:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (Opinion) based on our review of the proposed LEGOLAND New York project (LEGOLAND) and its effects on the federally listed endangered Indiana bat (*Myotis sodalis*) in accordance with section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544, 87 Stat. 884), as amended. Your November 30, 2017, request for formal consultation was received on November 30, 3017. We understand that you have requested that we complete this consultation in an expedited manner with a suggested date of December 31, 2017.

This Opinion is based on information provided in the November 28, 2017, biological assessment (BA), telephone conversations, field investigations, and other sources of information. The consultation history is located in Appendix A. A complete administrative record of this consultation is on file in this office.

The BA included a request for Service concurrence with a "not likely to adversely affect" determination(s) for certain listed resources. The U.S. Army Corps of Engineers (Corps) determined the proposed action is not likely to adversely affect the federally listed threatened northern long-eared bat (*Myotis septentrionalis*) because this species is not anticipated to occur at the project within the summer and impacts from the loss of potential spring staging or fall swarming habitat are not anticipated. We concur with your determination.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

As defined in the ESA section 7 regulations (50 CFR 402.02), "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas." The "action area" is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action."

The following is a summary of the proposed action and a detailed description can be found in the BA.

Merlin Entertainments (Applicant) proposes to construct a theme park and resort on approximately 150 acres of a 514.29-acre site. The project is generally located south of NYS Route 17, at exit 125, on the east side of the Town of Goshen, Orange County, New York (Figure 1). The project has street frontage on Harriman Drive and extends south of Conklingtown Road and as far east as Arcadia Road. The project consists of 14 total tax parcels consisting of 514.29 acres. As part of the project, the 14 parcels will be merged into a single lot under common ownership (with the exception of a 1-acre lot retained for the existing communications tower).

The project will include rides and attractions, an aquarium, theaters, restaurants, a hotel and various back-of house facilities including offices and staff areas as well as associated parking and drainage facilities. The Applicant will own and operate the site. The main access to the project will be from Harriman Drive. Vehicles will enter at one main gate and circulate south to the main parking area. The project will receive public water and sewer services from the Village of Goshen. Sewer and water mains are accessible from Harriman Drive.

The project includes 97 acres of tree removal which is planned to begin in December 2017 and will be completed by March 31, 2018. Prior to tree clearing, the site will be surveyed and marked. Immediately following tree clearing, site grading will occur. Once the land preparation is completed, construction of roadways, parking lots, stormwater management facilities, and buildings will begin. Exterior site improvements are expected to continue from February 2018 through the spring, summer, and fall of 2018. Simultaneously, as grading and stormwater facilities are being completed, work on the buildings, both exterior and interior, and work on the theme park will be occurring. All construction activities are expected to continue throughout 2018 and 2019 in anticipation of completion and park opening in Spring of 2020.

During the LEGOLAND use season, based on information generated from similar sized parks, between 1.5 and 2.5 million annual visitors are anticipated to visit the site. The trip generation for LEGOLAND varies widely depending on day of week. The peak daily traffic generation studied under SEQR is in the order of 4,500 to 5,000 entering vehicles over the course of the day. The proposed parking area and vehicle circulation has been designed to accommodate these

vehicles. Separate parking areas are provided for employees and hotel guests and shuttles are to be implemented from various local hotels to reduce the overall number of vehicle trips from the maximum peak.

Pursuant to section 404 of the Clean Water Act, the Applicant is applying to the Corps for a Nationwide Permit 39 to disturb 0.44-acres of forested wetlands and streams to construct multiple minor crossings of wetlands and streams to provide access to the various facilities and emergency access to the project. Table 1 includes a summary of project activities.

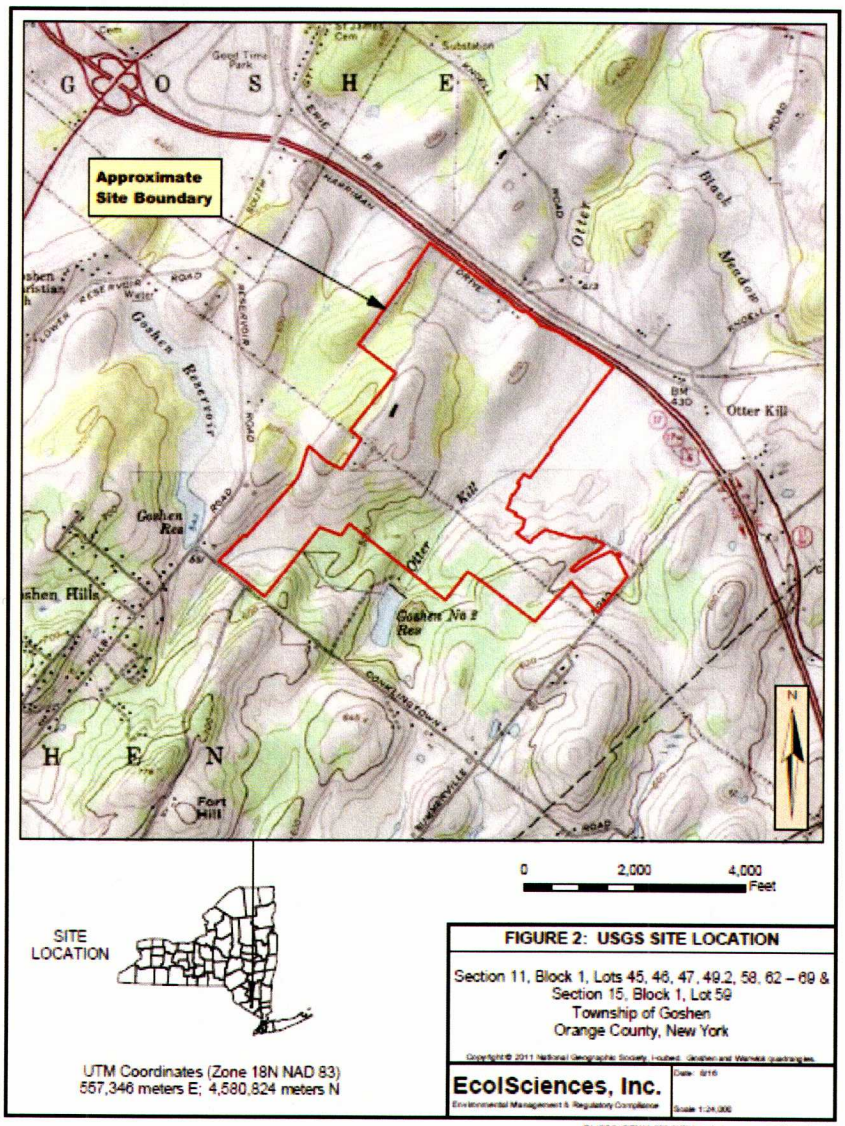

Figure 1. LEGOLAND New York location (BA Figure 2).

Table 1. Summary of Project Activities.

Type of Activity	Project Activity	Impact Potential
Site Preparation	Perform pre-construction civil surveys to identify locations of existing site features for use in final construction activities	None
	Mark areas for tree clearing vs. not	None
	Install erosion and sediment control measures	None
	Mobilization of equipment and materials to general support area	None
	Tree clearing	Yes – See Appendix B
	Grading, herbaceous vegetation removal	Yes – See Appendix B
Construction	Lighting	Yes – See Appendix B
	0.44 acres of wetland/stream crossing	Yes – See Appendix B
	Exterior work (buildings, roads, parking)	Yes – See Appendix B
	Interior work	None
Restoration	Noise	Yes – See Appendix B
	Replanting of trees	Yes – See Appendix B
Operations	Decrease in open flight space	None
	Lighting	Yes – See Appendix B
	Noise from rides, fireworks, etc.	Yes – See Appendix B
Bat Monitoring	Acoustic surveys	None

Conservation Measures

During the construction phase of the project, all tree removal necessary for the development of the entire project will be completed during 2017-2018 and will be conducted between December 2017 and March 31, 2018. No additional tree clearing is proposed during the remainder of the project construction period, estimated to be completed by 2020.

Within the tree clearing areas, clearly marked (bright flagging/fencing) has been/is being installed to mark those areas that are not to be disturbed. Markings will remain until all exterior construction activities are completed and then will be removed.

The Applicant has proposed to permanently preserve 150 acres (including 123 acres of forested uplands and wetlands, with the remaining areas including upland successional fields, and scrub-

shrub, and emergent wetlands) of the project site via a conservation easement to be held by the Town of Goshen. The conservation easement areas proposed along the perimeters of the development are anticipated to ameliorate noise and light pollution from the development to areas beyond the LEGOLAND site itself (Figure 2). The conservation easement focuses on protecting the remaining on-site wetlands, adjacent upland areas, and stream corridors (all of which provide potential bat foraging habitat and some roosting habitat) while also providing greenway corridors that traverse the site.

Areas disturbed during construction for grading, but not facility development, will be heavily re-landscaped with some of the more than 5,000 trees to be planted on the site. The planting plan includes approximately 40 different species of tree to be planted and more than 2,000 of the proposed trees will be mature – planted at 20 feet tall or higher. The plan also incorporates high quality native species and potential bat roost trees for supplemental planting throughout the development site. These trees include shagbark hickory, red maple, white oak, and pin oak (see Attachment B of BA).

The replanting plan will serve to restore approximately 9± acres of the 97-acre cleared forest, remove an historic drive and restore that area with natural vegetation, and increase native tree diversity and density within portions of the wetland buffer areas. Additional tree plantings are also incorporated into the site design to provide vegetative buffers along internal roads, outdoor venues, buildings, and parking lots to ameliorate both vehicular noise and artificial lights. The restored areas will provide additional bat habitat following construction and provide a visual buffer for the bats from the developed areas.

Upon completion of all external construction activity, and during the bat active season, the project sponsor will conduct an acoustic survey of the woodlands located within the conservation easement areas to determine bat activity on the site following development.

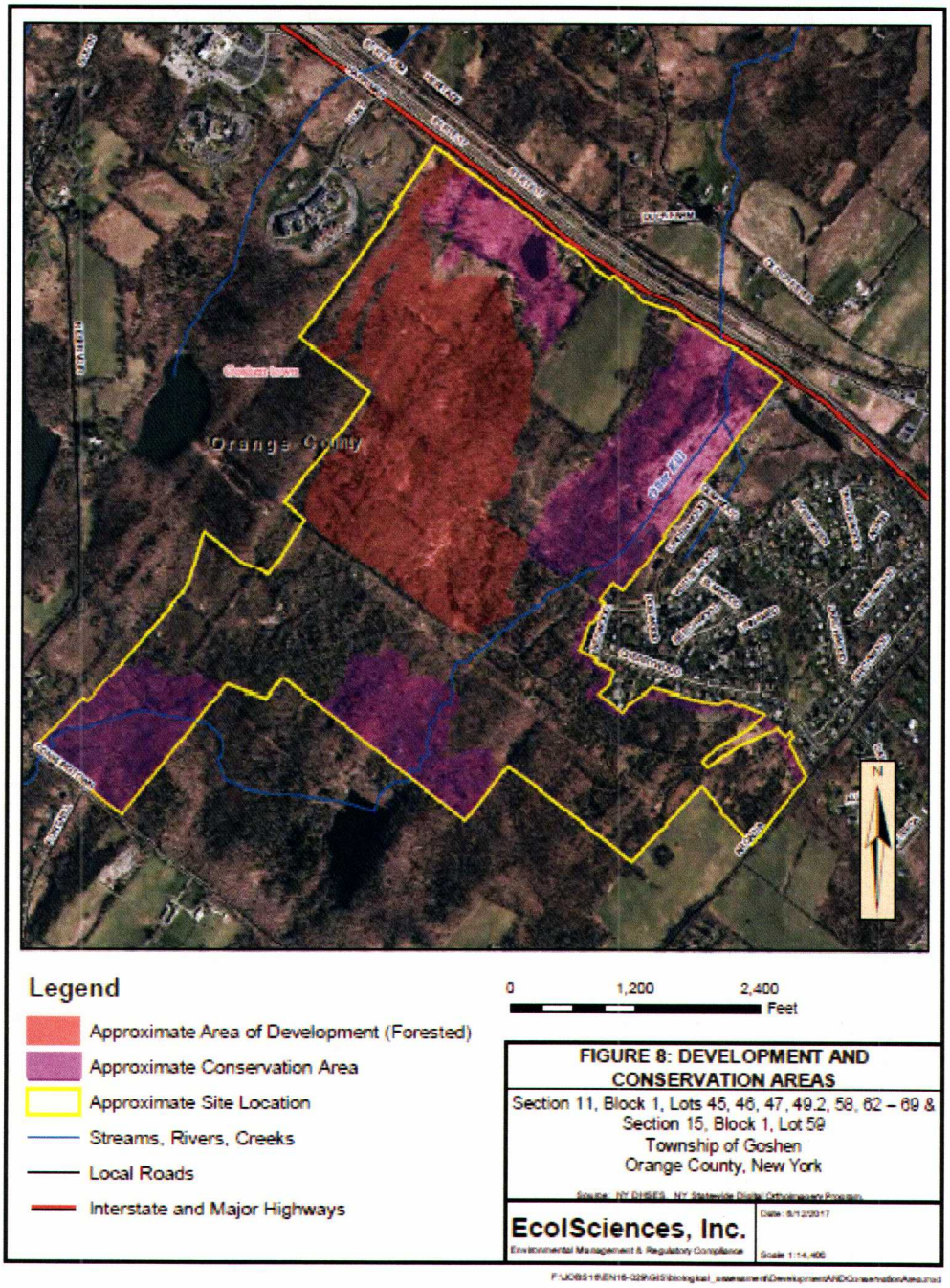

Figure 2. Development and conservation areas (BA Figure 8).

ACTION AREA

The action area is defined at (50 CFR 402.02) as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The Service reviewed the BA and agrees with the description of the action area. The Service has determined that the action area for this project is entirely contained within the project boundary described in Description of Proposed Action as no impacts outside of the project boundary are anticipated.

STATUS OF THE SPECIES

Per the ESA section 7 regulations (50 CFR 402.14(g)(2)), it is the Service's responsibility to "evaluate the current status of the listed species or critical habitat."

The Indiana bat was one of 78 species first listed as being in danger of extinction under the Endangered Species Preservation Act of 1966 (32 FR 4001, March 11, 1967). The ESA extended full protection to the species.

The Indiana bat is a temperate, insectivorous, migratory bat that hibernates in mines and caves in the winter and spends summers in wooded areas. The key stages in their annual cycle are: hibernation, spring staging and migration, pregnancy, lactation, volancy/weaning, fall migration, and swarming. While varying with weather and latitude, Indiana bats generally hibernate between mid-fall through mid-spring each year. Spring migration likely runs from mid-March to mid-May each year, as females depart shortly after emerging from hibernation and are pregnant when they reach their summer area. Young are born between late May or early June, with nursing continuing until weaning, which is shortly after young become volant in mid- to late-July. Fall migration typically occurs between mid-August and mid-October.

The basic resource needs for the Indiana bat across the species entire range are safe winter hibernation sites; forested spring staging/fall swarming habitat; connected forested summer habitat for roosting, foraging, and commuting; forested migratory stopover habitat; safe migration passage; insects; and clean drinking water (e.g., streams, riparian areas, and wetlands).

To assess the current status of the species, it is helpful to understand the species' conservation needs which are generally described in terms of reproduction, numbers, and distribution (RND). The Service frequently characterizes RND for a given species via the conservation principles of resiliency (ability of species/populations to withstand stochastic events which is measured in metrics such as numbers, growth rates), redundancy (ability of a species to withstand catastrophic events which is measured in metrics such as number of populations and their distribution), and representation (variation/ability of a species to adapt to changing conditions which may include behavioral, morphological, genetics or other variation) (collectively known as the three Rs).

Conservation and recovery of the Indiana bat will require capturing the species' ecological, behavioral, and genetic representation and providing redundancy and resiliency at the species level by conserving healthy bat populations across the species' current range, and managing threats acting upon the species. To do this, our current focus addresses the following conservation needs:

- Managing the effects of white-nose syndrome (WNS);
- Conserving and managing winter colonies, hibernacula, and surrounding swarming habitat;
- Conserving and managing maternity colonies and their habitat; and
- Conserving migrating bats.

The revised recovery plan (Service 2007) delineates recovery units (RUs) based on population discreteness, differences in population trends, and broad level differences in land use and macrohabitats: Ozark-Central, Midwest, Appalachian, and Northeast (Figure 3). To help maintain adaptive capacity for the species (representation), multiple (redundant) healthy (resilient) populations should occur in all four RUs.

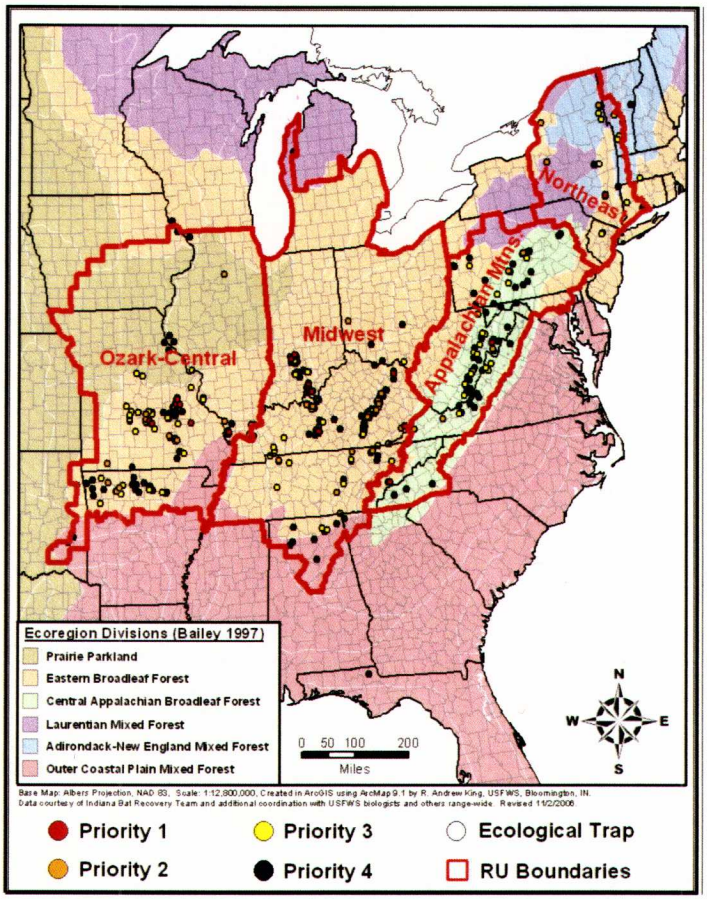

Figure 3. Indiana bat recovery units. Hibernacula located outside of the Recovery Unit boundaries have not had an Indiana bat record for over 50 years. (Service 2007).

Currently, the range-wide status of the species is declining (Figure 4, Service 2017) with significant declines in the Northeast, Appalachia, and Midwest RUs. For example, the Northeast RU has declined from its peak of 53,763 Indiana bats in 2007 to 12,839 Indiana bats in 2017.

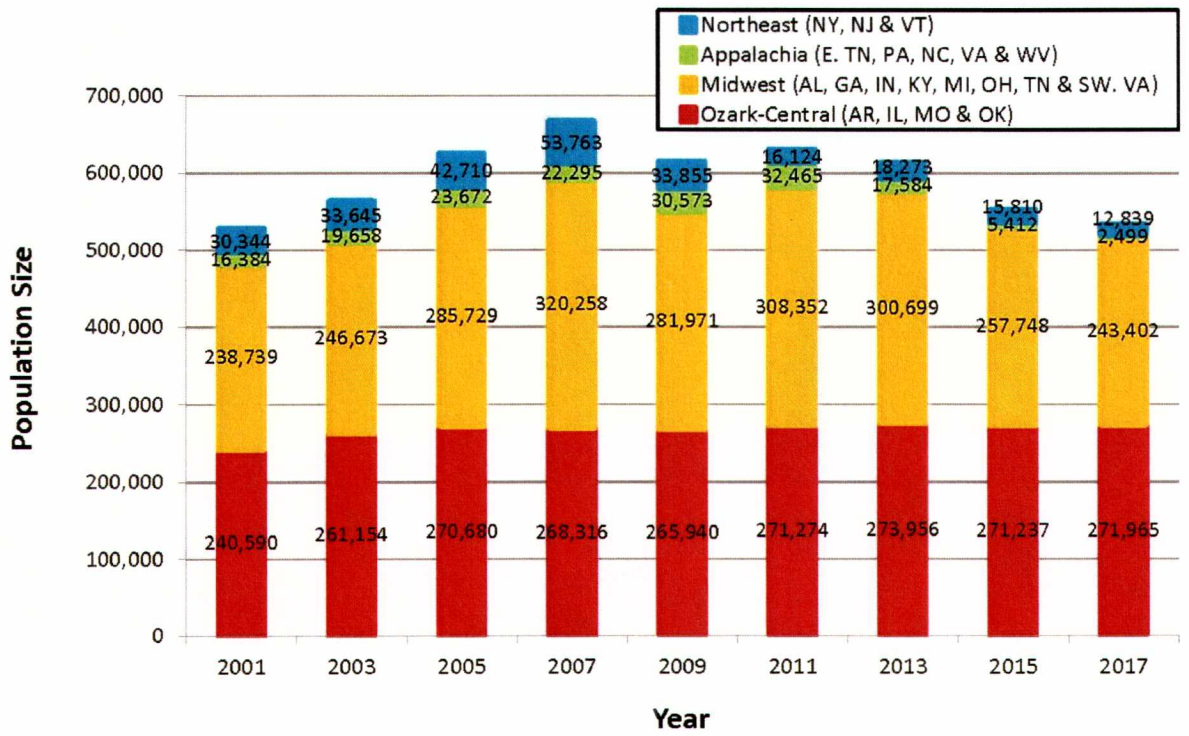

FIGURE 4. Indiana bat population estimates by recovery unit from 2001 to 2017.

Redundancy of populations has been significantly reduced as a result of WNS with several hibernacula now believed to have no Indiana bats and larger percentages of Indiana bats occurring in fewer sites. For example, 87% of Indiana bats currently occur at just one location in the Northeast RU and 67% occur at two locations in the Appalachia RU. This concentration of bats after WNS puts the species at tremendous risk should adverse impacts occur at these locations.

Current threats to the Indiana bat are discussed in detail in the Recovery Plan (Service 2007) and the 5-Year Review (Service 2009). Previously, occupied habitat loss/degradation, winter disturbance, and environmental contaminants were considered the greatest threats to Indiana bats. The Recovery Plan identified and expounded upon additional threats, including collisions with man-made objects (e.g., wind turbines). The 2009 5-Year Review included the threat of WNS, which is now considered the most significant obstacle to the recovery of the species. Overall, the Service finds that WNS has significantly reduced the redundancy and resiliency of the Indiana bat.

For a more detailed account of the species description, life history, population dynamics, threats, and conservation needs, refer to:
https://www.fws.gov/midwest/endangered/mammals/inba/index.html and the Service's 2016 Revised Programmatic Biological Opinion for Transportation Projects in the Range of the

Indiana Bat and Northern Long-Eared Bat found at
https://www.fws.gov/midwest/endangered/section7/fhwa/index.html

STATUS OF CRITICAL HABITAT

Critical habitat for the Indiana bat has been designated at several hibernacula outside of New York (41 FR 187); however, this action does not affect those areas.

ENVIRONMENTAL BASELINE

Regulations implementing the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all federal, state, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated and/or ongoing impacts of all proposed federal projects in the action area that have undergone section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress.

Status of the Species within the Action Area

Indiana bats may be found within the action area in the early fall and spring, as it is located within approximately 5 miles of a known hibernacula (Bull Mine). While Bull Mine is fairly close to the action area, the population is quite small (2 observed Indiana bats in 2017) and any Indiana bats using the site in the summer are likely to winter in the nearby (33 miles) Williams Complex of hibernacula in Rosendale, Ulster County, New York. Previous radio tracking conducted by the Service and New York State Department of Environmental Conservation (NYSDEC) in 2004, 2005, and 2007 repeatedly tracked bats from the Williams Complex to multiple maternity roosts in Orange County within 3-10 miles of the site. The status of the Indiana bat wintering population within the Williams Complex has significantly declined since WNS was first discovered, with over 38,000 Indiana bats observed in 2007 to less than 1,500 observed in 2017.

In July of 2017 the Applicant had a presence/absence acoustic bat survey focusing on the approximately 123± forested acres designated for permanent conservation easement and the 97± forested acres proposed for development. Following the 2017 Range-Wide Indiana Bat Summer Survey Guidelines, the survey consisted of four acoustic monitors, in four locations, for two nights, equating to a total of eight survey nights. Survey data suggest probable presence of Indiana bats at all detector locations.

No additional capture and tracking or more extensive acoustics on and off-site were conducted to determine the likely home range size for Indiana bats using the project. Summer home ranges include both roosting and foraging habitat and travel/commuting areas between those habitats. Observed home ranges for *individual* bats associated with Indiana bat maternity colonies vary widely (205.1-827.8 acres) (Menzel et al. 2005, Sparks et al. 2005, Watrous et al. 2006, Kniowski and Gehrt 2014, Jachowski et al. 2014). Colony home ranges would be larger with

some overlap of individual home ranges. In addition, the Service has provided guidance[1] for determining an area that may be occupied by *all* individuals associated with a maternity colony if no additional telemetry information is available and it is generally considered areas within 2.5 miles of documented roosts. If we assume that the potential home range of the bats detected onsite is contained within 2.5 miles of the project and the potential maternity colony area is approximately 38.5% forested[2], then the action area represents approximately 4.6%[3] of available forest for the maternity colony. We do not know if the action area includes core roosting habitat for the colony but acoustic detections suggest that it is likely foraging habitat and either current or potential future roosting habitat.

Given the survey results (probable presence) and action area size (~500 acres), we assume that the action area includes habitat used by individuals associated with one Indiana bat maternity colony. While there may adjacent colonies with individuals that periodically use portions of the 2.5-mile buffer area, we have no existing roost, capture, or telemetry data within 2.5 miles of the project site to suggest there are any other colonies that overlap with the actual project site (action area). Because Indiana bats were not captured and tracked and no emergence surveys were conducted, we have no detailed information about the size of the maternity colony or its status. However, given the status of the nearby hibernacula, the status of this colony should be the same (declining).

EFFECTS OF THE ACTION

Direct effects are the direct or immediate effects of the project on the species, its habitat, or designated/proposed critical habitat. Indirect effects are defined as those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02). An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation. Direct and indirect effects of the proposed action along with the effects of interrelated/interdependent activities are all considered together as the "effects of the action."

The following project components are unlikely to result in any impacts to Indiana bat:

- pre-construction civil surveys, flagging and marking, installation of sediment and erosion control measures;
- internal construction activities; and
- bat acoustic surveys

[1] https://www.fws.gov/midwest/endangered/mammals/inba/pdf/inbaS7and10WindGuidanceFinal26Oct2011.pdf question #4

[2] 7,758 acres of forest/20,153 acres in total within 2.5 miles of the Project*100=38.5 percent

[3] 353 acres of forest within the action area/7,758 acres of forest within the potential home range*100 = 4.6 percent

No effects are anticipated because of the minimal human noise/disturbance involved. For those components of the proposed action that are determined to result in "no effect" to Indiana bat, there will be no further discussion in this Opinion except for being listed in Appendix B. No impacts are anticipated to wintering Indiana bats, Indiana bat hibernacula, or Indiana bats during fall swarming or spring staging.

Multiple components of the project have been identified as having potential to affect the Indiana bat on their summer range and for some components conservation measures have been incorporated to ameliorate those effects (see Appendix B). These include:

- tree removal
- wetland/stream crossing
- noise/lighting associated with construction
- noise/lighting associated with facility operations

However, we have determined that all project components besides tree removal are unlikely to result in any discernible impacts to the Indiana bat. This is because the tree removal is already anticipated to result in changes in individual Indiana bat foraging, roosting, and commuting behavior. We would be unable to differentiate any noise or lighting effects within those areas of habitat removal. In addition, the project has multiple components that minimize potential impacts from noise and lighting. For example, the project's hours during peak months (10 AM-8 PM) end before most daily bat activity is anticipated. No discernible changes in clean water or invertebrate prey are anticipated from earth work or wetland/stream crossings because of the minor amount of fill (0.44 acres) and application of standard erosion control measures. For similar discussions of potential impacts to Indiana bats from these types of activities, please see recent Service Opinions (Service 2016a, Service 2016b).

Effects from loss of 97 acres of suitable roosting habitat are anticipated. While radio telemetry has not been done to track Indiana bats from the maternity colony that occurs within the action area, we assume that there are roost trees within the action area. The following is a synopsis of anticipated impacts from loss of roost trees associated with maternity colonies. For detailed analyses regarding roost tree loss impacts, please see the Service's recent Opinion (Service 2016b). Removal of an Indiana bat primary roost tree (that is still suitable for roosting) in the winter is expected to result in temporary or permanent colony fragmentation. Smaller colonies may be expected to provide less thermoregulatory benefits for adults and for non-volant pups in cool spring temperatures. Also, removal of a primary roost is expected to result in increased energy expenditures for affected bats. Female bats have tight energy budgets, and in the spring need to have sufficient energy to keep warm, forage, and sustain pregnancies. Increased flight distances or smaller colonies are expected to result in some percentage of bats having reduced pregnancy success, and/or reduced pup survival. Removal of multiple alternate roost trees in the winter is also expected to result in similar adverse effects.

The loss of 97 acres of forested roosting/foraging/commuting habitat is likely to occur from the project. In addition, approximately 53 acres of meadow and shrubs will be developed. Edges of

these more open areas are anticipated to be used as foraging and commuting habitat. The following is a synopsis of anticipated impacts from loss or fragmentation of roosting/foraging/commuting habitat. For detailed analyses regarding these impacts, please see the Service's recent Opinion (Service 2016b). Philopatry of Indiana bat maternity colonies to their summer range is well documented and Indiana bats likely return to the same place each year whether there is enough habitat in the immediate vicinity to support a colony or not. Therefore, it is reasonable to assume that Indiana bats will return to the project site the spring following tree removal and will need to adapt to the changed landscape. The loss of 97 acres of forest represents a potential reduction of 12-47%[4] of an individual Indiana bat's home range. Indiana bat colony home ranges are made up of multiple individual bat home ranges with some overlap and so the impact of this loss and subsequent shifting flight patterns and foraging areas on individual bats varies. Recovery from the stress of hibernation and migration may be slower as a result of the added energy demands of searching for new roosting/foraging habitat, especially in an already fragmented landscape where forested habitat is limited. Pregnant females displaced from preferred roosting/foraging areas will have to expend additional energy to search for alternative habitat; which would likely result in reduced reproductive success (failure to carry to full term or failure to raise pup to volancy) for some females. Females that do give birth may have pups with lower birth weights, given the increased energy demands associated with longer flights, or their pups may experience delayed development. These longer flights would also be experienced by pups once they become volant, which could affect the survival of these pups as they enter hibernation with potentially reduced fat reserves. Overall, the effect of the loss of roosting/foraging habitat on individual bats from the maternity colonies may range from no effect to death of non-volant juveniles. The effect on the colonies could then be reduced reproduction for that year. These effects are anticipated to be relatively short-lived as Indiana bats are anticipated to acclimate to the altered landscape and successfully reproduce the following year.

In areas with WNS, there are additional energetic demands for Indiana bats. For example, WNS-affected bats have less fat reserves than non-WNS-affected bats when they emerge from hibernation (Reeder et al. 2012, Warnecke et al. 2012) and have wing damage (Meteyer et al. 2009, Reichard and Kunz 2009) that makes migration and foraging more challenging. Females that survive the migration to their summer habitat must partition energy resources between foraging, keeping warm, successful pregnancy and pup-rearing, and healing.

CUMULATIVE EFFECTS

Cumulative effects are those "effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area" considered in this Opinion (50 CFR 402.02).

[4] 97 acres/205.1-827.8 acres*100

The Service is not aware of any future state, tribal, local, or private actions that are reasonably certain to occur within the action area at this time; therefore, no cumulative effects are anticipated.

JEOPARDY AND ADVERSE MODIFICATION ANALYSIS

Section 7(a)(2) of the ESA requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.

Jeopardy Analysis Framework

"Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02). The following analysis relies on 4 components: (1) Status of the Species, (2) Environmental Baseline, (3) Effects of the Action, and (4) Cumulative Effects. The jeopardy analysis in this Opinion emphasizes the range-wide survival and recovery needs of the listed species and the role of the action area in providing for those needs. It is within this context that we evaluate the significance of the proposed federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Analysis for Jeopardy

Impacts to Individuals – The proposed action includes the permanent removal of 97 acres of Indiana bat roosting/foraging habitat. As discussed in the Effects of the Action, potential effects of the action include effects to Indiana bats present within the action area upon return from hibernation. Effects generally include temporary reduced reproduction of individual bats as a result of having to expend additional energy seeking out alternate foraging and roosting habitat.

The potential for effects caused by the removal of suitable foraging and roosting habitat is expected to be greatest during the following spring and early summer when bats return from hibernation. Impacts to bats could be minor as bats may acclimate sooner than expected to flying further to find suitable foraging and roosting habitat. However, as discussed above, bats impacted by WNS have additional energetic demands and reduction in flight ability. This compounds the stress of having to find new roosting and/or foraging habitat. Some individuals may have to expend additional energy finding prey, experience higher predation risk, and may experience complications with pregnancy and rearing young, resulting in reduced reproductive potential.

However, the conservation measures (conducting tree removal in winter) will avoid the potential for direct effects to the bats and the permanent protection of 150 acres of habitat onsite will provide for future use of the site.

In summary, there will be impacts to individual Indiana bats in their annual reproductive rates.

Impacts to Populations – As we have concluded that individual Indiana bats are likely to experience some reductions in their annual reproductive success, we need to assess the aggregated consequences of the anticipated reductions in fitness (i.e., reproductive success and long-term viability) of the exposed individuals on the population to which these individuals belong.

Individuals of one maternity colony will be affected. The effects are not expected to measurably decrease the fitness of this colony for several reasons. Any removal of potential roost trees will be done in the winter months when bats are hibernating, which will avoid the chance of killing adults or pups. Further, not every bat from the single anticipated colony is likely to be exposed to stressors associated with the proposed action as they occur within a small portion of a colony's potential home range. Finally, we anticipate that most impacts will occur within the first spring after tree clearing. Bats are expected to acclimate to this change and seek out alternate habitat nearby. In addition, the applicant has proposed other conservation measures to reduce noise and lighting impacts, which Indiana bats also should acclimate to over time. All impacts are anticipated to be short-term in nature. We do not anticipate a long-term reduction in any maternity colony fitness because individual Indiana bats are expected to acclimate to changes in the landscape given ample suitable habitat remaining within and adjacent to the project area that will be available to them after future hibernation events.

Impacts to Species – As we have concluded that population of Indiana bats are unlikely to experience long-term reductions in their fitness, there will be no harmful effects (i.e., there will be no reduction in RND) to the Northeast RU of the Indiana bat or to the species as a whole.

To understand the consequences of population-level effects at the species level, we need to understand the RND needs of the species. As discussed in the Status of the Species, Indiana bats need multiple healthy winter populations and maternity colonies distributed throughout each RU. Prior to this project, the range-wide status of the species was considered declining. This project is anticipated to result in no significant change to the status.

CONCLUSION

We considered the current overall declining status of the Indiana bat and the anticipated similar condition of the species within the action area (environmental baseline). We then assessed the effects of the proposed action and the potential for cumulative effects in the action area on individuals, populations, and the species as a whole. These types of effects of the proposed action are not currently considered primary factors influencing the status of the species. While they may compound those factors, as stated above, we do not anticipate any reductions in the overall RND of the Indiana bat. It is the Service's Opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Indiana bat.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering (50 CFR § 17.3). Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are nondiscretionary, and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to the Corps, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps: (1) fails to assume and implement the terms and conditions or (2) fails to require the Applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Corps or Applicant must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE ANTICIPATED

The Service analyzed the effects to the species above. The Service anticipates incidental take of Indiana bats will be difficult to detect for the following reasons: individuals are small and occupy summer habitats where they are difficult to find; finding dead or injured specimens is unlikely, and most incidental take will be non-lethal and difficult to monitor. However, the following level of take of this species can be anticipated by loss of suitable summer habitat because of the relationship (high site fidelity) between Indiana bats and the continued presence of suitable habitat. The anticipated take is described in Table 2 below.

Table 2. Amount and type of anticipated incidental take.

Species	Amount of Take Anticipated	Life Stage when Take is Anticipated	Type of Take	Take is Anticipated as a Result of
Indiana bat	Small percentage of individuals present within up to 97 acres of known use summer habitat	Adults	Harmed or Harassed	Temporary reduced reproduction (reduced pregnancy success) of individuals (that are part of one maternity colony) associated with loss of (and relocating) roosting and foraging habitat.
Indiana bat	Small percentage of individuals present within up to 97 acres of known use summer habitat	Pups	Death	Temporary reduced ability for adult females to raise non-volant pups associated with loss of (and relocating) adult female roosting and foraging habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize take of Indiana bat:

1. Provide information to individuals involved in project construction on how to avoid and minimize potential effects to the Indiana bat.

2. Complete permanent protection of 150 acres through recording of the conservation easement with the Town of Goshen.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the ESA, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are nondiscretionary.

1. Prior to initiation of on-site work, notify all prospective employees, operators, and contractors about the presence and biology of the Indiana bat, special provisions necessary to protect the Indiana bat, activities that may affect the Indiana bat, and ways to avoid and minimize these effects. This information can be obtained by reading Indiana bat-related information in this Opinion or a fact sheet containing this information can be created and provided by the Corps or the applicant (RPM 1).

2. The Applicant will provide a final signed copy of the conservation easement to the Service and NYSDEC no later than **December 31, 2018** (RMP 2).

MONITORING AND REPORTING REQUIREMENTS

In addition to the planned monitoring and reporting for the project, the Corps will ensure the following reporting conditions are met.

1. The Applicant will hire a qualified biologist to monitor the status of Indiana bats within the action area **within the first year following the opening and operation of the Park**. Surveys are anticipated to occur in 2021 and shall comply with the current version of Indiana bat summer survey guidance to that year.

2. On behalf of the Corps, the Applicant will submit an initial report to the Service, NYSDEC, and Corps **within 30 days of completion of the bat survey**.

3. The Corps or Applicant shall notify the Service and the NYSDEC, in writing (digital format), regarding the projected and actual start dates, progress, and completion of the project and verify that all conservation measures were followed in a report, **by December 31st of each year until December 31, 2021**.

4. The Corps or Applicant shall notify the Service and the NYSDEC of any unauthorized activities (regardless of who conducted said activities) resulting in any adverse impacts not described in the BA and addressed in this Opinion. This notification shall be made within 48 hours or sooner, if possible.

5. Care must be taken in handling any dead specimens of Indiana bats to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to the ESA. The reporting of dead specimens is required to enable the Service to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective. Within 48 hours of locating a dead specimen, notify the Service's New York Field Office at 607-753-9334. The appropriate person at the New York State Museum should be contacted regarding proper specimen preservation and shipping procedures.

6. The contact for these reporting requirements is as follows:

David A. Stilwell, Field Supervisor
New York Field Office
U.S. Fish and Wildlife Service
3817 Luker Road
Cortland, NY 13045
Attn: Robyn Niver
robyn_niver@fws.gov
(607) 753-9334

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- Permanently protect the remaining suitable habitat onsite with a conservation easement.
- Purchase or otherwise protect additional offsite Indiana bat habitat, particularly within the range of the onsite maternity colony.
- Fund research on understanding/controlling and mitigating the effects of WNS.

For the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding this Opinion, or our shared responsibilities under the ESA, please contact Robyn Niver at 607-753-9334.

Sincerely,

David A. Stilwell
Field Supervisor

cc: Merlin Entertainment (I. Sarjeant)
EcolSciences, Inc. (L. Newgard)
NYSDEC, Albany, NY (C. Herzog)
NYSDEC, New Paltz, NY (T. Kerpez)

References

Jachowski, D.S., J.B. Johnson, C.A. Dobony, J.W. Edwards, W.M. Ford. 2014. Space use and resource selection by foraging Indiana bats at the northern edge of their distribution. Endangered Species Research 24(2):149.

Kniowski, A.B., and S.D. Gehrt. 2014. Home range and habitat selection of the Indiana bat in an agricultural landscape. Journal of Wildlife Management 78(3):503-512.

Menzel, J.M., W.M. Ford, M.A. Menzel, T.C. Carter, J.E. Gardner, J.D. Garner, and J.E. Hofmann. 2005. Summer habitat use and home-range analysis of the endangered Indiana bat. Journal of Wildlife Management 69(1):430-436.

Meteyer, C.U., E.L. Buckles, D.S. Blehert, A.C. Hicks, D.E. Green, V. Shearn-Bochsler, N.J. Thomas, A. Gargas, and M.J. Behr. 2009. Histopathologic criteria to confirm white-nose syndrome in bats. Journal of Veterinary Diagnostic Investigation 21:411-414.

Reeder, D.M., C.L. Frank, G.G. Turner, C.U. Meteyer, A. Kurta, E.R. Britzke, M.E. Vodzak, S.R. Darling, C.W. Stihler, A.C. Hicks, R. Jacob, L.E. Grieneisen, S.A. Brownlee, L.K. Muller, and D.S. Blehert. 2012. Frequent arousal from hibernation linked to severity of infection and mortality in bats with white-nose syndrome. PLoS ONE, 7(6):1-10.

Reichard, J.D. and T.H. Kunz. 2009. White-nose syndrome inflicts lasting injuries to the wings of little brown myotis (*Myotis lucifugus*). Acta Chiropterologica, 11(2):457-464.

Sparks, D.W., C.M. Ritzi, J.E. Duchamp, and J.O. Whitaker, Jr. 2005. Foraging habitat of the Indiana bat, (*Myotis sodalis*) at an urban-rural interface. Journal of Mammalogy 86:713-718.

U.S. Fish and Wildlife Service. 2007. Indiana Bat (Myotis sodalis) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

U.S. Fish and Wildlife Service. 2009. Indiana Bat 5-Year Review: Summary and Evaluation. USFWS Region 3. Available at http://www.fws.gov/midwest/endangered/recovery/5yr_rev/pdf/INBA5Yr30Sept2009.pdf

U.S. Fish and Wildlife Service. 2016a. Biological Opinion for the Proposed Amy's Kitchen, Inc., and Science of the Soul Project, Town of Goshen, Orange County, New York, U.S. Fish and Wildlife Service, Cortland, New York.

U.S. Fish and Wildlife Service. 2016b. 2016 Revised Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat, U.S. Fish and Wildlife Service, Bloomington, Minnesota. Available at https://www.fws.gov/midwest/endangered/section7/fhwa/index.html

U.S. Fish and Wildlife Service. 2017. 2017 Indiana bat (*Myotis sodalis*) Population Status Update. U.S. Fish and Wildlife Service, Bloomington, Indiana. Available at: https://www.fws.gov/midwest/endangered/mammals/inba/pdf/2017IBatPopEstimate5July2017.pdf

Warnecke, L., J.M. Turnera, T.K. Bollinger, J.M. Lorch, V. Misrae, P.M. Cryan, G. Wibbelt, D.S. Blehert, and C.K.R. Willis. 2012. Inoculation of bats with European *Geomyces destructans* supports the novel pathogen hypothesis for the origin of white-nose syndrome. Proceedings of the National Academy of Sciences 109(18):6999-7003.

Watrous, K.S., T.M. Donovan, R.M. Mickey, S.R. Darling, A.C. Hicks, S.L. vonOettingen. 2006. Predicting minimum habitat characteristics for the Indiana bat in the Champlain Valley. Journal of Wildlife Management 70(5):1228-1237.

Appendix A. **Consultation History**

6-16-16	The Town of Goshen Planning Board initiated the State Environmental Quality Review Act (SEQRA) review of LEGOLAND New York, and circulates an Environmental Assessment Form, including a draft scope of the Environmental Impact Statement and related plans and materials to all involved and interested agencies, including the Corps and the Service.
7-21-16	The Town of Goshen Planning Board held a public hearing to accept public and agency comments on the draft scope of the Environmental Impact Statement (DEIS).
8-18-16	The Town of Goshen Planning Board adopted the final scope of the DEIS after receiving public and agency comments. The final scope was circulated to all involved and interested agencies, including the Corps and Service.
11-17-16	The Town of Goshen Planning Board circulated the accepted DEIS to the public and all involved and interested agencies, including the Corps and Service.
12-19-16	The Service provided comments on the DEIS.
May 2017	The Applicant and their representatives coordinated with the Service regarding our recommendation to conduct bat surveys.
6-21-17	The Service received a draft acoustic survey plan.
6-23-17	The Service provided comments on the draft plan.
6-27-17	The Service received the revised acoustic survey plan.
7-6-17	The Service provided concurrence with the plan.
7-27-17	The Service received a Notice of Completion of the Final Environmental Impact Statement.
8-23-17	The Service received acoustic survey results.
9-14-17	The Service received a copy of the Town of Goshen's SEQRA Findings Statement.
10-27-17	The Service contacted the consultant regarding the project.
11-1-17	The Service, Applicant and their representatives, and Corps participated in a conference call to discuss Endangered Species Act procedures.

11-16-17	The Service received a draft Biological Assessment (BA).
11-20-17	The Service provided comments on the draft BA.
11-21-17	The Service, Applicant and their representatives, and Corps participated in a conference call to discuss the Service's comments on the BA.
Week of 11-27-17	The Service and consultant exchanged drafts and comments on the draft BA.
11-29-17	The Service received a draft conservation easement.
11-30-17	The Service received the Corps' final BA and request to initiate formal consultation.
12-5-17	The Service provided draft RPMs, TCs, and monitoring and reporting conditions to the Applicant and the Corps.

Appendix B: Indiana Bat Effects Pathway Analysis for LegoLand NY

Sub- activity	*Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)*	*Resources exposed to Direct interaction or Indirect interaction (Stressor)* *Resource or Individuals, Life stage & Conservation Functions of the Resource*	*Species' Responses to Exposure to Direct interaction or Indirect interaction (Stressor)*	*Effect to individuals*	*Effect to population*	*Avoidance Minimization Mitigation*	*Effects remaining*	*Determination*
Site Preparation (civil surveys, marking of trees)	Human Presence/Noise	**Resource:** Individuals **Life stage:** Juveniles, adults	None anticipated from the level of noise/disturbance associated with these activities.	-	-	-	-	NE
Tree Removal (during construction or future operations)	Flushing or crushing roosting bats	**Resource:** Individuals **Life stage:** Juveniles, adults	Range of responses from increased energy expenditure (fly from trees during activity at or near tree being felled) to injury or mortality (particularly flightless pups)	Ranges from negligible to reduced survivorship (injury) or direct mortality	Negligible to reduction in numbers	Time of year restriction (TOYR) April 1- Oct 31 on clearing trees >5" DBH	None	NLAA
	Loss or fragmentation of summer habitat	**Resource:** Forest (suitable roosts, foraging space, and travel/commuting corridors) **Life stage:** Juveniles, adults **Function:** Feeding and sheltering	Abandonment of habitat or displacement of bats, increased energy expenditure	Ranges from negligible to reduced reproduction, reduced growth rate. Individual pups may not survive to the volant stage if adult females cannot adequately forage.	Negligible to reduction in numbers, reduction in distribution	Tree clearing limited to 97 acres of the 514 acre site. Extensive tree planting restoration plan. Conservation easement protecting 150 acres of habitat. Alternative roost sites provided (bat boxes and Brandenburg artificial bark)	150 acres of natural habitat removed within summer maternity colony home range. 97 acres of forest.	LAA
	Loss or fragmentation of spring staging/ swarming habitat	**Resource:** Forest (suitable roosts and foraging space) **Life stage:** Juveniles, adults **Function:** Feeding, breeding, sheltering	Range of response depending on scale of removal – Negligible to abandonment of habitat or displacement of bats, increased energy expenditure	Ranges from negligible to reduced reproduction, reduced growth rate	Negligible to reduction in numbers	Project footprint was minimized during development. Extensive on-site forested habitat will remain.	None. A small percentage of forest will be lost within the 5 mile swarming distance of Bull Mine, amounting to a 1.2 % reduction of overall forest habitat.	NLAA
	Noise	**Resource:** Individuals **Life stage:** Juveniles, adults	Range of response depending on scale of noise – Negligible to abandonment of habitat or displacement of bats, increased energy expenditure	Ranges from negligible to reduced reproduction, reduced growth rate	Negligible to reduction in numbers	TOYR April 1- Oct 31 on clearing trees > 3" DBH project-wide.	None	NLAA

Sub- activity	*Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)*	*Resources exposed to Direct interaction or Indirect interaction (Stressor)* **Resource or Individuals, Life stage & Conservation Functions of the Resource**	*Species' Responses to Exposure to Direct interaction or Indirect interaction (Stressor)*	*Effect to individuals*	*Effect to population*	*Avoidance Minimization Mitigation*	*Effects remaining*	*Determination*
	Decreased soil stability and sedimentation impacting water sources	**Resource:** Water source **Life stage:** Juveniles, adults **Function:** Drinking	Range of response depending on scale of removal – Negligible to abandonment of habitat or displacement of bats, increased energy expenditure.	Ranges from negligible to reduced reproduction, reduced growth rate	Negligible to reduction in numbers	Standard soil erosion conservation measures and reseeding/replanting the disturbed areas. Avoidance of wetlands, streams and buffers. Minor wetland encroachment – mitigated by on-site wetland creation.	None	NLAA
Land Preparation **(grading, herbaceous vegetation removal, trenching for utilities, vegetation disposal)**	Erosion, sedimentation, and/or dust causing a reduction of invertebrate prey	**Resource:** Invertebrate prey **Life stage:** Juveniles and adults **Function:** Feeding	Range of response depending on scale of project – Negligible to abandonment of habitat or displacement of bats, increased energy expenditure.	Ranges from negligible to reduced reproduction, reduced growth rate	Negligible to reduction in numbers	SWPP with standard soil erosion conservation measures and reseeding/replanting the disturbed areas. Minor wetland encroachment – mitigated by on-site wetland creation.	None	NLAA
	Sediment erosion and sedimentation impacting water sources	**Resource:** Water source **Life stage:** Juveniles, adults **Function:** Drinking	Range of response depending on scale of project – Negligible to abandonment of habitat or displacement of bats, increased energy expenditure.	Ranges from negligible to reduced reproduction, reduced growth rate	Negligible to reduction in numbers	SWPP with standard soil erosion conservation measures and reseeding/replanting the disturbed areas. Avoidance of wetlands, streams and buffers. Minor wetland encroachment – mitigated by on-site wetland creation	None	NLAA
	Noise	**Resource:** Individuals **Life stage:** Juveniles, adults	Range of response depending on scope of project work and proximity of forested habitat– Negligible to abandonment of habitat or displacement of bats, increased energy expenditure	Negligible to decreased reproductive success or decreased growth rate	Negligible to reduction in numbers		No additional impacts from construction activities in areas where habitat was removed. Effects addressed above.	NLAA

Sub- activity	*Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)*	*Resources exposed to Direct interaction or Indirect interaction (Stressor)* **Resource or Individuals, Life stage & Conservation Functions of the Resource**	*Species' Responses to Exposure to Direct interaction or Indirect interaction (Stressor)*	*Effect to individuals*	*Effect to population*	*Avoidance Minimization Mitigation*	*Effects remaining*	*Determination*
Project Construction Lighting	Alteration of summer habitat	**Resource:** Forested habitat **Life stage:** Adults and juveniles **Function:** Feeding, sheltering	Negligible to avoidance of the habitat during construction, increased energy expenditure	Negligible to decreased growth rate, decreased reproduction	Reduction in numbers	Construction activity limited by Town approval to largely daylight hours during the bat active season.	Potential impacts to bats emerging from roosts trees located in close proximity to development area.	NLAA
Waterbody Crossing Work (stream and wetlands)	Reduction of wetlands/water bodies(fill)	**Resource:** Clean drinking water **Life stage:** Juveniles, adults **Function:** Drinking	The minor wetland fill (0.44 acres) is not anticipated to change the amount of available water sources.	-	-	-	-	NE
	Erosion and sedimentation causing a reduction of invertebrate prey	**Resource:** Invertebrate prey **Life stage:** Juveniles and adults **Function:** Feeding	Range of response depending on stream crossing technique - negligible to reduced feeding success, increased energy expenditure	Negligible to reduced reproductive success, reduced growth rate	Reduction in numbers	Avoidance of most wetlands and streams results in minimal disturbance to these features. Standard stream sedimentation BMPs will be implemented to reduce sediment pulses and disturbance to stream environments.	None	NLAA
	Increase in stream turbidity impacting water sources	**Resource:** Clean drinking water **Life stage:** Juveniles, adults **Function:** Drinking	The scope of stream crossing work associated with the Project is unlikely to contaminate drinking water sources and is likely to have a negligible impact.	-	-	Avoidance of most wetlands and streams results in minimal disturbance to these features. Standard stream sedimentation BMPs will be implemented to reduce sediment pulses.	None	NLAA
Site Restoration	Replanting of trees and other vegetation	**Resource:** Forested habitat **Life stage:** Adults and juveniles **Function:** Feeding, sheltering	May minimize impacts from tree removal.	Negligible to moderation of adverse impacts from tree removal	-	-	-	NLAA

Sub- activity	*Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)*	*Resources exposed to Direct interaction or Indirect interaction (Stressor)* **Resource or Individuals, Life stage & Conservation Functions of the Resource**	*Species' Responses to Exposure to Direct interaction or Indirect interaction (Stressor)*	*Effect to individuals*	*Effect to population*	*Avoidance Minimization Mitigation*	*Effects remaining*	*Determination*
	Noise	**Resource:** Individuals **Life stage:** Juveniles, adults	Range of response depending on scope of project work and proximity of forested habitat– Negligible to abandonment of habitat or displacement of bats, increased energy expenditure	Negligible to decreased reproductive success or decreased growth rate	Negligible to reduction in numbers		No additional impacts from construction activities in areas where habitat was removed. Effects addressed above.	NLAA
Operations - Presence of Above- ground facilities (hotel, theme park, and parking lots)	Decrease in open flight space (Flight path obstacles)	**Resource:** Individuals **Life stage:** Juveniles, adults	No evidence that Indiana bats fly into stationary objects	-	-	-	-	NE
	Permanent lighting which may result in alteration of summer habitat	**Resource:** Forested habitat **Life stage:** Juveniles, adults **Function:** Feeding, breeding, sheltering	Range of response depending on scope of project work and proximity of forested habitat– Negligible to abandonment of habitat or displacement of bats, increased energy expenditure	Negligible to decreased reproductive success or decreased growth rate	Negligible to reduction in numbers	The facility lighting plan has been designed to minimize light spillage outside of the development areas. Operations hours are generally before daily bat activity periods.	No additional impacts from construction activities in areas where habitat was removed. Effects addressed above.	NLAA
	Human presence/noise from ride operations, fireworks which may result in alteration of summer habitat	**Resource:** Forested habitat **Life stage:** Juveniles, adults **Function:** Feeding, breeding, sheltering	Range of response depending on scope of project work and proximity of forested habitat– Negligible to abandonment of habitat or displacement of bats, increased energy expenditure	Negligible to decreased reproductive success or decreased growth rate	Negligible to reduction in numbers	Operations hours are generally before daily bat activity periods.	No additional impacts from construction activities in areas where habitat was removed. Effects addressed above.	NLAA
Bat Monitoring	Human presence/noise	**Resource:** Individuals **Life stage:** Juveniles, adults	None anticipated from the level of noise/disturbance associated with acoustic monitoring.	-	-	-	-	NE