

Appendix C

Natural Resources

Natural Resources Survey/Assessment

LaGrange Town Center
Route 55
Town of LaGrange, New York

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1.0 INTRODUCTION

As a result of several meetings with New York State Department of Environmental Conservation (NYSDEC) staff and comments generated from the Draft Environmental Impact Statement (DEIS) prepared for the project, the project Applicant, contracted with Ecological Solutions, LLC to address written and verbal comments and concerns provided by NYSDEC regarding natural resources and wetlands on the property. Ecological Solutions, LLC has completed an independent natural resources survey for the LaGrange Town Center (LTC) project (*Figure 1.0-1 Location Map and Figure 1.0-2 Proposed Development Plan*). The property is located between State Route 55 and Todd Hill Road with access from each of these roads.

The LaGrange Town Center is a mixed-use development which carries out the long term planning goals of the Town of LaGrange to create a development that becomes a true "Town Center". The Town has designated this area as its "Center" since its Master Plans in 1966 and 1987. In the year 2000, after joining the Dutchess County Greenway Compact, the Town began to work with Dutchess County Planning Department to develop a more specific development plan for the Town Center, one which would feature Smart Growth and energy efficiency principles, with residential development at a Village-style density, both to support commercial uses in the Town Center, and to create a wider variety of housing types, and a more pedestrian oriented life-style as alternative housing choices for Town residents, offering an alternative to rural/suburban sprawl. This work culminated in an amendment to the Town's Comprehensive Plan, and the enactment of Town Center zoning in 2003, implemented after conclusion of a full Generic EIS process. The illustrative plan for the LaGrange Town Center has been featured as an exemplary case study in smart growth on the cover of the Pace Land Use Law Center's book on Priority Growth Districts.

The location of the proposed project has been chosen by the Town of LaGrange as the best possible location in all of the Town for the Town Center, and the area houses the largest concentration of important civic and community facilities in the Town, including the Freedom Plains Presbyterian Church, the Post Office, the Arlington High School, the Town Hall, the Town Highway Department, a major supermarket built on pedestrian oriented principles, and a number of shopping facilities.

The Town's zoning has been coordinated with planned improvements of the State Highway Route 55 corridor along which the project is located. DOT has programmed in over \$6 million to construct the necessary improvements to Route 55. The work keeps Route 55 as a two lane road, while implementing access management and traffic calming measure to make Route 55 compatible with the creation of a viable town center.

The internal road crossing location that requires an Article 24 Freshwater Wetland permit is absolutely necessary to the viability of the project. Every version of the Town Center planning documents included a north-south street crossing at the narrowest portion of the wetland corridor, to connect the residential areas with the mixed-use core of the Town Center. The Dutchess County Planning Department, the New York State DOT, the Town Fire District, and the Developer's traffic consultants have all agreed that connecting the neighborhoods to the south directly to the mixed-use center is absolutely critical for overall Town Center cohesion, traffic circulation, the commercial success of the center, and the proper functioning of the planned Route 55 traffic improvements. Essential for emergency services, the connecting street will also allow many more residents to stop at the mixed use commercial core on their way to or from home, work, or school. Additionally, streets are mixed social spaces that unite town centers and encourage multiple means of travel, including walking and biking as well as cars. Many pedestrians feel safer and are more likely to walk if a sidewalk runs along a street connection, rather than through visually isolated path systems. The same agencies cited above also agree that attempts to divert all traffic around the core area on existing roads will just overload these streets. Finally, it is in the interests of energy efficiency to avoid requiring longer trips along already crowded arterial highways like Route 55. The proposed direct connection and wetland crossing will allow better dispersion of traffic along multiple routes.

The project has been designed to avoid and minimize disturbance to the wetlands and wetland buffers to the maximum extent practicable. The locations chosen for the Road A and Road C wetland crossings are at the narrowest possible point of the wetlands. To minimize impacts to the wetlands and watercourses, the road crossings will be accomplished through the installation of clear span arch culverts at both locations. The bottomless culverts will span the wetland and maintain the wetland bed and provide connectivity for the movement of wildlife.

The data contained in this report was gathered on August 27, September 15, 20, November 11, 2009, March 23, April 5, 12, 18, 20, through May 7, June 4, and June 15, 2010.

The purpose of these surveys was to independently gather existing natural resource data to address the comments received from the NYSDEC and complete the Final Environmental Impact Statement (FEIS) for the project. Previous surveys were completed by Terrestrial Environmental Specialist (TES) during 2004 and 2007 during the initial stages of the project and were included in the DEIS.

Figure 1.0-1 Location Map

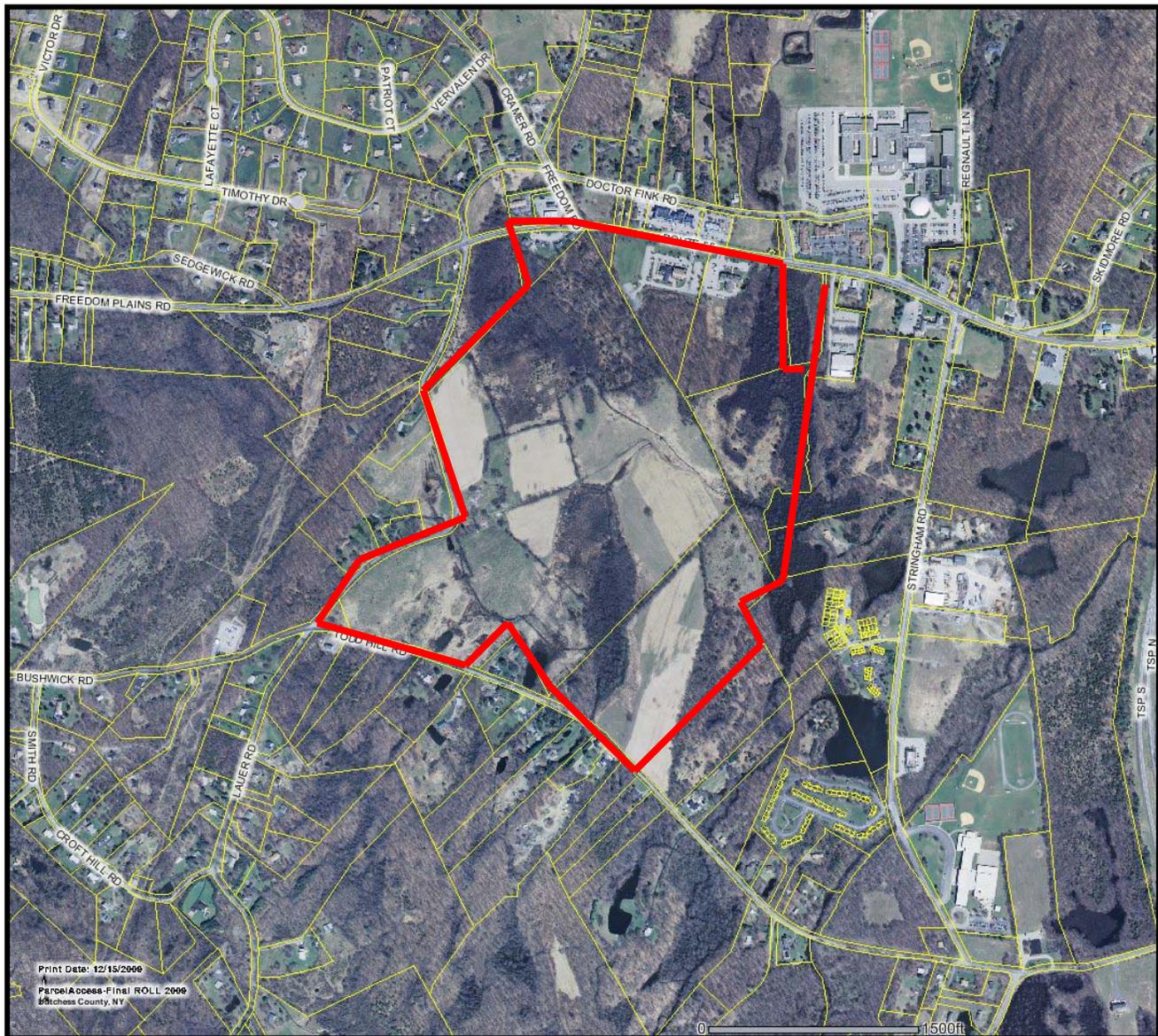
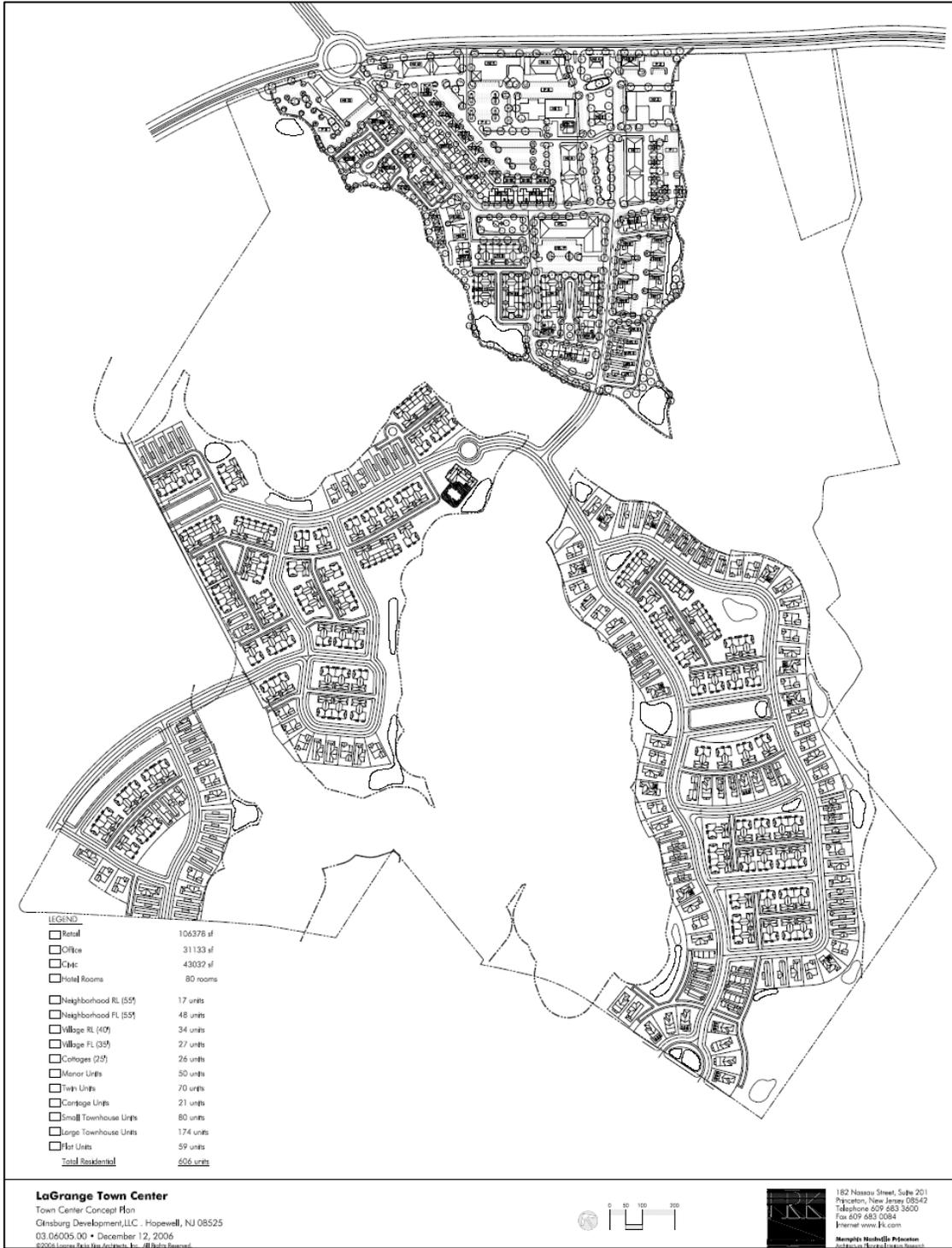


Figure 1.0-2 Proposed Development Plan



2.0 METHODS

2.1 Agency Correspondence/Inquiry

As part of the environmental review for the subject property, Ecological Solutions, LLC, reviewed the New York State Department of Environmental Conservation (NYSDEC) correspondence regarding the status of rare, threatened, or endangered species on the property. Blanding's turtle (*Emys blandingii*), bog turtle (*Glyptemys muhlenbergii*), and Indiana bats (*Myotis sodalis*) and appropriate habitats were referenced in this correspondence. The bog turtle and Indiana bat are also federally listed species as per a review of the US Fish and Wildlife Service web property for threatened and endangered species in Dutchess County that is attached to the end of this report¹. Data regarding habitat for each of these species was gathered during the summer and fall of 2009 and March through June 15, 2010. Each of these species and their habitats is discussed in detail in this report. In addition, the wetlands on the LTC property, wetland "C" in particular, was thoroughly investigated to determine if marbled salamander (*Ambystoma opacum*), Jefferson salamander (*Ambystoma jeffersonianum*), and blue spotted salamander (*Ambystoma laterale*) all NYSDEC designated "species of special concern" are currently using this isolated vernal pool for breeding habitat. In addition, spotted turtle (*Clemmys guttata*) were observed by TES during one of the previous site surveys. Spotted turtle is also a species of special concern typically associated with wetland habitats containing shallow surface water which are used for foraging, basking, aestivation, courtship, and for hibernation. Female Spotted Turtles nest in upland habitats. In June females leave wetland habitats and migrate overland to suitable nesting areas. These nesting excursions may last for more than one week, and can cover lengthy distances. These seasonal patterns of habitat use and movements broadly include: overland migration from winter hibernacula to upland wetlands in spring, residence in these wetlands for a period of several months (females leave these pools in June for short-term nesting excursions), dispersal from these wetlands later in the summer to upland areas for terrestrial aestivation, and migration back to hibernacula wetlands in late summer through mid-fall. Some variations to this pattern have been noted. For example, not all turtles follow this trend. Some remain year-round residents of semi-permanent wetlands and do not migrate overland to upland activity pools. In addition, not all turtles are observed to aestivate in uplands. Instead, these individuals migrate directly from their summer residences back to their hibernation wetlands. The wetlands were investigated to determine use by this species.

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

2.2 Ecological Community and Habitat Field Inventory

The vegetation inventory included identification of ecological communities or habitat cover types. Cover type surveys were conducted by first reviewing aerial photographs of the LTC property and adjacent properties and subsequently by investigating the habitats on the property to identify and classify each. Within each cover type, visual searches for herbaceous and woody plant species or parts thereof, including leaves, bark, twigs, seeds, flowers, fruits, or other identifiable plant structures were conducted to identify and document vegetation on the property. Trees, shrubs, and fall flowering plants were identified to species levels where possible.

The Plot Transect method was employed for the vegetation inventory. The methods used to search for species on the property are outlined in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor*.²

2.3 Wildlife Field Inventory

Extensive seasonally limited field surveys were conducted for wildlife species including mammals, birds, and herpetiles (reptiles and amphibians). Special surveys were also conducted to identify and locate seasonally active species of special concern such as the marbled salamander, Jefferson salamander, and blue spotted salamander, and spotted turtle all NYSDEC designated "species of special concern".

Multiple methods were used in these surveys, as multiple methodologies increase the potential accuracy of surveys. Methods used are outlined below.

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

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

Mammals were identified based on visual encounters, vocalizations, tracks, fur, bones, rubs, scrapes, droppings, and other recognizable signs in habitats throughout the

² Hudsonia Ltd., 2001

property. Sampling routes were established throughout the property and wildlife was recorded as encountered.

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

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

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

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

1. Log rolling (overturning logs, large stones, and other debris to reveal herptiles underneath).
2. Aural surveys were conducted for vocal herptiles. Herptiles were detected and identified by visual encounter, vocalizations, spermatophores, egg masses, and remains.
3. Just about the time most other amphibians are looking for places to hibernate, marbled salamanders are heading to breeding areas. The only fall breeding salamander, they seek out small areas (micro habitats) with temperatures around 60°F. The female will lay an average of 100 eggs in a nest constructed in a shallow depression under leaf litter or in a log. The female remains with the eggs until fall rains fill the nest property. Eggs will hatch within two weeks. In mild winters, larvae can feed and grow and transform in late spring or early summer. If the nest does not flood, eggs will go dormant until the following spring. The salamander larvae that hatch in fall metamorphose into terrestrial adults in late spring or June or July.

The habitat they select varies with the season. During the spring and summer, the adults spend their time in sandy upland deciduous forests. They seek shelter under logs or in underground tunnels of other animals. Their diet consists of earthworms, insects, slugs, and other small invertebrates; the larvae often eat the larvae of other amphibians. In autumn, they congregate in groups near lowland forested habitat to breed.

Both Jefferson and Blue spotted salamanders are early spring breeders and are often the first amphibians found breeding in vernal pools.

3.0 WETLAND IDENTIFICATION

3.1 Wetland Delineation

The wetland delineations performed on each property was done in accordance with the Routine Delineation Method outlined in the *US Army Corps of Engineers (USACE) Wetlands Delineation Manual, Technical Report Y-87-1³* and NYSDEC Article 24 Freshwater Wetland regulations. The USACE and NYSDEC have verified the wetland delineation on the property. Wetland C is considered isolated by the USACE and is not part of the NYSDEC regulated wetlands on the property.

3.2 Wetland Functional Evaluation

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

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

The descriptive quality index of each wetland, based on this methodology, is summarized in this report.

Wetland functions are chemical, physical, and biological processes that wetlands naturally perform, such as absorption of nutrients or floodwaters, or provision of habitat for fish and wildlife. Wetland values are the benefits that society derives from wetland functions, such as flood abatement, or water quality maintenance.

The functions and values assessment was based on the method outlined in *The Highway Methodology Workbook Supplement: Wetland Functions and Values, A Descriptive Approach*,

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

by the U.S. Army Corps of Engineers New England District. This method was selected over an arbitrary numeric quantifying assessment scheme because it provides an objective, descriptive approach to functions and values assessment based on professional observation and judgment rather than a simple numeric value rating system. Quantified functions and values assessments do not always provide for descriptive information about wetlands and therefore may overlook important aspects of wetland functions and values.

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

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

8. Wildlife Habitat – The ability of wetlands to provide food, water, cover, or space for wildlife populations typically associated with wetlands or their adjacent areas, both resident and migratory.⁴

9. Recreation – The value placed on a wetland by society for providing consumptive and non-consumptive as well as active or passive recreational opportunities such as canoeing/boating, fishing, hunting, bird/wildlife watching, hiking, etc.

10. Education/Scientific Value – The value placed on a wetland by society for providing subjects for scientific study or research or providing a teaching resource for schools.

11. Uniqueness/Heritage – The value placed on a wetland by society for having unique characteristics such as archaeological or historical value, unusual aesthetic qualities, or unique plants, animals, or geologic features, etc.

12. Visual Quality/Aesthetics – The value placed on a wetland by society for having visual and/or other aesthetic qualities.

13. Threatened or Endangered Species Habitat – The value placed on a wetland by society for effectively harboring or providing habitat for threatened or endangered species.

Findings of the assessment are outlined below.

Eastern Forested Wetland (NYSDEC) - The eastern wetland on the property is older age hardwood swamp with trees mostly ranging from 8 to 12 inches in diameter at breast height (dbh) that occur in poorly drained inorganic soils. Several of the trees are larger than 20 – 24 inches dbh. In any one stand red maple (*Acer rubrum*) is either the only canopy dominant, or it is co-dominant with one or more hardwoods including green ash (*Fraxinus pennsylvanica*), elms (*Ulmus americana* and *U. rubra*), some yellow birch (*Betula alleghaniensis*), pin oak (*Quercus palustris*), and swamp white oak (*Quercus bicolor*). The other trees with low percent cover include ironwood (*Carpinus carolinianus*) and some white pine (*Pinus strobus*) at the wetland/upland edge. The shrub layer is well developed and quite dense in some areas. Characteristic shrubs are winterberry

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

(*Ilex verticillata*), spicebush (*Lindera benzoin*), alder (*Alnus rugosa*), viburnums (*Viburnum recognitum*, and *V. cassinoides*), highbush blueberry (*Vaccinium corymbosum*), common elderberry (*Sambucus canadensis*), and various shrubby dogwoods (*Cornus sericea*, *C. racemosa*, and *C. amomum*). The herbaceous layer is also quite diverse and is dominated by ferns, including sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*O. regalis*), and marsh fern (*Thelypteris palustris*), with much lesser amounts of crested wood fern (*Dryopteris cristata*), and spinulose wood fern (*Dryopteris carthusiana*). Characteristic herbs include skunk cabbage (*Symplocarpus foetidus*), white hellebore (*Veratrum viride*), sedge (*Carex stricta*), jewelweed (*Impatiens capensis*), false nettle (*Boehmeria cylindrica*), tall meadow rue (*Thalictrum pubescens*), cardinal flower (*Lobelia cardinalis*), and marsh marigold (*Caltha palustris*). This wetland is associated with Sprout Creek and contains small pools. A small man made watercourse drains to this swamp from a separate forested wetland located at the northwestern property boundary. Typically only about 2 inches of flow has been observed in this connecting watercourse.

Northwestern Forested Wetland (NYSDEC) - The vegetational structure of this wetland is similar to the eastern forested wetland previously described although tree dbh is smaller when compared to the more lush eastern swamp. Also, some major differences are visible. The hydrology of this wetland is derived from surface sources and road drainage in particular and is not associated with a large watercourse like Sprout Creek. There was no standing water component evident during any of the surveys and no trapping effort could be attempted in this area.

The wetland system on the LTC property is surrounded by farm field or in limited areas undeveloped upland mature second-growth oak-hickory forest. Functions and values provided by the NYSDEC regulated wetlands on the LTC property include groundwater recharge, floodflow attenuation, sediment trapping, nutrient removal, production export, shoreline stabilization, wildlife habitat, recreation, educational/scientific resources, uniqueness/heritage, and visual quality. Of these, the most significant functions of the NYSDEC wetlands, based on extent of rationale in identifying functions and values, are floodflow attenuation, sediment trapping, and wildlife habitat.

Wetland C is a typical vernal pool habitat as defined by Calhoun and Klemens.⁵ The authors developed an assessment system and described “best development practices” for the conservation of amphibians that breed in vernal pools in the New England

⁵ Calhoun, A.J.K. and M. W. Klemens. 2002. Best Development Practices: Conserving pool-breeding amphibians in residential and commercial developments in the Northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York. 57 pp.

region. The assessment of the ecological significance of a particular vernal pool is based on the biological value of the pool (species abundance, species diversity, and vernal pool vulnerability) and the condition of the critical terrestrial habitat within 750 feet of the vernal pool. This assessment scheme divides vernal pools into three Tiers. Tier 1 consists of exemplary pools to which a variety of management recommendations apply. Tier 2 vernal pools contain management recommendations that should be applied to the maximum extent practicable. Tier 3 vernal pools are considered to be of lower value (to herpetiles) and management recommendations do not apply. The vernal pool located on the property is best described as Tier 2 because development and roads are located in close proximity and only 12 to 13 spotted salamander egg masses and 3 wood frog egg masses were observed in the eastern section of pool during late May 2010. Species arriving at the vernal pool appeared to have come from the Todd Hill Road area as most herpetiles were observed on this road during the surveys. On June 4, 2010 the vernal pool was dry and most likely none of the egg masses survived.

The vernal pool was also assessed based on its physiography and morphological characteristics to determine if Blanding's turtles could potentially utilize this area. Habitat use may shift seasonally and vary geographically. In some populations, vernal pools are used extensively in spring and summer and when summer temperatures are high, Blanding's turtles may become relatively inactive. Turtles may aestivate in vernal pools, shrub swamps, marshes, and ponds. The vernal pool on the property is located in close proximity to Sprout Creek along the southeastern property boundary. During the summer this pool is dry and would not provide refuge for Blanding's. There is no evidence that this pool is critical to this species. Blanding's are not known to overwinter in vernal pools.

3.3 Anticipated Impacts to Wetlands, Wetland Adjacent Area, and Waterbodies

The proposed development of the property will require a Federal Section 404 Nationwide Permit #39 for development activities associated with the placement of fill in 0.11 acres of emergent wetlands resulting from two arch span culvert crossings on the property. A NYSDEC Article 24 Freshwater Wetland Permit is required on the property for these same crossings.

The regulated wetlands on the property will continue to provide the same functional benefits after completion of the proposed development of the property including: maintenance of flood, erosion and storm control; control of pollution and sedimentation; provision of area for wildlife habitat; and provision of areas for passive and active recreational use.

Short-term physical impacts to regulated wetlands on the property will be minimized by the use of erosion controls throughout the property especially in critical areas adjacent to regulated wetlands. No regulated watercourse will be impacted as a result of the proposed development.

3.4 Wetland Mitigation

Avoidance:

Construction in NYSDEC regulated wetlands has been almost totally avoided by the design of the proposed project. Earlier versions of the project proposed an additional crossing, which was subsequently eliminated. Additionally, the design of this crossing limits its impacts to the maximum extent practicable. The encroachment is to be accomplished by proposed arch span culverts crossing at the narrowest part of the NYSDEC/USACE regulated wetland for the road system (*Figure 3.4-1*). The crossings will occur in an area that was previously impacted decades ago in an attempt to drain the area with the installation of a straight ditch. Vegetation surrounding the proposed crossing is dominated by the invasive species known as purple loosestrife (*Lythrum salicaria*). A NYSDEC Article 24 Freshwater Wetland Permit will be required for the project; however an Article 15 Protection of Waters Permit will not be required for impacts to the bed or banks of the tributary since it is not regulated by the NYSDEC. Disturbances to USACE regulated wetlands are proposed and total 0.11 acres. A Nationwide Permit will be obtained from the USACE for these impacts.

Mitigation:

1. Compensatory Wetland Establishment:

As mitigation for the minor jurisdictional wetland impacts (0.11 acres) associated with the crossing, approximately 2:1 or 0.25 acres of compensatory wetland establishment will be provided on the LTC property in a location to be determined in consultation with the NYSDEC and USACE. A wetland habitat consisting of a wooded wetland with a shrub understory, leading to an emergent wetland will be developed as a progression of habitats to establish the area to provide vegetative and wildlife habitat with the same function as the impacted area.

Typical native wetland mitigation plantings (shrubs) include:

Cornus stolonifera - Red Osier Dogwood

Viburnum dentatum - Arrowwood

Cletrha alnifolia - Sweet Pepperbush

Ilex verticillata - Winterberry

Lindera benzoin - Spicebush

Vaccinium corymbosum - Highbush Blueberry

2. Stormwater Measures:

A Stormwater Pollution Prevention Plan (SWPPP) prepared by John Meyer Consulting details the steps necessary to control stormwater generated on the property as a result of increased impervious surfaces. According to the report, the property has been designed to facilitate stormwater movement and purification. Land areas that are not collected by the stormwater management system will sheet flow off the property through natural patterns and surface conditions. The creation of detention basins will function to maintain post-development peak stormwater discharges to at and below their pre-development levels.

The proposed development is designed to integrate the existing runoff patterns and natural features with little disturbance. The natural features on-property will provide environmentally preferred stormwater management mitigation by improving runoff quality through the use of open-channel/wetland filtration, absorption, and evaporation. The stormwater analysis illustrates that the proposed system will function properly, provide water quality enhancements, and require minimal maintenance to insure continued performance. During construction appropriate soil erosion and sediment control measures will reduce any potential impacts to these regulated resources.

Additional mitigation offered by the property owner to replace any lost functions of the isolated and non-jurisdictional wetland include Stormwater Quality Management Basins or Detention Ponds that will be provided on the property for nutrient removal and water quality improvement.

3. Management of Invasive Species:

Finally, additional mitigation will include the management of invasive species that occur in the wet meadow portion of property adjacent to the proposed crossings. The Applicant will remove and attempt to control several invasive species including reed canary grass (*Phalaris arundinaceae*) and purple loosestrife (*Lythrum salicaria*) as part of

the mitigation offered for the Article 24 Freshwater Wetland permit for the wetland crossings.

Nuisance Vegetation Control Plan

Reed canary grass and purple loosestrife are widely recognized as a noxious invasive species that rapidly displaces indigenous wetland vegetation, especially in disturbed or polluted areas while providing little or no food and cover value for wildlife.

Map Existing Locations of Problem Species

Any patches of this invasive species within the specified area will be eradicated using the procedures described below. Surveillance of these weed species will be performed during the monitoring phase of the mitigation project.

Prior to initiation of earthwork, property preparation and planting activities, a base map of the specified area and associated wetlands will be shown. This map then will be used during monitoring efforts of the wetland mitigation to determine the relative success of the containment and eradication efforts.

Containment and Eradication Methods

Limited options are available for eradication of nuisance species. A combination of mechanical control and, as a last resort, herbicide applications will be used to eradicate or contain these species. An idealized sequence of methods to achieve this goal would include:

1. Mechanical mowing or manual cutting in specified area, to preclude bolting/flowering and seed set/dispersal;
2. Excavation of any rootstocks that survive mowing, and;
3. Spraying in areas and/or manual, wick-applications in wetland/restoration area, of any emerging shoots that survive mowing, and excavation, and;
4. Repetitions of these procedures to either eradicate or contain these plants during spring and fall seasons for a two-year period to ensure that this species is eradicated.

4.0 HABITAT FINDINGS

There is several distinct dominant cover types identified on the property as classified by Edinger 2002. Approximate physical impacts to each habitat type are shown and listed in Table 4.0-1. Additional subtypes can be included in each habitat type.

**TABLE 4.0-1
 HABITAT COVER TYPE IMPACTS
 LAGRANGE TOWN CENTER PROPERTY**

NO.	EDINGER 2002	ACRES IDENTIFIED	PROPOSED IMPACTS
1	Cropland/Row Crops	45.95	33.42
2	Successional Old Field	24.50	12.70
3	Appalachian Oak-Hickory Forest	28.49	22.63
4	Red Maple Hardwood Swamp	37.64	0
5	Wet Meadow	15.38	0.10
6	Woodland Pool	0.24	0.24
7	Perennial Watercourse	0.86	0.01
8	Successional Shrubland	28.40	16.10
Total		181.46 ⁶	85.20

⁶ Total property is 194.04 acres – approximately 12.6 acres is currently developed.

4.0-1 Upland Habitats

Terrestrial Cultural

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

Cropland/row crop

The agricultural fields on the LTC property have been in production for decades. The fields are planted in rows of corn.

Successional Old Field

The old-field or meadow areas on the LTC property extend beyond the crop areas and are dominated by forbs and grasses. Characteristic herbs include goldenrods (*Solidago altissima*, *S. nemoralis*, *S. rugosa*, *S. juncea*, *S. canadensis*, and *Euthamia graminifolia*), bluegrasses (*Poa pratensis*, *P. compressa*), timothy (*Phleum pratense*), quackgrass (*Agropyron repens*), smooth brome (*Bromus inermis*), sweet vernal grass (*Anthoxanthum odoratum*), orchard grass (*Dactylis glomerata*), common chickweed (*Cerastium arvense*), common evening primrose (*Oenothera biennis*), oldfield cinquefoil (*Potentilla simplex*), calico aster (*Aster lateriflorus*), New England aster (*Aster novae-angliae*), wild strawberry (*Fragaria virginiana*), Queen-Anne's lace (*Daucus carota*), ragweed (*Ambrosia artemisiifolia*), hawkweeds (*Hieracium* spp.), dandelion (*Taraxacum officinale*), and ox-tongue (*Picris hieracioides*). Shrubs are present, but collectively they have less than 50% cover in the community. Characteristic shrubs include gray dogwood (*Cornus foemina* ssp. *racemosa*), silky dogwood (*Cornus amomum*), arrowwood (*Viburnum recognitum*), raspberries (*Rubus* spp.), sumac (*Rhus typhina*, *R. glabra*), and eastern red cedar (*Juniperus virginiana*). This is a relatively short-lived community that will succeed to a shrubland, woodland, or forest community if not maintained.

Successional Shrubland

There are discreet patches of shrubland thicket that occur on the LTC site. This area was most likely cleared (for farming, logging, pasture, etc.) or otherwise disturbed and then abandoned. This community has at least 50% cover of shrubs. Characteristic

shrubs include gray dogwood (*Cornus foemina* ssp. *racemosa*), eastern red cedar (*Juniperus virginiana*), raspberries (*Rubus* spp.), hawthorne (*Crataegus* spp.), sumac (*Rhus glabra*, *R. typhina*), and multiflora rose (*Rosa multiflora*).

Forested Uplands

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

Appalachian Oak-Hickory Forest Community

This hardwood forest occurs on areas of well-drained portions of the LTC property generally on the upper slopes. The soils are loams or sandy loams. The dominant trees include one or more of the following oaks: red oak (*Quercus rubra*), white oak (*Quercus alba*), or black oak (*Quercus velutina*). Mixed with the oaks, at lower densities, are the following pignut hickory (*Carya glabra*), shagbark hickory (*Carya ovata*), white ash (*Fraxinus americana*), red maple (*Acer rubrum*), and Eastern hop hornbeam (*Ostrya virginiana*). The trees are generally in same age class within sections of the property with a large section of containing trees in the 20 - 24 inch dbh range. The subcanopy stratum contains small trees and tall shrubs including flowering dogwood (*Cornus florida*), witch hazel (*Hamamelis virginiana*), shadbush (*Amelanchier arborea*), and choke cherry (*Prunus virginiana*). Common low shrubs include maple-leaf viburnum (*Viburnum acerifolium*), blueberries (*Vaccinium angustifolium*), red raspberry (*Rubus idaeus*), and gray dogwood (*Cornus racemosa*). The shrub layer and groundlayer flora are more diverse. Characteristic groundlayer herbs are Pennsylvania sedge (*Carex pensylvanica*), tick-trefoil (*Desmodium glutinosum*, *D. paniculatum*), white goldenrod (*Solidago bicolor*), and hepatica (*Hepatica americana*).

4.0-2 Wetland Habitats

Red Maple-Hardwood Swamp

Isolated Wetland

Both habitat types are described in Section 3.2 of this report.

5.0 POTENTIAL THREATENED/ENDANGERED SPECIES

5.1 Blanding's Turtle

Please see the report completed by Ecological Solutions, LLC entitled, "Blanding's Turtle Assessment Report" dated June 18, 2010.

5.2 Bog Turtle

Please see the report completed by Ecological Solutions, LLC entitled, "Indiana Bat/Bog Turtle Habitat Assessment Report" dated June 18, 2010.

5.3 Indiana Bat

Please see the report completed by Ecological Solutions, LLC entitled, "Indiana Bat/Bog Turtle Habitat Assessment Report" dated June 18, 2010.

6.0 ANTICIPATED IMPACTS

The proposed development and its appurtenant features will necessarily require clearing of certain habitats as shown in Table 4.0-2.

Earth moving (excavation, filling, and grading), operation of heavy machinery, construction, alteration of existing drainage patterns, addition of impervious surfaces, changes in traffic patterns, and increased human activity will occur on the subject property.

Anticipated impacts from these activities are outlined below.

6.1 Impacts to Vegetation and Cover Types

- A. **Appalachian Oak-Hickory Forest Loss.** The proposed activities will require the removal of approximately 27 percent of this cover type from the property.
- B. **Red Maple Hardwood Swamp/ Perennial Watercourse.** Development activities have been planned to generally avoid impacts to wetlands. Approximately 0.11 acres of regulated wetland impact is anticipated with at least some of the impact already occurring as a result of ditching for farming activities. The impacts are associated with the proposed road crossing and a Federal Nationwide Permit #29 permit is required for any additional wetland filling that will occur. No impacts will occur to the perennial watercourse.
- C. **Isolated Wetland (Vernal Pool).** One (1) isolated wetland exists on the property. This area is considered to be isolated and not waters of the United States under Section 404, meaning there is no direct connection to any tributary or navigable water. This woodland pool is not a very productive pool and was dry during visits on June 4 and 15, 2010 verifying the fact that no herpetiles successfully bred here.
- D. **Forest Fragmentation.** The wooded areas on the property are generally already fragmented from previous clearing and farming activities such that any additional loss is not expected to significantly affect biodiversity.
- E. **Habitat Fragmentation.** Habitat fragmentation differs from forest fragmentation in that forest fragmentation is the practice of opening up closed forest canopy, allowing edge-oriented species to penetrate into areas of the forest that they

probably would not reach before. While this adversely impacts forest interior species, it potentially benefits edge species.

Habitat fragmentation is the separation and isolation of habitats and wildlife populations by placing impenetrable barriers between habitats that prevent mixing formerly connected or adjacent wildlife populations creating "habitat islands".

Development barriers can be as minor as a 6-inch curb on a road that prevents movement of amphibians, reptiles, or any small sized wildlife. Private fences around homes or lots if proposed can prevent wildlife movement to and from breeding, nesting, or feeding areas such as the watercourse.

Extensive concentrated clearing of overhead vegetation can also hinder summer movement of some wildlife, most notably amphibians, because of possible exposure to direct sunlight at midday in cleared areas, making it difficult for some species to travel without the risk of becoming desiccated.

6.2 Impacts to Wildlife

A. All Species. All wildlife species require food, water, and cover. Trees and woody plants provide two of these directly. Many wildlife species, particularly birds, shift their food habits seasonally. Many winter seedeaters switch to insects in summer. Some wildlife species are resident (they are present in the same general area all year). Many others are migratory. The main migratory periods in our area are: spring (April 15 through June 1); fall (August 15 through October 1). Migratory species are present only when passing through, or during part of the year. Some species are here only in the summer and leave for warmer climates during the winter. Others breed north of us and are present only during winter. A few species exhibit altitudinal migrations. That is, they spend part of the year at high elevations (summer, usually) and part of the year at low elevations (winter, usually). Direct impacts to wildlife biodiversity from the proposed development will primarily be displacement and some direct loss especially to species that spend a large percentage of their life cycle underground. Most species found on the property are typically found in suburban settings especially in LaGrange and may have already adapted to proximal human habitation. These species will remain on the developed portion of the property, though possibly in fewer numbers, as availability of basic habitat features (food, cover, and space) may be decreased in the developed areas.

B. General Species Migration Patterns. The impact of habitat modification is most relevant for forest species, which includes most of the key species (forest interior birds, large mammals, amphibians and most reptiles). Of these species classes the less mobile amphibians and reptiles are more vulnerable to migratory barriers. Impacts to a property on a local level will not significantly affect large mammal, or migratory bird species movements since these species are highly mobile and not typically confined to small corridors within a property. The proposed project will impact 97 of 194 acres with the largest impacts associated with cropland and field.

Regulated wetlands on the property are left virtually intact and are considered the most likely migratory corridors for wildlife species on the property, especially the more sensitive species of amphibians and reptiles. The prime migratory corridors and wildlife destinations for breeding found in the regulated wetlands will remain. Only the limited value of wetland C will be lost, but that pool offered limited functionality and was dry by June 4, 2010 and was dry on June 15, 2010. The two wetland crossings are designed to allow adequate clearance and space for amphibian and reptilian movement through this portion of the regulated wetland complex. The "corridor" has been expanded by about 59 feet by redesigning the intersection at this location. Birds and mammals require no extraordinary measures to secure passage through this area.

C. Threatened/Endangered Species. Please see the reports completed by Ecological Solutions, LLC entitled, "Blanding's Turtle Assessment Report" dated June 18, 2010 and "Indiana Bat/Bog Turtle Habitat Suitability Assessment Report" dated June 18, 2010.

7.0 MITIGATION MEASURES

As noted above, impacts relating to crossing were avoided as much as practicable by the elimination of the initially proposed additional crossings. The crossing design has minimized impacts as much as possible. In addition, mitigation measures for the potential impacts are outlined below.

7.1 Mitigation For Impacts to Vegetation and Cover Types

The Applicant will minimize impacts by establishing undisturbed, naturally vegetated zones demarcated in the field by orange construction fencing and by clearing only necessary areas outside of the NYSDEC regulated 100 foot Adjacent Area that will be permanently marked in the field either by boundary markers or fencing.

The upland forest areas impacted by the developments will not be fully replaced but will be enhanced by revegetating some areas within the development after construction with native plant material. Contiguous forested wetland areas will continue to provide natural habitat and migratory corridors for many species. Native plantings may provide wildlife with some habitat and food source.

Other habitat aspects of the property should be preserved and include existing stonewalls and standing dead trees (snags). Old stonewalls provide microhabitats for small mammals, herptiles, and invertebrates. Snags provide perching, nesting, and feeding areas for a wide variety of wildlife. These elements or parts thereof should be protected where possible. Impacts from habitat and forest fragmentation can be minimized by maintaining substantial corridors between natural habitat areas. Connecting corridors do not have to be entirely unbroken, as long as breaks in the natural vegetation are not excessive.

The property provides year-round habitat for most of the species located there. The property will continue to be “connected” to adjacent undeveloped properties so that potential wildlife migratory routes remain.

7.2 Mitigation for Wildlife Impacts

Temporary wildlife displacement during construction is a short-term impact that will occur. In as much as possible earth moving and tree clearing activities should occur after the spring breeding season (April and May) to allow species to migrate and return unhindered to home areas and should be limited to the (October 1 to March 31) time period to avoid any direct impacts to Indiana bats potentially utilizing the property. In

addition, the US Fish and Wildlife Service in conjunction with the NYSDEC suggest that no dyes or chemicals be placed in stormwater detention facilities that could result in wildlife impacts. This will be incorporated into the development plan.

Impacts associated with the removal of the vernal pool are not considered significant since no species of special concern were located here and all breeding activity by more common species were compromised by the lack of hydrology in the pool during early June. None of the egg masses survived the short hydroperiod of this pool. Substantial wetlands including some of the microhabitats in the wetlands remain on the LTC property for breeding amphibians. The stormwater basins once developed may also be utilized by some amphibians if hydrology is persistent.

Spotted turtles use a myriad of habitats but seem to most often be found in shallow aquatic habitats. As stated above these habitats will remain on the property intact and will continue to support this species. No mitigation or habitat enhancement is proposed for this species.

8.0 REFERENCES

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ATTACHMENT

**FEDERALLY LISTED ENDANGERED AND THREATENED
 SPECIES AND CANDIDATE SPECIES IN NEW YORK (By County)**

This list represents the best available information regarding known or likely County occurrences of Federally-listed and candidate species and is subject to change as new information becomes available.

<u>COUNTY</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
CLINTON			
	Bald eagle	<i>Haliaeetus leucocephalus</i>	D
	Indiana bat (S)	<i>Myotis sodalis</i>	E
COLUMBIA			
	Bald eagle	<i>Haliaeetus leucocephalus</i>	D
	Bog turtle	<i>Clemmys mühlenbergii</i>	T
	Indiana bat (S)	<i>Myotis sodalis</i>	E
	New England cottontail	<i>Sylvilagus transitionalis</i>	C
	Shortnose sturgeon ¹	<i>Acipenser brevirostrum</i>	E
CORTLAND²			
DELAWARE			
	Bald eagle	<i>Haliaeetus leucocephalus</i>	D
	Dwarf wedge mussel	<i>Alasmidonta heterodon</i>	E
	Northern monkshood	<i>Aconitum noveboracense</i>	T
DUTCHESS			
	Atlantic sturgeon ¹	<i>Acipenser oxyrinchus oxyrinchus</i>	C
	Bald eagle	<i>Haliaeetus leucocephalus</i>	D
	Bog turtle	<i>Clemmys mühlenbergii</i>	T
	Dwarf wedge mussel (Housatonic River Drainage)	<i>Alasmidonta heterodon</i>	E
	Indiana bat (S)	<i>Myotis sodalis</i>	E
	New England cottontail	<i>Sylvilagus transitionalis</i>	C
	Shortnose sturgeon ¹	<i>Acipenser brevirostrum</i>	E
ERIE²			
ESSEX			
	Indiana bat (W/S)	<i>Myotis sodalis</i>	E
FRANKLIN			
	Bald eagle	<i>Haliaeetus leucocephalus</i>	D

Indiana Bat/Bog Turtle Habitat Suitability Assessment Report

LaGrange Town Center
State Route 55
Town of LaGrange,
Dutchess County, NY

June 18, 2010

Prepared by:

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1.0 INTRODUCTION

A Habitat Suitability Assessment was completed on the LaGrange Town Center (LTC) property (Figure 1.0-1) for the New York State endangered/federally threatened Bog turtle, (*Glyptemys muhlenbergii*) and endangered Indiana bat (*Myotis sodalis*) since these species are known to be in Dutchess County as per the US Fish and Wildlife Service (USFWS) and New York State Department of Environmental Conservation (NYSDEC). The NYSDEC provided GPS coordinates to a known Indiana bat maternal colony tree in the northwestern forested wetland on the LTC property that was provided to that Agency by the USFWS. Since there is a known maternal colony tree on the property the NYSDEC indicated in a conversation with Ecological Solutions, LLC that no further mist netting or active searches for Indiana bats was necessary. However, additional habitat assessment was required to determine if potential foraging habitat and other potential roost or maternal colony trees may be on the property, if impacts would occur and would be avoided and minimized.

Ecological Solutions, LLC completed additional field assessments on August 27, September 15, 20, November 11, 2009, March 23, April 5, 12, 18, and April 20 through May 7, 2010, June 4, and 15, 2010 to determine whether habitat for these species is present on the 194.04 acres property. Habitat cover types located on the LTC property are described:

Cropland/row crop

The agricultural fields on the LTC property have been in production for decades. The fields are planted in rows of corn.

Successional old field

The old field or meadow areas on the LTC property extend beyond the crop areas and are dominated by forbs and grasses. Characteristic herbs include goldenrods (*Solidago altissima*, *S. nemoralis*, *S. rugosa*, *S. juncea*, *S. canadensis*, and *Euthamia graminifolia*), bluegrasses (*Poa pratensis*, *P. compressa*), timothy (*Phleum pratense*), quackgrass (*Agropyron repens*), smooth brome (*Bromus inermis*), sweet vernal grass (*Anthoxanthum odoratum*), orchard grass (*Dactylis glomerata*), common chickweed (*Cerastium arvense*), common evening primrose (*Oenothera biennis*), oldfield cinquefoil (*Potentilla simplex*), calico aster (*Aster lateriflorus*), New England aster (*Aster novae-angliae*), wild strawberry (*Fragaria virginiana*), Queen-Anne's lace (*Daucus corota*), ragweed (*Ambrosia artemisiifolia*), hawkweeds (*Hieracium* spp.), dandelion (*Taraxacum officinale*), and ox-tongue (*Picris hieracioides*). Shrubs are present, but collectively they have less than 50% cover in the community. Characteristic shrubs include gray dogwood (*Cornus foemina* ssp. *racemosa*), silky dogwood (*Cornus amomum*), arrowwood (*Viburnum recognitum*),

raspberries (*Rubus* spp.), sumac (*Rhus typhina*, *R. glabra*), and eastern red cedar (*Juniperus virginiana*). This is a relatively short-lived community that will succeed to a shrubland, woodland, or forest community if not maintained.

Successional shrubland

There are discreet patches of shrubland thicket that occur on the LTC site. This area was most likely cleared (for farming, logging, pasture, etc.) or otherwise disturbed and then abandoned. This community has at least 50% cover of shrubs. Characteristic shrubs include gray dogwood (*Cornus foemina* ssp. *racemosa*), eastern red cedar (*Juniperus virginiana*), raspberries (*Rubus* spp.), hawthorne (*Crataegus* spp.), sumac (*Rhus glabra*, *R. typhina*), and multiflora rose (*Rosa multiflora*).

Appalachian Oak-Hickory Forest Community

This hardwood forest occurs on areas of well-drained portions of the LTC property generally on the upper slopes. The soils are loams or sandy loams. The dominant trees include one or more of the following oaks: red oak (*Quercus rubra*), white oak (*Quercus alba*), or black oak (*Quercus velutina*). Mixed with the oaks, at lower densities, are the following pignut hickory (*Carya glabra*), shagbark hickory (*Carya ovata*), white ash (*Fraxinus americana*), red maple (*Acer rubrum*), and Eastern hop hornbeam (*Ostrya virginiana*). The trees are generally in same age class within sections of the property with a large section of containing trees in the 20 – 24 inch dbh range. The subcanopy stratum contains small trees and tall shrubs including flowering dogwood (*Cornus florida*), witch hazel (*Hamamelis virginiana*), shadbush (*Amelanchier arborea*), and choke cherry (*Prunus virginiana*). Common low shrubs include maple-leaf viburnum (*Viburnum acerifolium*), blueberries (*Vaccinium angustifolium*), red raspberry (*Rubus idaeus*), and gray dogwood (*Cornus racemosa*). The shrub layer and groundlayer flora are more diverse. Characteristic groundlayer herbs are Pennsylvania sedge (*Carex pensylvanica*), tick-trefoil (*Desmodium glutinosum*, *D. paniculatum*), white goldenrod (*Solidago bicolor*), and hepatica (*Hepatica americana*).

Red Maple-Hardwood Swamp

Eastern Forested Wetland - The eastern wetland on the property is older age hardwood swamp with trees mostly ranging from 8 to 12 inches in diameter at breast height (dbh) that occur in poorly drained inorganic soils. Several of the trees are larger than 20 – 24 inches dbh. In any one stand red maple (*Acer rubrum*) is either the only canopy dominant, or it is co-dominant with one or more hardwoods including green ash (*Fraxinus pennsylvanica*), elms (*Ulmus americana* and *U. rubra*), some yellow birch (*Betula alleghaniensis*), pin oak (*Quercus palustris*), and swamp white oak (*Quercus bicolor*). The other trees with low percent cover include ironwood (*Carpinus carolinianus*) and some

white pine (*Pinus strobus*) at the wetland/upland edge. The shrub layer is well developed and quite dense in some areas. Characteristic shrubs are winterberry (*Ilex verticillata*), spicebush (*Lindera benzoin*), alder (*Alnus rugosa*), viburnums (*Viburnum recognitum*, and *V. cassinoides*), highbush blueberry (*Vaccinium corymbosum*), common elderberry (*Sambucus canadensis*), and various shrubby dogwoods (*Cornus sericea*, *C. racemosa*, and *C. amomum*). The herbaceous layer is also quite diverse and is dominated by ferns, including sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*O. regalis*), and marsh fern (*Thelypteris palustris*), with much lesser amounts of crested wood fern (*Dryopteris cristata*), and spinulose wood fern (*Dryopteris carthusiana*). Characteristic herbs include skunk cabbage (*Symplocarpus foetidus*), white hellebore (*Veratrum viride*), sedge (*Carex stricta*), jewelweed (*Impatiens capensis*), false nettle (*Boehmeria cylindrica*), tall meadow rue (*Thalictrum pubescens*), cardinal flower (*Lobelia cardinalis*), and marsh marigold (*Caltha palustris*). This wetland is associated with Sprout Creek and contains small pools or ponded areas with sufficient hydrology during the spring to trap for Blanding's turtles and to be used by Blanding's as a potential resting location during migration. A small man made watercourse drains to this swamp from a separate forested wetland located at the northwestern property boundary. Typically only about 2 inches of flow has been observed in this connecting watercourse.

Northwestern Forested Wetland – The vegetational structure of this wetland is similar to the eastern forested wetland previously described although tree dbh is smaller when compared to the more lush eastern swamp. Also, some major differences are visible. The hydrology of this wetland is derived from surface sources and road drainage in particular and is not associated with a large watercourse like Sprout Creek. There was no standing water component evident during any of the surveys and no trapping effort could be attempted in this area. A small perennial tributary about 1 to 2 feet wide within a 3-4 foot wide bed containing on average 3-4 inches of water flow drains this wetland to the eastern forested wetland.

Wet Meadow

The wet meadow identified on the LTC property is largely associated with the small tributary connecting the eastern and northwestern forested swamps. This tributary is perennial and the meadow component is mostly invasive species such as reed canary grass (*Phalaris arundinaceae*) and purple loosestrife (*Lythrum salicaria*).

Permanent Ponds

Two man made permanent ponds with deep (5+ feet) water columns are located on the western and southern portion of the LTC property bordering both Lauer and Todd Hill

Road. The water column in each was devoid of any native vegetation. In addition there is a small portion of a larger pond that is located on the LTC property also along Todd Hill Road. This pond also has a deep water column but contained vegetation within the water column.

Vernal Pool

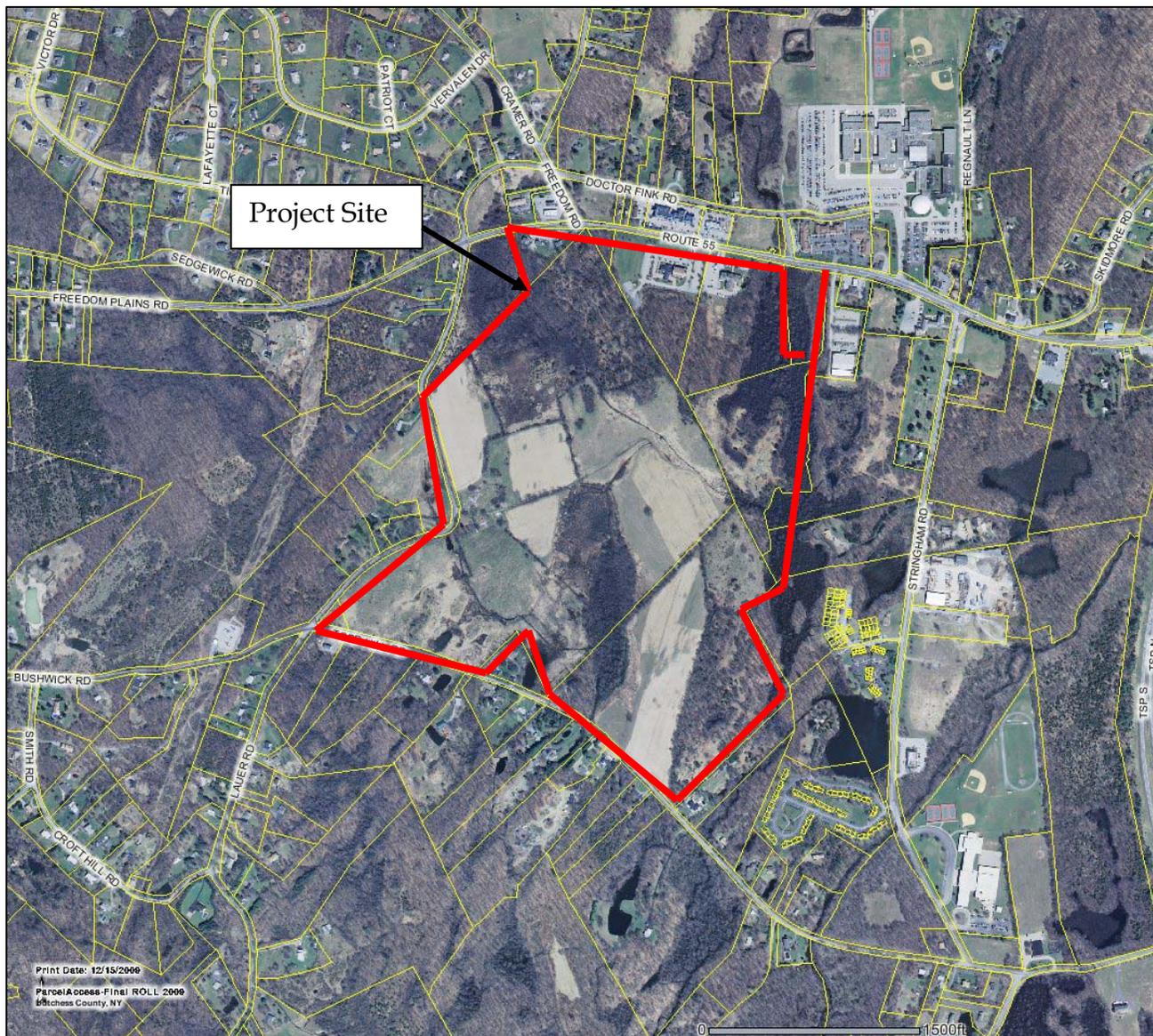
There is one pool approximately 0.24 acres in size located in a depression on the southeastern portion of the property. It is a typical vernal pool that is ponded after heavy rain events and occupies a small confined basin within an upland forest and the edge of a cornfield. Substrate is dense leaf litter over mineral soil.

**TABLE 1.0-1
 COVER TYPES IDENTIFIED ON THE
 LAGRANGE TOWN CENTER PROPERTY**

NO.	EDINGER 2002	ACRES IDENTIFIED ON PARCEL	PROPOSED IMPACTS
1	Cropland/Row Crops	45.95	33.42
2	Successional Old Field	24.50	12.70
3	Appalachian Oak-Hickory Forest	28.49	22.63
4	Red Maple Hardwood Swamp	37.64	0
5	Wet Meadow	15.38	0.10
6	Woodland Pool	0.24	0.24
7	Perennial Watercourse	0.86	0.01
8	Successional Shrubland	28.40	16.10
Total		181.46 ¹	85.20

¹ Total property is 194.04 acres – approximately 12.6 acres is currently developed.

Figure 1.0-1
Location Map



2.0 LITERATURE REVIEW

2.1 Indiana Bats

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

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

Outside the hibernation period, Indiana bats are very mobile and use both live and dead trees equal to or greater than 9 inches dbh with exfoliating bark/crevices, and southern or western exposure. Solar exposure appears to be the most important habitat for maternal colonies during the summer months to keep the pups warm.

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

2.1.1 Indiana Bat Foraging Habitat

Information provided in this section was taken from a publication entitled, “*Review of the Forest Habitat Relationships of the Indiana Bat (Myotis sodalis)*”.

Indiana bats often forage in riparian areas, woodlots, and upland forests. Indiana bats primarily forage 2 to 30 m above the ground (Humphrey et al. 1977). Most foraging occurs along habitat edges. Foraging occurs above, below, and around tree canopies in forested habitats, along the forest/stream edge in riparian areas, and along the edge of pastures and old fields. Bowles (1981) used mist-net surveys to document Indiana bat occurrence at four sites in Iowa. He captured reproductively active females at sites that varied greatly in structure and vegetational composition. These included highly disturbed, narrow (< 15 m) riparian habitats containing young trees (< 15 m tall and < 40 cm dbh), mature riparian areas, and mature upland forests. Bowles suggested that Indiana bats are at least somewhat opportunistic in selecting summer foraging habitat.

In Illinois, Gardner et al. (1989, 1991b) used radiotelemetry to analyze the foraging habits of the Indiana bat and to determine the size of the foraging ranges of 17 *M. sodalis* (2 pregnant, 6 lactating, 1 postlactating, 2 juvenile females, 3 juvenile males, 3 adult males). The study area in each foraging range was divided into 11 cover types: cropland, hayfield or pasture, old field, other agricultural land, upland forest with closed, intermediate, or open canopy, and floodplain forest with closed, intermediate, or open canopy, and pond. Foraging areas consisted primarily of cropland (49 percent), closed canopy floodplain forest (14.8 percent), and closed canopy upland forest (11.6 percent). Hayfield and pastures accounted for 7.1 percent, as did old fields.

Stand Structure/Canopy Cover

Brack (1983) noted that net sites where Indiana bats were captured had openings (gaps) in the forest canopy. Callahan (1993) located Indiana bat maternity roosts in northern Missouri in a stand that had been heavily logged within the past 20 years and in a hoglot where many overstory trees had been killed. He noted that these habitat modifications may have benefited *M. sodalis* by removing most of the canopy cover and leaving many standing dead trees. It is unclear how structural changes caused by logging or the girdling of overstory trees in the hoglot affected the use of these areas by foraging bats.

In Illinois, Indiana bats forage in areas that had been selectively harvested (Gardner et al. 1991b; J. MacGregor pers. observ.). These observations suggest that Indiana bats forage in areas where some timber harvesting has occurred, but they are not useful in determining preference or avoidance of harvested areas.

2.2 Bog Turtle

The potential for Bog Turtle (*Glyptemys muhlenbergii*) habitat was also independently reviewed by Ecological Solutions, LLC. Bog turtle habitat is recognized by three criteria:

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

2. **Suitable soils.** Usually a bottom substrate of permanently saturated organic or mineral soils. These are often soft, mucky-like soils (this does not refer to a technical soil type); you will usually sink to your ankles (3-5 inches) or deeper in muck, although in degraded wetlands or summers of dry years this may be limited to areas near spring heads or drainage ditches. In some portions of the species' range, the soft substrate consists of scattered pockets of peat instead of muck.

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

3.0 HABITAT SUITABILITY ASSESSMENT

3.1 Indiana Bats

The property was evaluated for potential Indiana bat roosting and foraging habitat and additional potential maternal colony trees. The NYSDEC has relayed information to the Applicant that there is one maternal colony tree existing on the LTC property (Figure 3.0-1). No other tree on the LTC property was designated as a likely roost or maternal colony tree as a result of the USFWS tracking. The maternal colony tree will remain on the site undisturbed, and no impacts will occur within a minimum of 100 feet of this tree. The maternal colony tree is located in the northwestern forested wetland, which constitutes 37 acres of the site. The 37 acres of forested wetland area will not be impacted and will continue to be potential habitat for roosting, foraging, and any potential maternal colony formation.

Indiana bats use both live and dead standing trees equal to or greater than 9 inches dbh with exfoliating bark, crevices, holes, dead wood, and southern or western exposure for roosting and maternal colony formation. The forest structure is an important component of desirable habitat: solar exposure to the forest interior and large canopy breaks are important for this species.

The trees observed in the proposed development areas in the uplands are generally second growth and young to medium aged with a fairly uniform canopy layer. These upland wooded areas generally did not contain the elements associated with suitable roosting or maternal colony locations such as exfoliating bark, good solar exposure, or noticeable holes or cracks. The dominant trees located in the upland forest area on the LTC property include the following oaks: red oak (*Quercus rubra*), white oak (*Quercus alba*), and black oak (*Quercus velutina*). Mixed with the oaks at lower densities are one or more of the following hickories: pignut (*Carya glabra*) and shagbark (*Carya ovata*). Common associates are white ash (*Fraxinus americana*), red maple (*Acer rubrum*), and Eastern hop hornbeam (*Ostrya virginiana*). The trees are generally in same age class within the upland forest area with individual trees in the 20 – 24 inch dbh range scattered throughout the forest. The subcanopy stratum contains small trees and tall shrubs including flowering dogwood (*Cornus florida*), witch hazel (*Hamamelis virginiana*), shadbush (*Amelanchier arborea*), and choke cherry (*Prunus virginiana*). About 22 acres of the 28 acres of upland forest will be removed as part of the development.

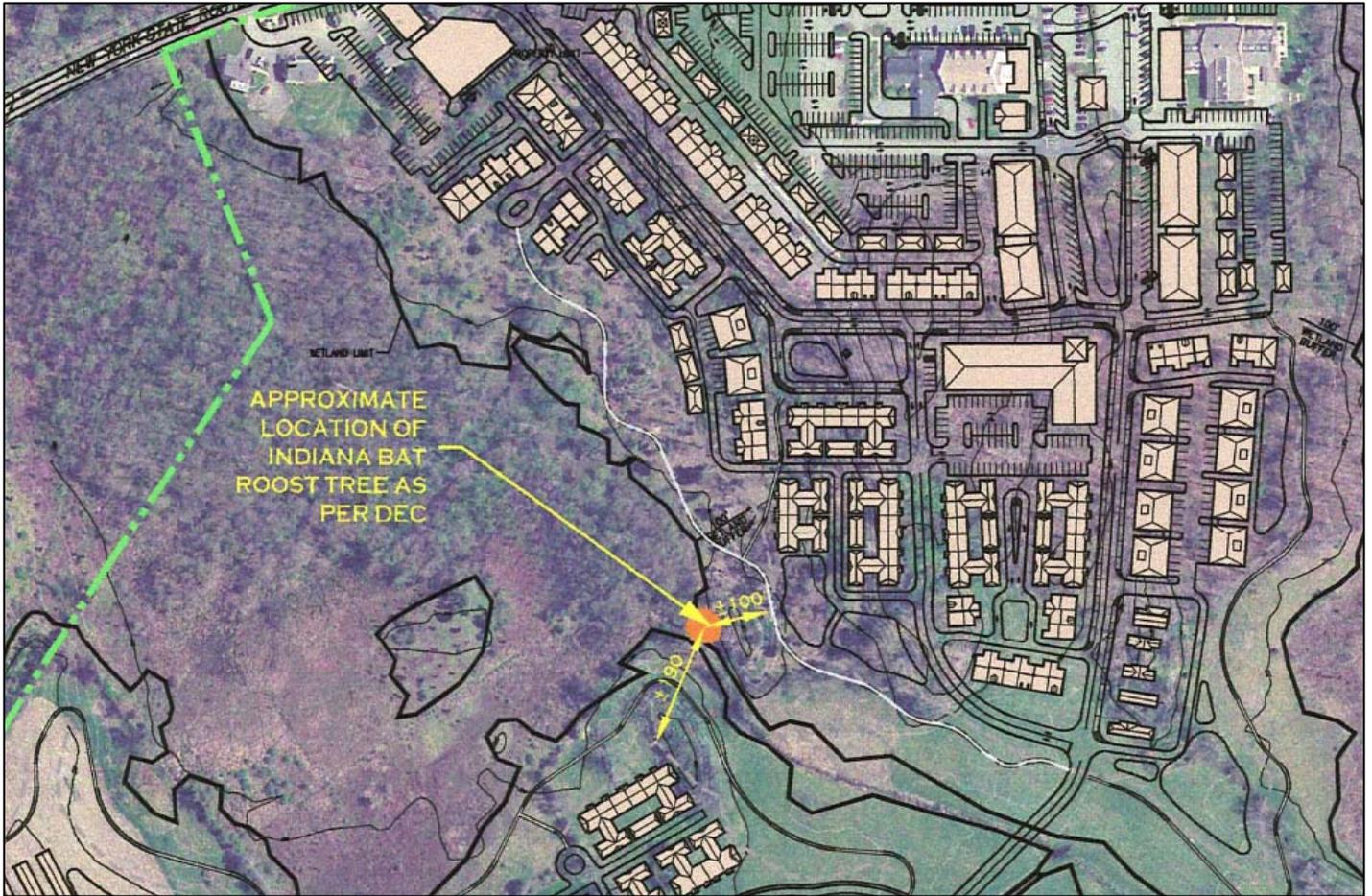
However, the forested wetland component of the LTC property is more than 37 acres of potential foraging, roosting, and maternal colony habitat. The forested wetlands provide excellent habitat for this species because of the varied structure and layers of the canopy with a higher proportion of live and dead trees meeting the requirements

for roosting and maternal colony formation than was found in the wooded uplands. As noted, the forested wetlands will remain completely intact and will continue to provide potential summer habitat for the Indiana bat.

3.1.1 Potential for Foraging Habitat on the LaGrange Town Center Property

The LTC property contains potential foraging area for the Indiana Bat as described above. About 110 acres of the property will remain in its current form and edge areas or areas of habitat transition and the forested wetlands, constituting approximately 37 acres, will continue to provide foraging habitat potential.

Figure 3.0-1 Indiana Bat Maternal Colony Tree Location



3.2 Bog Turtle Habitat (Phase 1) Survey Report

Project and Site Information - The Bog Turtle habitat suitability assessment followed the protocols outlined by the Fish and Wildlife Service (2001)² last revised on April 13, 2006. This Phase 1 was conducted on behalf of the property developer:

BRH Land, LLC
c/o Rieger Homes
6 Old North Plank Road
Newburgh, NY 12550
(845)- 561-1300

The project/property name is: LaGrange Town Center

The project/property location is: State Route 55, Town of LaGrange, Dutchess County, NY 12601.

The property location is shown in Figure 1.0-1 Dutchess County Parcel Viewer. The regulated wetlands on the site drain via an unnamed tributary to Sprout Creek across State Route 55 through culverts.

3.2.1 Project Description

The project involves the construction of a Town Center project, including single family and multifamily residential/commercial development and associated improvements including: access roadway, parking areas, utility lines, and stormwater management basins on SR 55 in the Town of LaGrange, Dutchess County, New York.

Wetland Information

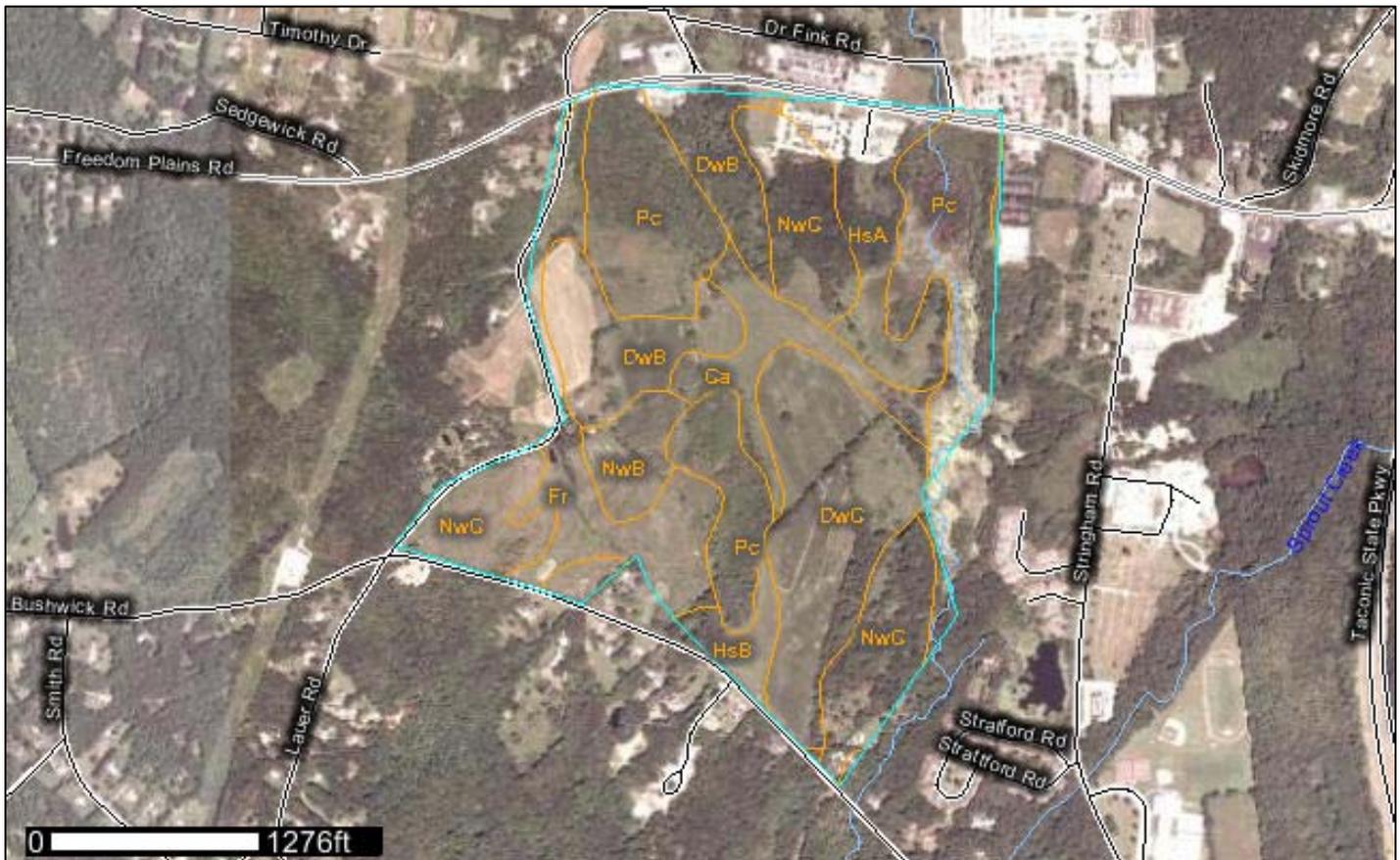
The wetland areas were surveyed for Bog Turtle habitat during August and September 2009. The wetlands are NYSDEC regulated and vary from densely forested system (PFO1-85%) with a 5 foot wide mineral bottom tributary that drains off the property to Sprout Creek. The wetlands contain mineral Canandaigua soil and a variable canopy from dense in the forested area to shrub, as well as wet meadow. There were no apparent flowages or rivulets associated with groundwater seeps found in any area of wetlands, in fact it is likely that drainage ditches were installed when this property was an active farm some years ago. Substrate material is clay with a minor amount of muck on the surface but not a sufficient depth consistent with what is typically associated

² US Fish and Wildlife Service 2001 Bog Turtle (*Clemmys muhlenbergii*) Northern Population, Recovery Plan. Hadley, Massachusetts.

with bog turtle habitat. Figure 3.2-1 is the soils map for the site and shows the mapped hydric soils on the property.

No suitable wetland habitat was identified at the site and the wetlands on the site do not possess the hydrological conditions or substrate material necessary for potential bog turtle habitat. No calcicoles or calcium dependent plant species that are good indicators of potential bog turtle habitat were observed on the property and there is no potential habitat within 300 feet of the property. Hydrology supporting the wetlands on the site is primarily surface water and overland flow associated with culverts both entering and exiting the site.

Figure 3.2-1 – Soils Map



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ca	Canandaigua silt loam, neutral substratum	12.7	5.9%
DwB	Dutchess-Cardigan complex, undulating, rocky	25.1	11.7%
DwC	Dutchess-Cardigan complex, rolling, rocky	32.5	15.1%
Fr	Fredon silt loam	21.3	9.9%
has	Hoosic gravelly loam, nearly level	18.8	8.7%
HsB	Hoosic gravelly loam, undulating	6.8	3.2%
NwB	Nassau-Cardigan complex, undulating, very rocky	7.4	3.4%
NwC	Nassau-Cardigan complex, rolling, very rocky	36.5	17.0%
Pc	Palms muck	53.2	24.8%
Wy	Wayland silt loam	0.4	0.2%
Totals for Area of Interest³		214.5	100.0%

³ Taken from Web Soil Survey – Area of Interest is larger than actual property size which is 194.04 acres

4.0 CONCLUSION

4.1 Indiana Bats

The property is considered to possess potential foraging habitat for the Indiana Bat because of several factors including the location of a known maternal colony tree in the northwestern forested wetland on the site, suitable forest structure and edge habitat components for foraging (wetlands, edge habitat, canopy), and presence of large wetland areas where insects/prey would be plentiful. The Indiana bat data point provided by the NYSDEC seems to indicate that only one tree was utilized by the maternal colony.

The maternal colony tree will remain on the site undisturbed, and no impacts will occur within a minimum of 100 feet of this tree. The maternal colony tree is located in the northwestern forested wetland, which constitutes 37 acres of the site. The 37 acres of forested wetland area will not be impacted and will continue to be potential habitat for roosting, foraging, and any potential maternal colony formation.

The forested wetlands provide excellent habitat for this species because of the varied structure and layers of the canopy with a higher proportion of live and dead trees meeting the requirements for roosting and maternal colony formation than was found in the wooded uplands. The forested wetlands will remain completely intact and will continue to provide potential summer habitat for the Indiana bat.

The trees observed in the proposed development areas in the uplands are generally second growth and young to medium aged with a fairly uniform canopy layer. These upland wooded areas contained few of the elements associated with suitable roosting or maternal colony locations such as exfoliating bark, good solar exposure, or noticeable holes or cracks. About 22.63 acres of this wooded upland area will be impacted by the proposed development. It is estimated by visual observation that there are only approximately 20 to 25 trees in the proposed impact area that contain the qualities necessary for roosting or maternal colony use. In contrast, the 37 acres of preserved forested wetland are estimated to contain in the hundreds of trees appropriate to such use as well as good foraging habitat. As described above, the forested wetland habitat, all of which will remain, is superior for this purpose.

The construction of the LTC project will include such activities as tree clearing and grubbing, earth moving, and paving. These activities will result in effects including: loss of trees (foraging habitat), generation of dust and noise, potential for changes to surface water quality, increased lighting on the site, and increased human activity on the site.

The project sponsor proposes to avoid, minimize, and mitigate for these effects by:

- Maintaining substantial potential foraging habitat since the 37 acre forested wetland, which contains more desirable roosting habitat than the upland forest, will remain undeveloped;
- Preserving the wetlands on the site which can potentially be used by bats as travel corridors;
- Implementing soil conservation and dust control best management practices, such as watering dry disturbed soil areas to keep dust down, and using staked, recessed silt fence and anti tracking pads to prevent erosion and sedimentation in surface waters on the site;
- Implementing tree clearing during timeframes when bats are not resident on the site October 1 – to March 31;
- Prior to clearing, the limits of proposed clearing will be clearly demarcated on the site with orange construction fencing (or similar) to prevent inadvertent over-clearing of the site;
- Stormwater pond/s will not be maintained with any chemicals that might adversely affect bats or insect populations on which they may feed, and by addressing site lighting;
- Site lighting will be pedestrian-scaled and architecturally compatible with lighting in the vicinity of the site.
- Lighting will be limited to the amount and intensity necessary for safety, security and to complement architectural character. Lighting which would spill onto surrounding properties will not be permitted.
- Lighting which is visible from adjacent properties or roads must be indirect or incorporate full shield cut-offs.
- Site lighting fixtures will be selected and designed to focus lighting downward into the zone of pedestrian activity without excessive illumination of the upper residential stories of buildings or of the night sky.
- In residential neighborhoods (TC-R district), street lighting will be primarily in the form of ambient light from building fixtures. Every home shall have at least one exterior fixture on a photocell for every street and alley façade. Streetlights will be provided at intersections and in parking areas.
- The levels of lighting discussed above are designed to avoid adverse impacts of excessive lighting or light pollution relative to existing surrounding land uses, including rural residential backyards.

These measures will result in avoiding and minimizing potential adverse effects to Indiana bats. The LTC property is 194 acres and will also retain many edge habitat areas, many of which will remain without impact. Unlike smaller projects where all

potential habitat is impacted the LTC proposal leaves intact varied native habitats with canopy areas where bat movements and foraging activities can continue unimpeded and takes advantage of the substantial open field areas that Indiana bats often avoid for most of the development activities.

4.2 Bog Turtles

Ecological Solutions reviewed two locations as outlined by a previous consultant where a Phase 2 survey for Bog turtles was conducted. However, based on the habitat indicators Ecological Solutions, LLC found no potential Bog Turtle habitat on the parcel or within 300 feet of the parcel. The areas identified by the previous consultant are not groundwater fed and hydrology was inconsistent meaning either inundated or very dry in both of these areas during the summer/fall surveys. The fact that each area had different hydroperiods (fluctuating from very dry (August) to inundated (September)) suggests that this is not potential bog turtle habitat. Soils also were not sufficient to be suitable for bog turtle. Although some minor muck was evident it was not the deep muck/rivulet association preferred by bog turtles.

5.0 PHOTOGRAPHS



Figures 1 and 2- Site wetlands.





Figures 3 and 4 – Open cornfield and probable maternal colony tree below.



Blanding's Turtle Assessment Report

LaGrange Town Center
State Route 55
Town of LaGrange,
Dutchess County, NY

May 16, 2010

Prepared by:

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1.0 INTRODUCTION

Ecological Solutions, LLC completed a Blanding’s turtle (*Emys blandingii*) assessment on the Lagrange Town Center (LTC) property since the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program has identified that this species has been previously located on or in the vicinity of the property. The LTC property is 194.04 acres with frontage on NYS Route 55, approximately a half mile west of the Taconic State Parkway. The property is bounded by Lauer Road on the west, Todd Hill Road on the South, and Route 55 on the north (*Figure 1.0-1 Location Map*). The assessment was completed in accordance with the guidance issued by the NYSDEC entitled, “Guidelines for Reviewing Projects for Potential Impacts to the Blanding’s Turtle”.

The NYSDEC has stated in the guidelines that Blanding’s turtle utilization of a site be assumed during some phase of its life cycle and a Blanding’s turtle impact assessment completed when a project site exhibits the following characteristics; 1). Suitable habitat exists on site, AND 2). There is a known Blanding’s turtle population within 0.621 miles (3,280 feet), AND 3). The intervening land use between the project site and the known population(s) does not include any significant barriers. The LTC site is considered to possess potential nesting habitat and there are potential core habitats for the turtle to the east, south, and north of the property therefore the Applicant assumes that this species has the potential to utilize the site during some part of its life cycle.

Hudsonia Limited completed a countywide evaluation for Blanding’s turtle and their ecology and focused on the status of this species in study areas that included the Town of LaGrange in a publication entitled, “Blanding’s Turtle Habitats in Southern Dutchess County”. This publication discusses potential impacts to this species and offers specific recommendations and was relied upon in this report.

The LTC proposal contemplates impacts to several habitat types that occur on the site (*Table 1.0-1*) and two specifically (cropland/ successional old field) associated with Blanding’s turtle during nesting season. Ecological Solutions reviewed previous studies and assessments completed on and for the site including the Hudsonia publication and reports from Terrestrial Environmental Specialists (TES) and completed additional on site studies that examined habitat potential based on current data to examine how an individual or population may potentially utilize the site.

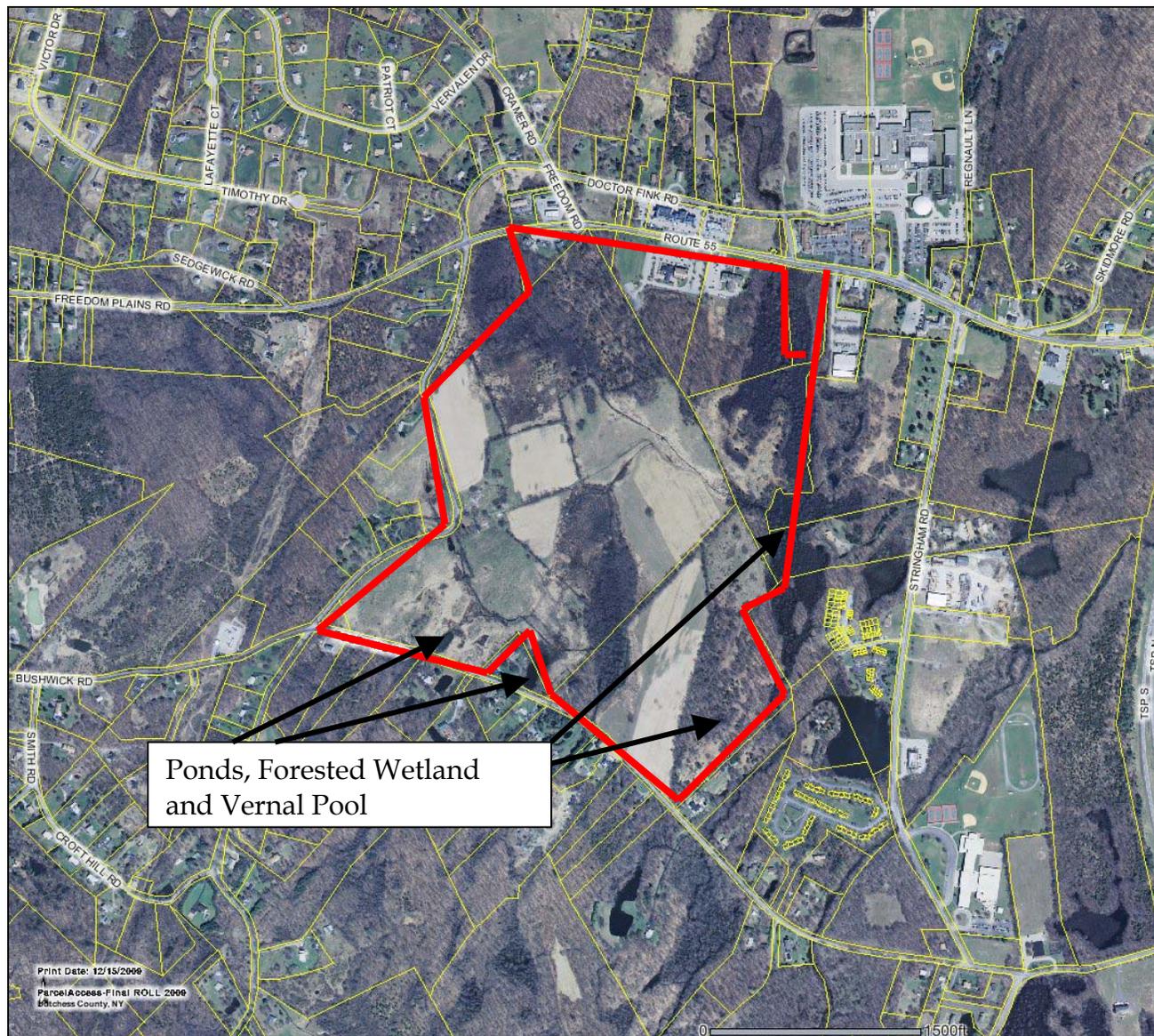
Field assessments were conducted during August, September, and November 2009 and March, April, and May 2010 to gather data on this species and determine presence/absence in open water habitats including two permanent ponds on the southern property boundary, a vernal pool to the southeast, and a large forested wetland on the eastern property boundary. NYSDEC biologist Heather Gierloff

suggested that she might have seen a Blanding's turtle enter the small pond at the southwestern portion of the property adjacent to Todd Hill Road. This pond as well as the other habitats described was intensively studied during April and May 2010. A two-week trapping survey (April 20 to May 7) was completed in these ponds and a portion of the forested wetland that has suitable hydrology along the eastern property boundary but resulted in no Blanding's captures. This trapping survey utilized a total of fifteen (15) nylon hoop funnel traps baited with herring in oil placed in suitable locations within each habitat described above. The traps were checked daily and re-baited as necessary. The intention was to trap a large enough sample (a minimum 5 females) and follow their movements a potential utilization of the LTC property via radio-telemetry however, no captures were made during the surveys.

This effort was conducted to complement the trapping survey that occurred in similar locations in 2004 by TES that also resulted in no Blanding's captures.

Additional sampling also occurred in the vernal pool in March, April, and May. A dip net was utilized to capture amphibians during the spring field visits and check for any turtle activity. The visual assessments occurred in the pool and around the perimeter as well as adjacent to the boundary out to approximately 100 feet and focused on observing species utilization of the area especially for breeding. No utilization by Blanding's turtle/s was recorded in this location or on the site.

Figure 1.0-1 - Location Map



**TABLE 1.0-1
 HABITAT COVER TYPES IDENTIFIED ON THE
 LAGRANGE TOWN CENTER PROPERTY**

NO.	EDINGER 2002	ACRES IDENTIFIED ON PARCEL	PROPOSED IMPACTS
1	Cropland/Row Crops	45.95	33.42
2	Successional Old Field	24.50	12.70
3	Appalachian Oak-Hickory Forest	28.49	22.63
4	Red Maple Hardwood Swamp	37.64	0
5	Wet Meadow	15.38	0.10
6	Woodland Pool	0.24	0.24
7	Perennial Watercourse	0.86	0.01
8	Successional Shrubland	28.40	16.10
Total		181.46 ¹	85.20

¹ Total property is 194.04 acres – approximately 12.6 acres is currently developed.

Figure 1.0-2 - Overall Habitat Map

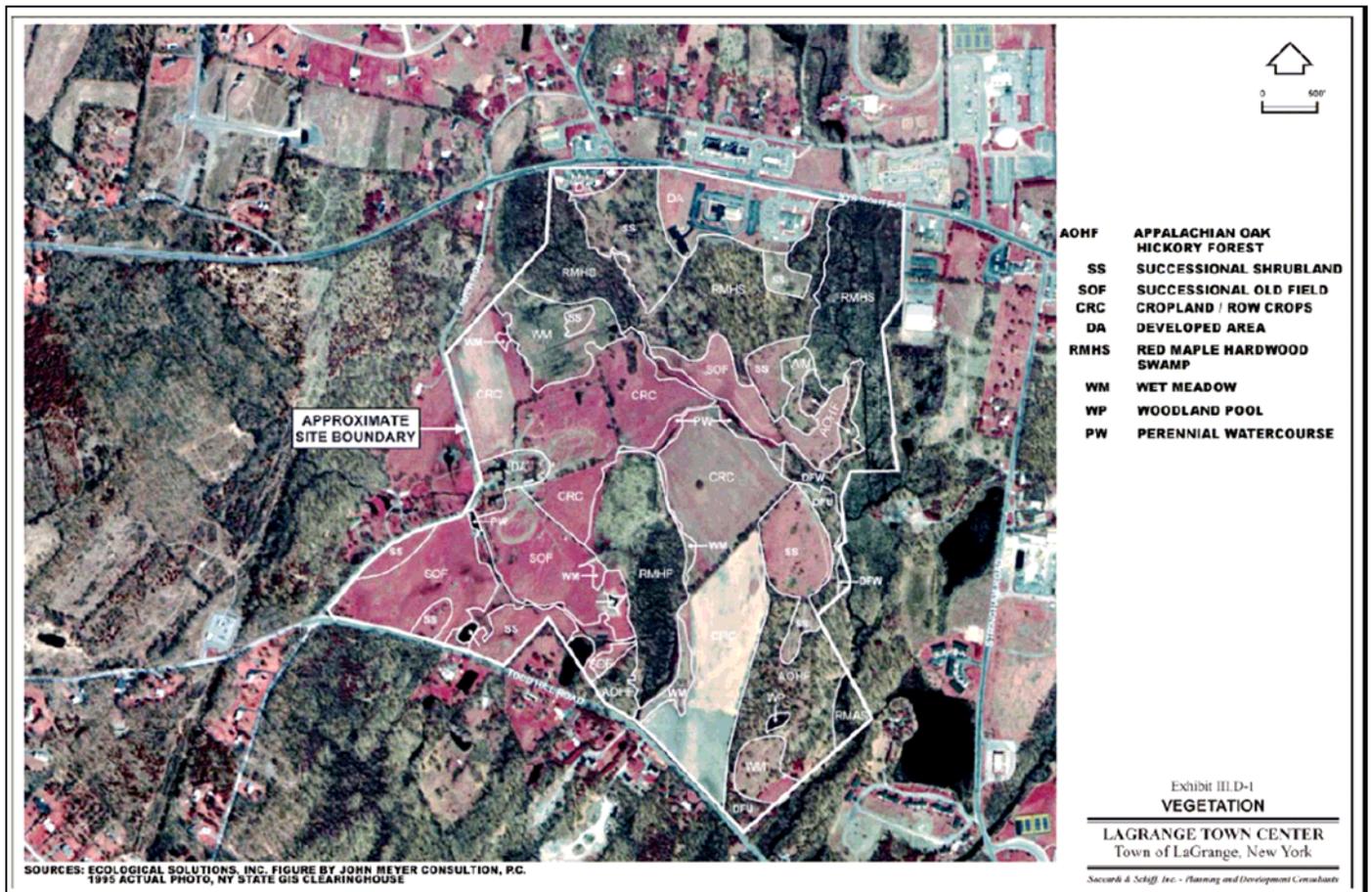
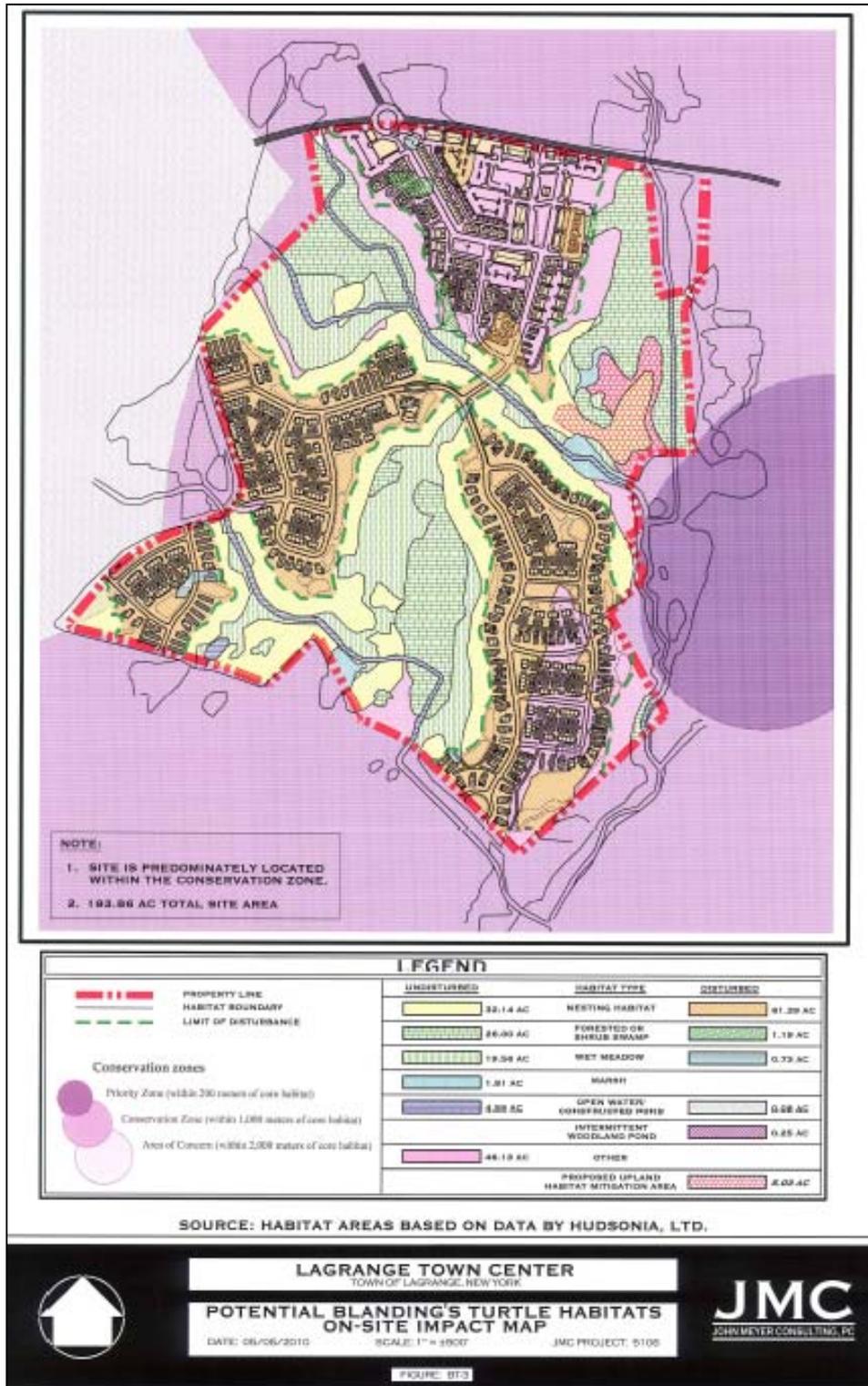


Figure 1.0-3 – Potential Blanding's Turtle Habitat Map



A detailed description of the onsite wetlands and associated habitats is provided.

Cropland/row crop

The agricultural fields on the LTC property have been in production for decades. The fields are planted in rows of corn.

Successional old field

The old field or meadow areas on the LTC property extend beyond the crop areas and are dominated by forbs and grasses. Characteristic herbs include goldenrods (*Solidago altissima*, *S. nemoralis*, *S. rugosa*, *S. juncea*, *S. canadensis*, and *Euthamia graminifolia*), bluegrasses (*Poa pratensis*, *P. compressa*), timothy (*Phleum pratense*), quackgrass (*Agropyron repens*), smooth brome (*Bromus inermis*), sweet vernal grass (*Anthoxanthum odoratum*), orchard grass (*Dactylis glomerata*), common chickweed (*Cerastium arvense*), common evening primrose (*Oenothera biennis*), oldfield cinquefoil (*Potentilla simplex*), calico aster (*Aster lateriflorus*), New England aster (*Aster novae-angliae*), wild strawberry (*Fragaria virginiana*), Queen-Anne's lace (*Daucus corota*), ragweed (*Ambrosia artemisiifolia*), hawkweeds (*Hieracium* spp.), dandelion (*Taraxacum officinale*), and ox-tongue (*Picris hieracioides*). Shrubs are present, but collectively they have less than 50% cover in the community. Characteristic shrubs include gray dogwood (*Cornus foemina* ssp. *racemosa*), silky dogwood (*Cornus amomum*), arrowwood (*Viburnum recognitum*), raspberries (*Rubus* spp.), sumac (*Rhus typhina*, *R. glabra*), and eastern red cedar (*Juniperus virginiana*). This is a relatively short-lived community that will succeed to a shrubland, woodland, or forest community if not maintained.

Successional shrubland

There are discreet patches of shrubland thicket that occur on the LTC site. This area was most likely cleared (for farming, logging, pasture, etc.) or otherwise disturbed and then abandoned. This community has at least 50% cover of shrubs. Characteristic shrubs include gray dogwood (*Cornus foemina* ssp. *racemosa*), eastern red cedar (*Juniperus virginiana*), raspberries (*Rubus* spp.), hawthorne (*Crataegus* spp.), sumac (*Rhus glabra*, *R. typhina*), and multiflora rose (*Rosa multiflora*).

Appalachian Oak-Hickory Forest Community

This hardwood forest occurs on areas of well-drained portions of the LTC parcel generally on the upper slopes. The soils are loams or sandy loams. The dominant trees include one or more of the following oaks: red oak (*Quercus rubra*), white oak (*Quercus alba*), or black oak (*Quercus velutina*). Mixed with the oaks, at lower densities, are the following pignut hickory (*Carya glabra*), shagbark hickory (*Carya ovata*), white ash

(*Fraxinus americana*), red maple (*Acer rubrum*), and Eastern hop hornbeam (*Ostrya virginiana*). The trees are generally in same age class within sections of the parcel with a large section of containing trees in the 20 - 24 inch dbh range. The subcanopy stratum contains small trees and tall shrubs including flowering dogwood (*Cornus florida*), witch hazel (*Hamamelis virginiana*), shadbush (*Amelanchier arborea*), and choke cherry (*Prunus virginiana*). Common low shrubs include maple-leaf viburnum (*Viburnum acerifolium*), blueberries (*Vaccinium angustifolium*), red raspberry (*Rubus idaeus*), and gray dogwood (*Cornus racemosa*). The shrub layer and groundlayer flora are more diverse. Characteristic groundlayer herbs are Pennsylvania sedge (*Carex pennsylvanica*), tick-trefoil (*Desmodium glutinosum*, *D. paniculatum*), white goldenrod (*Solidago bicolor*), and hepatica (*Hepatica americana*).

Red Maple-Hardwood Swamp

Eastern Forested Wetland - The eastern wetland on the parcel is older age hardwood swamp with trees mostly ranging from 8 to 12 inches in diameter at breast height (dbh) that occur in poorly drained inorganic soils. Several of the trees are larger than 20 - 24 inches dbh. In any one stand red maple (*Acer rubrum*) is either the only canopy dominant, or it is co-dominant with one or more hardwoods including green ash (*Fraxinus pennsylvanica*), elms (*Ulmus americana* and *U. rubra*), some yellow birch (*Betula alleghaniensis*), pin oak (*Quercus palustris*), and swamp white oak (*Quercus bicolor*). The other trees with low percent cover include ironwood (*Carpinus carolinianus*) and some white pine (*Pinus strobus*) at the wetland/upland edge. The shrub layer is well developed and quite dense in some areas. Characteristic shrubs are winterberry (*Ilex verticillata*), spicebush (*Lindera benzoin*), alder (*Alnus rugosa*), viburnums (*Viburnum recognitum*, and *V. cassinoides*), highbush blueberry (*Vaccinium corymbosum*), common elderberry (*Sambucus canadensis*), and various shrubby dogwoods (*Cornus sericea*, *C. racemosa*, and *C. amomum*). The herbaceous layer is also quite diverse and is dominated by ferns, including sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*O. regalis*), and marsh fern (*Thelypteris palustris*), with much lesser amounts of crested wood fern (*Dryopteris cristata*), and spinulose wood fern (*Dryopteris carthusiana*). Characteristic herbs include skunk cabbage (*Symplocarpus foetidus*), white hellebore (*Veratrum viride*), sedge (*Carex stricta*), jewelweed (*Impatiens capensis*), false nettle (*Boehmeria cylindrica*), tall meadow rue (*Thalictrum pubescens*), cardinal flower (*Lobelia cardinalis*), and marsh marigold (*Caltha palustris*). This wetland is associated with Sprout Creek and contains small pools or ponded areas with sufficient hydrology during the spring to trap for Blanding's turtles and to be used by Blanding's as a potential resting location during migration. A small man made watercourse drains to this swamp from a separate forested wetland located at the northwestern property boundary. Typically only about 2 inches of flow has been observed in this connecting watercourse.

Eastern Forested Wetland – The vegetational structure of this wetland is similar to the eastern forested wetland previously described although tree dbh is smaller when compared to the more lush eastern swamp. Also, some major differences are visible. The hydrology of this wetland is derived from surface sources and road drainage in particular and is not associated with a large watercourse like Sprout Creek. There was no standing water component evident during any of the surveys and no trapping effort could be attempted in this area.

Permanent Ponds

Two man made permanent ponds with deep (5+ feet) water columns are located on the southern portion of the LTC property. These two areas were trapped along the banks to determine if Blanding's were utilizing these as core habitats. The water column in the smaller pond was devoid of any native vegetation.

Woodland Pool

There is one pool approximately 0.10 acres in size located in a depression on the southeastern portion of the property. It is a typical vernal pool that is ponded after heavy rain events and occupies a small confined basin within an upland forest and the edge of a cornfield. Substrate is dense leaf litter over mineral soil.

No marbled salamander eggs, larvae, or adults were observed in the vernal pool at any point during these surveys. A specific survey was completed in the fall after a large rain event that filled the vernal pool and two weeks after this event to look for larvae. During the summer and fall field work this community contained wood frogs (*Rana sylvatica*), spring peepers (*Hyla crucifer*), and green frogs (*Rana clamitans*). Green frogs are considered a facultative vernal pool species and dependent upon more permanent pools or pools with a longer hydroperiod as breeding habitat than a typical vernal pool. Early spring surveys began in March to determine if Jefferson and/or Blue spotted salamander were breeding in this pool. No adults of either species or egg masses were located in the vernal pool.

2.0 HABITAT SUITABILITY ASSESSMENT

The known and potential “core” habitats for this species in the Town of LaGrange have been mapped by Hudsonia Ltd. and are shown in Figure 2.0-1. Characteristics that indicate core habitat are: shrubby pools with permanent or intermittent hydroperiod with little flow through; high water depths of 0.5–4.0 feet; tree canopy open or absent; tree fringe present; and a dense cover of shrubs, forbs, lemnids or nymphaeids, with coarse and fine organic debris. There are no core habitats mapped on the LTC property. The trapping surveys in 2004 and 2010 were conducted in the two permanent ponds and a portion of the forested wetland on the eastern side of the property the only habitats with suitable water elevations for trapping observed on the property and also concur with the Hudsonia findings that no core habitat exists on the LTC property. The vernal pool and surrounding habitat was also rigorously explored for signs of this species with no observations.

Beside the critical core habitat it is known that Blanding's turtles use a mosaic of habitats. According to the NYSDEC “Aquatic/wetland habitat usage by Blanding's turtles includes different types of freshwater systems such as emergent marshes, woodland pools, red maple swamps, buttonbush swamps, ponds, lakes, rivers, and streams. Juvenile Blanding's are normally associated with shallower water and more densely vegetated habitats as compared to that of adults.

Habitats used for foraging and basking by Blanding's turtles of the southeastern New York population are typically shrub-dominated (particularly buttonbush), large, deep (1 - 4 ft), open-canopy wetlands.

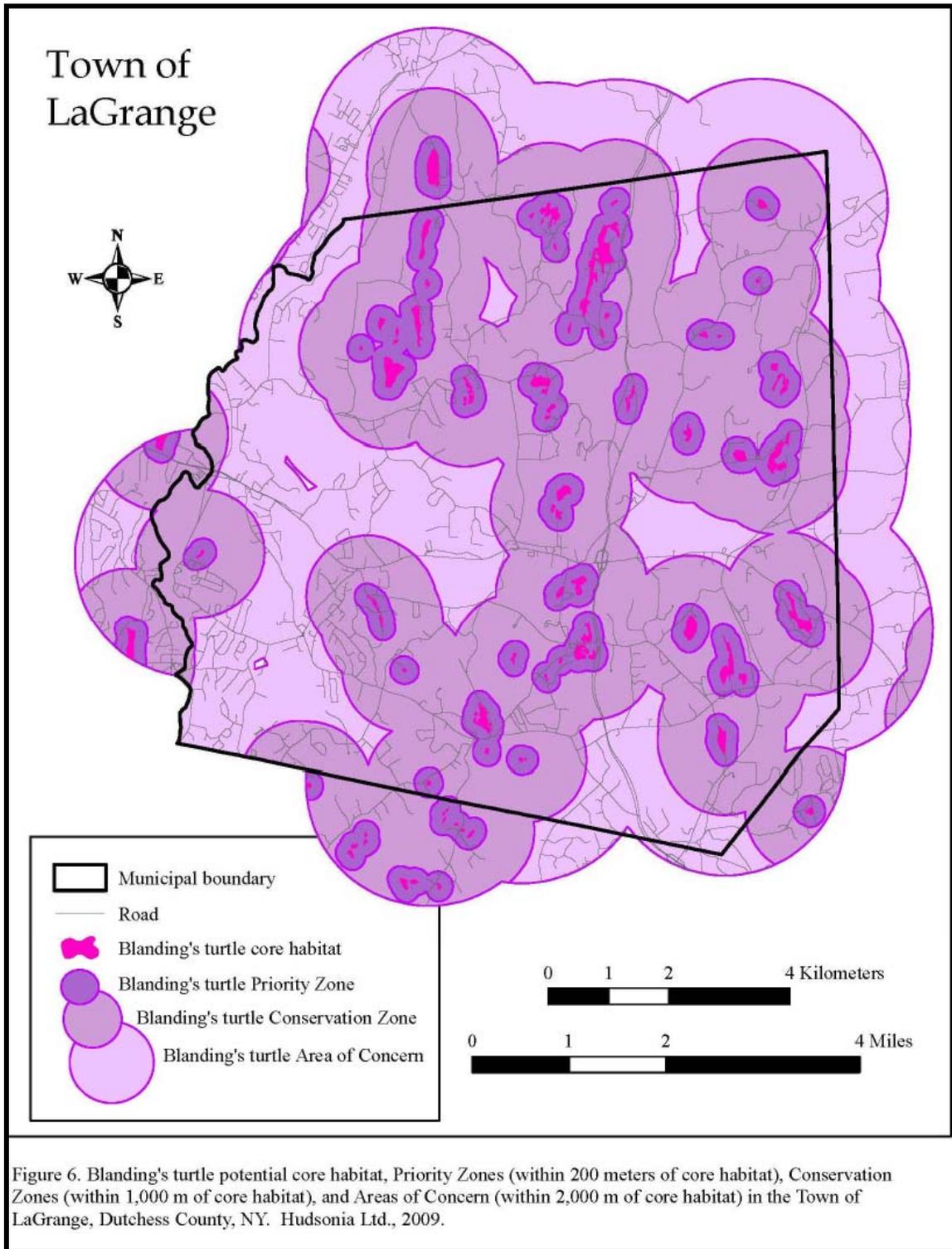
Uplands are an important component of a Blanding's turtle's habitat complex as they spend a substantial portion of the active season on land. During seasonal migrations, turtles of both sexes commonly travel overland through a wide range of terrestrial habitats with only temporary stopovers in re-hydration pools. During the summer, adults may also spend extended periods aestivating in upland areas, including shrub habitats and forested edges.

Gravid females require early successional upland habitats with specific soil characteristics in order to excavate nests into which their eggs are laid; suitable nesting sites may be several thousand feet from the core wetland. Terrestrial nesting habitat is characterized by loose, gravelly soil (often Hoosic) with sparse vegetation.

In the fall, Blanding's turtles usually migrate to permanent wetlands where they hibernate until the following spring.”

The trapping surveys in 2010 like the surveys undertaken in 2004 resulted in no Blanding's turtle captures so that radio-telemetry was not an option that could be utilized to understand specifically how this species potentially utilizes the site (migration corridors, movement patterns, nesting areas). The resulting no capture/s makes it difficult to determine not only how this species may utilize the site, but limits the impacts assessment to prediction based on available literature not exact data and also broadens the mitigation effort to be put forth in general terms.

Figure 2.0-1 - Blanding's Turtle Potential Core Habitats



Hudsonia Ltd. has developed a series of zones around the perimeter of a typical core habitat that correspond to a Priority Zone, Conservation Zone, and Area of Concern.

The Priority Zone is the area approximately 660 feet from the boundary surrounding the core wetland habitat. This area is typically made up of upland habitat and is extensively used by Blanding's turtles from April through October. Nesting may occur in this area.

The Conservation Zone encompasses the area approximately 3,280 feet from the boundary of the core wetland. According to Hudsonia Blanding's turtles use this area on a seasonal basis and represents most of the nesting areas and travel corridors used by this species.

The Area of Concern measures approximately 6,562 feet from the core wetland and is used by turtles during longer migrations to find new habitats and possibly to nest.

The LTC property is entirely outside of the priority zone but is completely in the conservation zone outlined by Hudsonia. On site trapping surveys (April 20 to May 7, 2010) and visual encounter surveys to date have failed to detect utilization of the site by this species. Site specific surveys were all of the habitats on the site were visually evaluated have occurred on August 27, September 15, 20, November 11, 2009, March 23, April 5, 12, 18, and April 20 through May 7, 2010.

2.1 Potential Migration/Travel Corridors

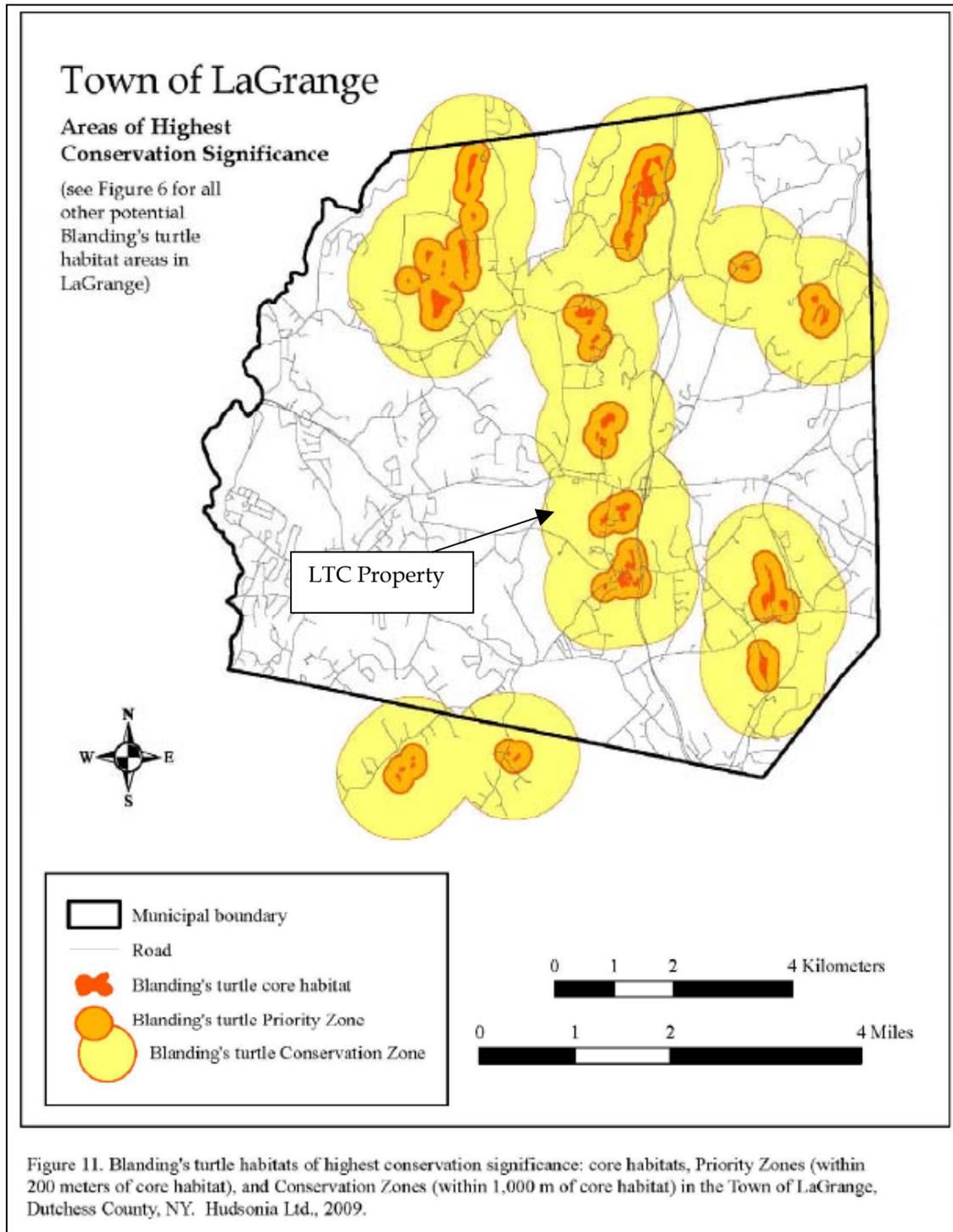
Long Distance - A review of the Hudsonia mapping effort (*Figure 2.1-1*) indicates that the position of core habitats and likely long distance migration routes or travel corridors between these habitats occurs in a north/south plane east of the property and not through the property from the Stringham Road core complex west through the property since it is several miles to a core wetland in this direction. These long distance movements between core habitats may serve to mix the genetics of the species within these complexes. It is unknown if fidelity to a particular core habitat is essential or if migration between these complexes is frequent. In any event from the mapping it does not appear likely that Blanding's would migrate through the parcel from the core wetlands east of LTC to the west across the property since there are no significant areas mapped.

Migration to Potential Nesting Areas - There is anecdotal evidence from the NYSDEC that Blanding's turtles have been observed nesting to the east of Stringham Road in the Town of LaGrange Department of Public Works mulch pile area. Additionally it is known that one (1) individual turtle has been identified travelling through a culvert under State Route 55 in a north south plane from the wetland complex east of the

property. To date no Blanding's have been identified on the LTC property. Short term migration of gravid females from locations east, south, and north of the LTC property to areas of open ground like the old field or meadow areas and cornfield areas on the LTC property can not be ruled out are is the most likely of all life history activities to potentially occur on the site.

Two areas of Hoosic gravelly loam are noted on the site at the southern property boundary associated with open field and cornfield and from the northern property boundary in a hook shape adjacent to the forested wetland on the eastern portion of the property. It is known that female Blanding's seek out this substrate material for nesting since it is easily excavated. These soil groupings are also located in close proximity to the two ponds along Todd Hill Road that would potentially offer drought refuge.

Figure 2.1-1 - Blanding's Turtle Areas of Highest Conservation Significance

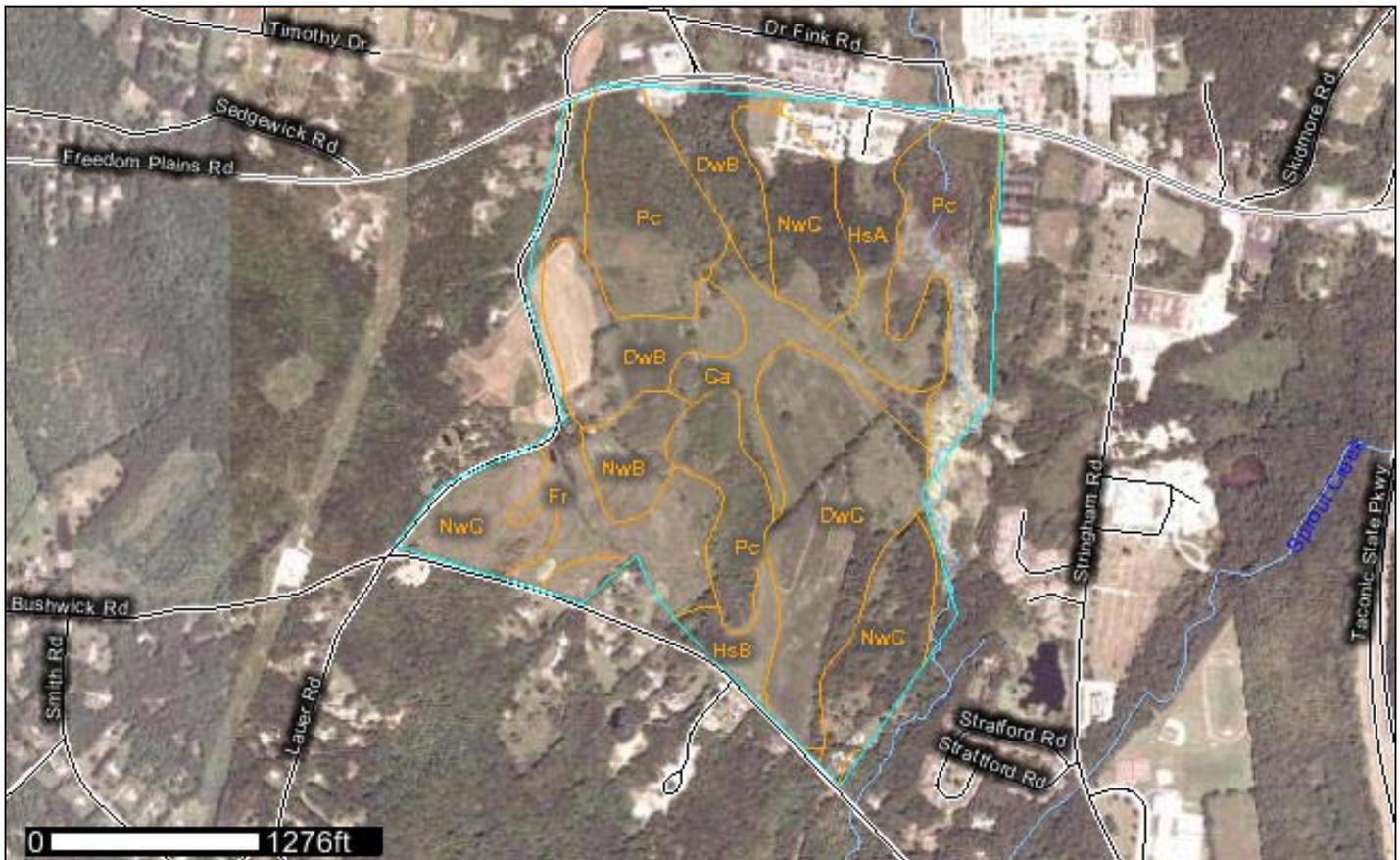


2.2 Potential Nesting Areas

The LTC property contains approximately 70.45 acres of cropland and successional old field with low growing vegetation essential for nesting activities by this species. It is known that gravid females seek out areas with loose granular soil that is easy to dig for nest formation. The preferred soil type according to the literature is Hoosic gravelly loam although any disturbed soil appears to be suitable for nesting. Hoosic soils account for approximately 25.6 acres of the LTC site (*Figure 2.2-1*) in two distinct areas one to the north that has a forested and developed area section and one to the south that is mostly field area. These areas underlain by Hoosic soils represent the most likely potential nesting locations given all of the available information.

Migration or travel to these areas would most likely be from the core wetland to the east along Stringham Road and less likely to be from northern core habitats north of State Route 55 since this road is an effective barrier to movements by this species with the exception of the lone individual that crosses through the culvert under this roadway.

Figure 2.2-1 - Soils Map



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ca	Canandaigua silt loam, neutral substratum	12.7	5.9%
DwB	Dutchess-Cardigan complex, undulating, rocky	25.1	11.7%
DwC	Dutchess-Cardigan complex, rolling, rocky	32.5	15.1%
Fr	Fredon silt loam	21.3	9.9%
HsA	Hoosic gravelly loam, nearly level	18.8	8.7%
HsB	Hoosic gravelly loam, undulating	6.8	3.2%
NwB	Nassau-Cardigan complex, undulating, very rocky	7.4	3.4%
NwC	Nassau-Cardigan complex, rolling, very rocky	36.5	17.0%
Pc	Palms muck	53.2	24.8%
Wy	Wayland silt loam	0.4	0.2%
Totals for Area of Interest²		214.5	100.0%

² Taken from Web Soil Survey – Area of Interest is larger than actual property size which is 194.04 acres

3.0 POTENTIAL THREATS/RESPONSES

As outlined in the introduction the project Applicant assumes that there is potential for utilization of some of the site habitats by Blanding's turtles during some stage of the species' life cycle and that as much as possible impacts to the species will be assessed and appropriate mitigation measures incorporated into the project design.

It is understood that Blanding's turtles use a mosaic of wetland, aquatic, and upland habitats, often traveling a kilometer or greater among them. Thus, a large amount of land is required to protect a population. Reduction in habitat quality or availability may harm populations by causing direct mortality of individuals (construction equipment) or indirect mortality due to increased dispersal across inhospitable habitat, increased predation, and increased desiccation.

Female turtles require bare ground and open canopies to lay eggs, and from late May to early July, they leave wetlands in search of suitable nesting habitat. If nesting habitat is not connected to occupied wetland habitat, adult mortality may occur. Humans and their pets may also disturb nesting females and their eggs, and although turtle populations are less sensitive to egg survival than to adult survival, high nest mortality or lack of nesting habitat may harm populations. Also, succession can reduce the quality of nesting areas and may result in reduced recruitment to local populations.

Blanding's turtles may use human-modified areas such as gravel pits, residential lawns, and agricultural areas, for nesting. Thus, adults in these areas are vulnerable to predation, road mortality, disturbance, and mowing equipment.

The NYSDEC Blanding's turtle guidelines require that the following threats to this species be addressed.

- Loss of habitat - residential and commercial development eliminate available habitat.

The proposed LTC project does not impact core Blanding's wetland or surrounding 660-foot priority zone. In addition, there will be no impacts to the high quality forested red maple swamp complex containing the Sprout Creek on the eastern portion of the property or the forested wetland on the western portion of the property. Two wetland crossings are proposed in the area of the small man made tributary that flows from the forested wetland at the northwestern property boundary to the larger eastern forested wetland. Approximately 85 total acres will be developed as part of the proposed use for the 194 acres LTC property including potential nesting locations in the old field and crop areas that total 70.45 acres (46.12 acres to be impacted).

- Habitat degradation
 - Destroying wetland habitats (e.g. draining, filling, ditching)
 - Change in water quality (e.g. chemical or fertilizer application, heavy road salt use, stormwater runoff)
 - Alteration of surface or subsurface hydrology (e.g. stream diversion, construction of impoundments, groundwater wells)
 - Alteration of woodland pool habitat that function as refuges
 - Alteration or removal of aquatic vegetation

The proposed LTC project will impact approximately 0.35 acres of a total of 53,88 acres of wetland on the property. The crossing of the man made watercourse accounts for about 0.11 acres and the impact to the vernal pool amounts to 0.24 acres. The vernal pool has been rigorously studied both last fall and this spring and to date has yielded no Blanding's activity. This pool is completely dry during the summer months into fall and probably would not function as a drought refuge. Two other open water ponds exist in close proximity and could serve as drought refugia on the LTC property since no impacts will occur in these locations.

No impacts to groundwater will occur since the project will rely on the Town of LaGrange municipal water supply. Stormwater will be collected in ponds and no change to on site wetlands is likely to occur since discharge points will be located close to wetland areas.

- Road mortality - aside from the actual loss of habitat, direct mortality from vehicles may be the biggest threat to the Blanding's turtle.

It is agreed that Blanding's turtles potentially utilizing the property would be threatened most by traffic and roads. As we have noted long term migration though the property is not a likely occurrence but shorter term dispersal to the property for nesting by gravid females is possible since nesting habitat exists. From the Hudsonia mapping it is apparent that the whole LTC property is in the 0.6 mile range from known core habitats. However, it is not certain that the western portion of the LTC property and the greatest extent of the range could be utilized. It is more likely that potential nesting areas on the eastern section of the LTC property closer to the core habitat are more likely to be used by Blandings. This assertion is based on several factors such as quality of habitats on the LTC property, distances to these habitats from mapped core wetlands, and habitat mosaic or availability of several habitat types in a given area. Of course wildlife follow their own instincts and not what someone predicts but it is reasonable to assume potential or preferential use of the eastern portion of the LTC property rather than the more remote western section of the property. If this prediction

is correct then the threat from traffic and incidental road impacts are minor given the site layout.

- Fragmentation - connectivity between terrestrial habitats and aquatic/wetland habitats is essential. Placement of permanent barriers including stone walls, fences, ditches or curbs that prevent Blanding's turtles from migrating between habitats may increase direct mortality and decrease reproductive success.

As previously stated long term migration through the property is not a likely occurrence because of the lack of core habitats beyond the western boundary of the property and intensive road network existing in this location. Shorter term dispersal to the property for nesting by gravid females is possible since nesting habitat exists especially adjacent to the eastern property boundary. The large wetland system especially the forested wetlands will remain intact and with the use of large box culvert structures at the crossing locations will remain un-fragmented.

- Collection - illegal collection for the pet trade is often a result of increased human presence near Blanding's turtles populations.

Collection most likely will not occur on the LTC property since an intensive trapping and assessment study did not result in captures it is unlikely that collection by anyone will occur.

- Subsidized predators - increased human activity near Blanding's turtle populations increases the potential for direct and indirect mortality from pets and subsidized predators (e.g. raccoons).

There is a potential for predation but the potential is no greater than the current existing condition. It is unlikely that a domesticated dog will find and kill a Blanding's turtle especially if this species is not a frequent visitor to the property.

4.0 PROPOSED MITIGATION

Since there is potential nesting habitat on the LTC property that will be impacted the following mitigation effort is proposed:

Seasonal Restrictions

- All allowable disturbance activities, including movement of construction vehicles, excavation, and alteration of vegetation, should be conducted during the period when the turtles would be expected to be hibernating and are less likely to be directly impacted by above-ground disturbances. The acceptable work period is October 16th through April 14th.
- Habitats that are proposed to be actively managed (e.g. mowing, tree removal) may increase mortality as turtles are killed by machinery. Vegetation management activities will be conducted within the acceptable work period described above to minimize the potential for injury/death of turtles. To protect gravid females, active nests, and hatchlings, no high-disturbance management activities should be conducted between May 15th and September 30th.

Temporary Barrier

Old Field and cropland on the project site are has the potential to be used by Blanding's turtles as nesting habitat. A temporary restrictive barrier may help to avoid impacts if installed around the perimeter of the disturbance footprint. The barrier should be: 1) installed before during the winter hibernation period and maintained until the end of the construction phase of the project or until the beginning of the next winter hibernation period, whichever occurs first, 2) inspected daily and, if necessary, repaired immediately to a fully functional condition, and 3) constructed in accordance with the following design specifications:

Made of fine-mesh ($\frac{1}{4}$ inch square) filter-fabric or non-woven geotextiles;

A minimum of 42" high;

Anchored into the ground with reinforcement bars placed on the "disturbance side" of the barrier and spaced between 6 - 8 feet apart;

Secured at the base (barrier/ground interface) with at least 8" of fence material covered with soil backfill.

Habitat Creation

The creation of terrestrial nesting habitat may be possible in a 5+ acres area of potentially suitable landform, where suitable substrate and hydrology exist at the border of the forested wetland at the eastern property boundary. A habitat enhancement plan for potential nesting activities is proposed in this location and could include importing sand and gravel and long term monitoring of the area as well as predator management if successful nesting does occur.

Blanding's Turtle Monitor

Since the LTC property contain potential nesting habitat and therefore potential for direct injury/mortality to Blanding's turtles, it is prudent to have an on-site monitor to possibly minimize project impacts. The monitor must be a qualified biologist that has knowledge of Blanding's turtle ecology and relocation procedures; the biologist must also have experience handling Blanding's turtles and be licensed by New York State to do so.

The monitor's responsibilities should include:

- Conducting reconnaissance surveys for Blanding's turtles within the work area prior to the initiation of any disturbance activities, and relocating turtles as required;
- Training all personnel working at the site to be able to identify, locate, and remove or relocate Blanding's turtles, if necessary;
- Monitoring the proper placement and maintenance of temporary restrictive barriers, and
- Providing oversight during the disturbance phase of the project.

Trap hazard protection

Water control structures, such as drain-pipes, may create a trap hazard to Blanding's turtles. To prevent entrapment of Blanding's turtles, the storm drain grates should be designed with the smallest possible grate opening without compromising safety or necessary flow rate.

Below-ground swimming pools should be surrounded by fencing to exclude turtles of all age classes. Fine grade wire cloth (1/4 inch square mesh size) at the base of a picket fence or a 10" - 12" high barrier can be used to prevent turtles from traveling into the hazard area.

Window wells should have grates (1 inch square mesh size or less) or 10" - 12" high vertical barriers surrounding the well.

Any excavation work done between April 15th and October 15th should be backfilled on the same day as excavated **OR** ramps (30 degree angle maximum) should be placed inside the excavation to enable turtles to climb out.

Road hazard protection

Where roads may intersect travel corridors, it may be possible to maintain established routes by using culverts (i.e. herp tunnels). For secondary roads in the LTC development, speed restrictions and "turtle crossing" signs may be helpful.

5.0 BIBLIOGRAPHY

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Mitigation Implementation Plan

LaGrange Town Center, Town of LaGrange,
Dutchess County, NY

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1. INTRODUCTION

BRH Land, LLC proposes to develop the LaGrange Town Center (LTC), a mixed-use commercial and residential development in the Town of LaGrange, Dutchess County, New York. The proposed development will occupy 88.73 acres of a 194-acre property, on which 12.6 acres are currently developed. The proposed project site contains NYSDEC and federal-regulated wetlands and is within the range of known historic home range locations of endangered Indiana bat (*Myotis sodalis*) and state-threatened Blanding’s turtle (*Emydoidea blandingii*). The proposed development will unavoidably impact wetlands, Indiana bat habitat, and Blanding’s turtle habitat, as outlined in the following reports and mitigation plans:

- LaGrange Town Center Joint Application for Permits, 31 March 2021
- Indiana Bat and Northern Long-eared Bat Mitigation Plan, LaGrange Town Center, 31 March 2021
- Blanding’s Turtle Mitigation Plan, LaGrange Town Center, 31 March 2021

These plans outline measures designed to avoid and minimize adverse impacts to wetlands and listed species, as well as mitigation measures proposed to offset impacts that could not be avoided. All of these measures are collectively referred to herein as conservation measures. This document summarizes all of the proposed conservation measures proposed to protect wetlands and listed species, and outlines a schedule under which the proposed conservation measures will be implemented. This plan also memorializes the project sponsor’s commitment to implementation and funding of the conservation measures.

Costs for mitigation measures have not yet been calculated, but the Applicant will provide a statement of estimated mitigation costs for each phase of the project prior to commencing each phase, and shall place the estimated cost for conservation measure implementation into an escrow account to provide financial assurance of the implementation of conservation measures.

2. PROPOSED CONSERVATION MEASURES

2.1 Wetland Impacts and Conservation Measures

Anticipated wetland and regulated wetland adjacent area (AA) impacts are described in the Joint Application for Permit Report. The anticipated impacts and proposed conservation measures are summarized below in Table 1. Additional conservation measures proposed for protection and net conservation benefits of Indiana bats and Blanding’s turtle are summarized in Sections 2.2 and 2.3, respectively.

Table 1. Wetland and AA Impacts and Conservation Measures

Potential Impact	Conservation Measure	Responsible Party	Estimated Cost	Timing
Loss or Conversion of Habitat Types	Minimized Clearing/Project Footprint	Applicant/ Construction Crews	TBD	All Phases
	Project-limiting fence to limit clearance			
	Environmental Site Monitor to check compliance			

Erosion/Sedimentation of Soil	<p>Staked and recessed silt fence installed downslope from all soil disturbance</p> <p>Soil stockpiles will be silt-fenced and tarped each night and during rain</p> <p>Antitracking pads installed at each public road access point</p> <p>Site will be cleared in phases to minimize total clearing at one time</p> <p>Dry soils wind erosion/dust generation will be prevented by water spray or flocculant</p> <p>Excavated wetland soils will be backfilled within 1-2 days and seeded with native wetland seed mix to revegetate and mulched to hold soil until germination</p> <p>Disturbed upland soils will be seeded with a native warm-season grass mix to revegetate, and mulched to stabilize soils until germination.</p>	Applicant/ Construction Crews	TBD	All Phases
Loss of Wetland	<p>Wetland road crossings are all clear-span arch culverts</p> <p>Wetland impacts for 2 utility crossings are temporary and will be restored in kind/in place</p> <p>Wetland soils will be sidecast on tarps to prevent wetland filling</p> <p>No gravel in trench to prevent French drain effect</p> <p>Native soils will be used for backfill and restoration to preconstruction contours</p> <p>New England Wetmix seed mix will be used to revegetate wetland with native species.</p>	Applicant/ Construction Crews	TBD	All Phases
Impacts to Regulated AA	Development impacts to AA have been minimized to demolition of existing	Applicant/ Construction Crews	TBD	All Phases

buildings, construction of the DEC-required turtle curb, construction of several stormwater outfalls, installation of sewer lines in public roads (no impact to natural habitats), and habitat enhancements for Indiana bats and Blanding’s turtles.

The regulated AA throughout the site (except for road crossings) is included in the site Conservation Easement, so no further disturbance of the AA, apart from maintenance of existing structures, will be permissible.

AA boundary on each parcel will be posted with signs indicating them as protected areas.

Disturbed soils within AA will be seeded with New England Warm Season Grass Mix, and a portion of the AA will also be planted with native trees to create future forested habitat for Indiana bats.

2.2 Indiana Bat and Northern Long-eared Bat Impacts and Conservation Measures

Anticipated impacts to endangered Indiana bats and threatened Northern long-eared bats, as well as reasonable and prudent measures (RPMs) stipulated in the USFWS’s Biological Opinion are outlined in detail in the Indiana Bat and Northern Long-eared Bat Mitigation Plan in Appendix F of the Joint Application for Permit Report. The anticipated impacts and proposed conservation measures are summarized below in Table 2.

Table 2. Potential Impacts to Listed Bats and Proposed Conservation Measures.

Potential Impact	Conservation Measure	Responsible Party	Estimated Cost	Timing
Clearing may remove potential roost trees or alter foraging corridors	Trees will be cut from October 15 to March 31 to avoid a roost tree being taken while occupied, and to avoid adversely affecting Blanding’s turtles on the site.	Applicant; Construction Crews	TBD	All Phases

Overall, tree clearing has been reduced to 20.3 acres (originally proposed to be 45 acres in concept plan).

Conservation easements will protect 38.86 acres of upland wooded habitat and 49.65 acres of forested wetland on-site, and 52 acres of land overlying a known important bat hibernaculum, (Barton Hill Mine) in Essex County, New York.

Executed Conservation Easements (onsite and Barton Hill) shall be presented to USFWS, NYSDEC, and USACE when they are both recorded.

Roosting bats may be disturbed by activities

Construction crews will be provided information on how to avoid and minimize potential effects to listed bat species through project briefings.

Applicant;
 Construction
 Crews

TBD

All
 Phases

A minimum 150-foot undisturbed buffer will be maintained around the known former roost tree location to preserve the roost and the immediate surrounding microclimate.

38.86 acres of upland forest and 49.65 acres of wetland forest will be protected onsite under a conservation easement. This will include ±4.5 acres of newly planted trees where no trees currently exist (see Site Plan Sheets IB-1 and IB-2, and WM-1 and WM-2).

A qualified bat biologist will conduct a presence/probable absence survey for Indiana bats per the then-current federal protocol, within the first year following removal of forest. A report of the bat

survey will be presented to the USFWS, NYSDEC, and USACE within 30 days of the survey.

A wildlife biologist will monitor the Project site for critical activities:

- Installation of project-limiting fence and markers prior to commencement of clearing;

- Start of vegetation clearing, to observe that limits are clearly demarcated and seasonal restrictions are observed;

- Completion of vegetation clearing to observe compliance with clearing limits and seasonal restrictions;

- Completion of rough grading to observe compliance with disturbance limits;

- Start of Site Planting, to confirm that planting complies with plan; and

- Completion of light fixture installation, when lights are operational, to observe light coverage and operation per the proposed lighting plan

The biological monitor of the site shall submit a report to the USFWS, USACE, and NYSDEC by December 31 of each year until the final phase of the Project is complete.

The biological monitor shall notify the USFWS, NYSDEC, and USACE within 48 hours of any unauthorized activities on the site resulting in adverse effects to listed bat species that are not addressed in the BA, or addressed in the BO.

Construction will cause noise, vibration, and dust that may disturb bats	<p>Construction activities will take place only during daylight hours, to reduce disturbance to foraging bats.</p> <p>Dust will be minimized through application of water or another inert flocculant.</p>	Applicant; Construction Crews	TBD	All Phases
Lighted areas may reduce likelihood of bat foraging in Project area	<p>Outdoor lighting will be shielded or directed downward, where possible.</p> <p>The use of timers or motion sensors will minimize lighting pollution along forest edges.</p> <p>HOA/POA Charter will specify maintenance of these lighting conditions in perpetuity</p>	Applicant; Construction Crews; HOA/POA	TBD	All Phases
Increased pesticide use could contaminate drinking sources		Applicant; Construction Crews; HOA/POA	TBD	All Phases

2.3 Blanding’s Turtle Impacts and Conservation Measures

Anticipated impacts to NY State threatened Blanding’s turtle are outlined in detail in the Blanding’s Turtle Mitigation Plan in Appendix G of the Joint Application for Permit Report. The anticipated impacts and proposed conservation measures are summarized below in Table 3. Commitment of The Wetland Trust to complete conservation measures on the Outlook Property are provided in the offsite Blanding’s Turtle Mitigation Agreement in Attachment D of the Blanding’s Turtle Mitigation Plan.

Table 3. Blanding’s Turtle Impacts and Conservation Measures

Potential Impact	Conservation Measure	Responsible Party	Estimated Cost	Timing
Direct mortality – turtles are hit or crushed by vehicles on site roads, hit by lawn mowers, or harassed by pets	<p>Turtles will be excluded from the Project area with a temporary barrier during construction. See detail on Site Plan Sheet BT-4.</p> <p>When the Project is constructed, a perimeter curb along the eastern boundary will discourage turtles from entering the developed portion of the site. See detail</p>	Applicant; Construction Crews; HOA/POA	TBD	All Phases

	<p>on Site Plan Sheet BT-4 and layout on BT-1 and BT-2.</p> <p>All construction crews and new residents and lessees will receive a printed Blanding's Turtle Encounter and Education Plan to inform them what to do if they encounter turtles onsite</p>			
<p>Trap hazard – turtles may become trapped in drainage structures or swimming pools.</p>	<p>Storm drain gates will be designed with small grate openings to minimize risk of turtle entry. See detail on Site Plan Sheet BT-4.</p> <p>Fencing and raised terraces will exclude turtles from swimming pool areas.</p> <p>Window wells will have grates as barriers to turtles.</p> <p>Any excavation work between April 14-October 15 will be backfilled the same day, or will have ramps placed to allow turtles to climb out.</p> <p>Stormwater detention basins will have shallow slopes to prevent entrapment.</p> <p>HOA/POA Charter will include responsibility to maintain trap hazard protections in perpetuity.</p>	<p>Applicant; Construction Crews; HOA/POA</p>	<p>TBD</p>	<p>All Phases</p>
<p>Habitat fragmentation – developed areas could pose a barrier to dispersal movements of turtles.</p>	<p>Natural substrate wildlife crossings are provided under roads that cross wetlands by installations of clear span arch culverts that will allow turtles to disperse across the site without having to cross roads. See Site Plan Sheets BT-1 and BT-2.</p>	<p>Applicant; Construction Crews; HOA</p>	<p>TBD</p>	<p>All Phases</p>
<p>Loss of potential nesting habitat</p>	<p>The 100-foot NYSDEC-regulated adjacent area to wetlands on the east side of the site has been left entirely undeveloped, except for stormwater discharges, turtle curb, and habitat enhancement,</p>	<p>Applicant; Construction Crews; HOA; The Wetland Trust</p>	<p>TBD</p>	<p>All Phases</p>

which pose no threat to turtles.

A conservation easement on the site will protect 16.76 acres of early successional upland areas. This will include 4.88 acres of created/enhanced Blanding's turtle nesting habitat.

9.1 acres of Blanding's Turtle habitat will be created, enhanced, and protected offsite at The Wetland Trust's Overlook property, ±2.4 miles NNW of the LTC site. This will include protecting and actively monitoring and managing 8 acres of existing successional old field habitat, and clearing, tilling, monitoring, and maintaining 3 small areas of forest (total 1.1 acre) that possess appropriate soils for turtle nesting. Sites will be protected by electric fences, and will be monitored for turtle activity.

Habitat impacts from future development	54% of the LTC Site will be protected against further development in perpetuity under a conservation easement that will allow no new development on the Site. Maintenance of existing (post-construction) structures will be permitted. Offsite created habitat will be protected under an existing Conservation Easement held by The Wetland Trust.	Applicant; Construction Crews; HOA; The Wetland Trust	TBD	All Phases
Habitat loss or degradation from natural succession	Created habitat onsite will be monitored and maintained for 10 years, and offsite for 5 years, thereby stalling natural succession processes to	Applicant; Construction Crews; HOA; The Wetland Trust	TBD	All Phases

	prolong the viability of the habitat onsite and offsite.			
Water Quality Degradation or Changes to Hydrology	Water quality on the site will be protected through stormwater management that will filter sediment and nutrients out of stormwater runoff through vegetation and soils prior to discharge. Net rates of rain runoff will not change post-construction (as require by state law), so local hydrology is not anticipated to be impacted.	Applicant; Construction Crews; HOA/POA	TBD	All Phases

3. SCHEDULE

The timing of conservation measures is outlined in the attached Proposed Mitigation Implementation Schedule. The schedule is broken out by years from permit issuance rather than actual date, as the start date of the project depends on the date of permit issuance, as well as timing restrictions on vegetation clearing to avoid impacts to listed bats and Blanding’s turtles.

4. FINANCIAL ASSURANCE

Costs for the proposed conservation measures outlined in this application have not yet been calculated. Prior to the commencement of each Phase of the project (Phases 1, 2, and 3), the Applicant will provide NYSDEC with an estimate of costs for conservation measures to be implemented in the Phase to be commenced. The estimated cost of conservation measure implementation will then be deposited into an escrow account as financial assurance that the conservation measures will be implemented in compliance with the approved plans and this application. Upon completion of each conservation measure, funds will be released from the escrow account to pay for each measure.

4. COMMITMENT

We the undersigned, as responsible parties for the implementation of conservation measures and actions outlined herein, do commit to the timely implementation and funding of these actions according to this plan document and its appended schedule. We reserve the right to amend the schedule and timing of the actions outlined herein only upon prior written approval of such changes by NYSDEC.

For BRH Land, LLC:

Steven Rieger

Date

Title

Proposed Mitigation Implementation Schedule

LaGrange Town Center
Proposed Mitigation Implementation Schedule

Phase	Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
	Permit Issued	█															
1	Onsite and Offsite Conservation Easements Executed and Submitted to DEC, USACE, and FWS	█															
1	Agencies notified of project commencement	█															
1	Blanding's Turtle Biologist Engaged for Project	█															
1	Offsite Blanding's Turtle Mitigation Payment and Commencement; Monitoring for 5 years		█		█		█		█		█						
1	Blanding's Turtle Education and Encounter Plan/Poster Presented to Construction Crews/Crew Training	█															
1	Limits of Disturbance Staked and Blanding's Turtle Fence Installed for Phase 1	█															
1	Blanding's Turtle Biologist Monitors Fence Installation and Checks Site for Turtles; On Call thereafter	█															
1	Blanding's turtle fence to be monitored and maintained daily by construction crews; recorded in log.	█															
1	Sedimentation and Erosion Controls Installed; Maintained and Monitored Through Phase Completion	█															
1	Tree Clearing for Phase 1 (only between Oct 31 and March 31)		█														
1	Site Grading for Phase 1		█														
1	Soil Conservation/Dust Control Measures During Construction		█														
1	Blanding's Turtle Habitat Creation for Phase 1 area; Annual Monitoring for 10 years; tilling as needed		█														
1	Annual Report to USACE, USFWS, and NYSDEC, Including onsite and offsite Blanding's Turtle Mitigation		█														
1	Construction/Development of Phase 1		█														
1	Posting of boundary of Conservation Easement on Phase 1 lots (as they are built)		█														
1	Renewal of Federal Wetland Permit			█													
1	HOA Formed - Charter to be submitted to DEC for review prior to incorporation				█												
1	Blanding's Turtle Education and Encounter Plan/Poster Presented to Residents/Homeowners																
1	Install Wetland Utility Crossing; Restore Wetland in Kind and Place; Monitor for 3 years		█														
1	Turtle Curb Construction for Phase 1				█												
1	HOA Maintains mowed strip along both sides of turtle curb (in perpetuity)																
1	Indiana Bat Presence/Probable Absence Survey		█														
2	Limits of Disturbance Staked and Blanding's Turtle Fence Installed for Phase 2																
2	Blanding's Turtle Biologist Checks Phase 2 Site for Turtles; Checks Fencing; On Call thereafter																
2	Blanding's turtle fence to be monitored and maintained daily by construction crews; recorded in log.																
2	Sedimentation and Erosion Controls Installed; Maintained and Monitored Thru Phase Completion																
2	Tree Clearing for Phase 2 (only between Oct 31 and March 31)																
2	Site Grading for Phase 2																
2	Soil Conservation/Dust Control Measures During Construction																
2	Blanding's Turtle Habitat Creation for Phase 2 area; Annual Monitoring for 10 years																
2	Construction/Development of Phase 2																
2	Posting of boundary of Conservation Easement on Phase 2 lots (as they are built)																
2	Turtle Curb Construction for Phase 2																
2	HOA Maintains mowed strip along both sides of turtle curb (in perpetuity)																
2 & 3	Blanding's Turtle Education and Encounter Plan/Poster Presented to Residents/Homeowners																
3	Limits of Disturbance Staked and Blanding's Turtle Fence Installed for Phase 3																
3	Blanding's Turtle Biologist Checks Phase 3 Site for Turtles; Checks Fencing; On Call thereafter																
2	Blanding's turtle fence to be monitored and maintained daily by construction crews; recorded in log.																
3	Sedimentation and Erosion Controls Installed; Maintained and Monitored Thru Phase Completion																
3	Tree Clearing for Phase 3 (only between Oct 31 and March 31)																
3	Site Grading for Phase 3																
3	Soil Conservation/Dust Control Measures During Construction																
3	Blanding's Turtle Habitat Creation for Phase 3 area; Annual Monitoring for 10 years																

*Schedule is subject to changes depending on date of permit issuance, market demands, and time of year restrictions on forest clearing and turtle habitat work.



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23 April 2021

LaGrange Town Planning Board
Town Hall
120 Stringham Road
LaGrangeville, NY 12540

RE: Endangered Indiana Bat and Threatened Blanding's Turtle Conservation Measures
For The Proposed LaGrange Town Center Project, BRH Land, LLC (Applicant)

Dear Board Members:

Edgewood Environmental Consulting, LLC (Edgewood) is the environmental consultant for the proposed LaGrange Town Center (LTC) project. Our staff has been coordinating and planning the environmental impact avoidance, minimization, and mitigation measures and state and federal permitting for this project, including wetlands and threatened and endangered species, since 2010. We understand that the Planning Board has requested a summary of the conservation measures proposed for endangered Indiana bats and state-threatened Blanding's turtle (*Emydoidea blandingii*) for state and federal permits for this project. This letter summarizes our extensive conservation plans for these species, as well as the status of endangered species and wetland permit review with state and federal wildlife agencies.

Species of Concern

The species of concern on the LTC site are the Indiana bat (*Myotis sodalis*), which is listed by both the U.S. Fish & Wildlife Service (USFWS) and the New York State Department of Environmental Conservation (NYSDEC) as an endangered species, northern long-eared bat (*Myotis septentrionalis*), listed by both agencies as a threatened species, but subject to an Endangered Species Act (ESA) Section 4(d) Rule, and the Blanding's turtle, which is listed as a threatened species only by NYSDEC. The Blanding's turtle does not have a federal listing status.

The USFWS's online Information for Planning and Consultation (IPaC) system (**Attachment A**) identified the Indiana bat and the bog turtle (*Glyptemys muhlenbergii*) as having local known occurrences. The bog turtle requires slow moving water through emergent marsh or wet meadow wetlands with organic soils and hummock vegetation (e.g., fens) for breeding, and no such habitat occurs on or immediately adjacent to the site. Further, extensive turtle surveys conducted on the site in 2004 by Terrestrial Environmental Specialists (TES) did not detect bog turtle. Therefore, bog turtle is not likely to occur on the LTC site.

Indiana bat and Blanding's turtle were the only listed species identified by New York Natural Heritage Program in 2020 (**Attachment B**) as having known occurrences on the site. NYNHP also indicated a record for swamp cottonwood (*Populus heterophylla*) occurring within ½ mile to the southwest of the site, but flora and fauna surveys of the LTC Site never discovered this species on site. Northern long-eared bat was considered in our impact assessments and conservation measures because the site falls within the range of this species (once considered virtually ubiquitous), there is potential habitat for the species on the site, and because conservation measures for Indiana bats also provide benefits for northern long-eared bats.

An Indiana bat was radio-tracked to a roost tree on the site by the USFWS in 2006. The roost

tree was a snag, which has since fallen. Whereas the roost tree no longer exists, Indiana bats are known to use multiple roost trees within a small range, so it is assumed that other roost trees could exist nearby. No other roost trees have been confirmed on the Project site, but mature wetland and upland hardwood forest habitat may provide additional potential roost trees and foraging and dispersal habitat for bats. Therefore, it is important to maintain connectivity of these habitats across the site and with similar habitats in the surrounding landscape to allow bats to roost, forage, and travel across the landscape. NYSDEC considers a property to be occupied by a listed species if that species has historically occupied the site, and it has not been proven to be absent.

The Project site falls within the range of the northern long-eared bat, and potential habitat for this species occurs on the site. However, under the ESA Section 4(d) Rule, if there are no known roost trees within 150 feet of proposed tree clearing, and no hibernation site within $\frac{1}{4}$ mile of the site, then take of this species resulting from tree clearing is exempt from prohibition under ESA Section 9. According to the NYSDEC's records (**Attachment C**), there are no known maternity roosts or hibernation sites for northern long-eared bat within the entire Town of LaGrange. The nearest known occurrence is in the Town of East Fishkill. Therefore, no specific conservation measures are required for northern long-eared bats, but again, conservation measures for Indiana bats will also benefit northern long-eared bats.

A Blanding's turtle was identified on the site in the late 1990s or early 2000s in NYSDEC Freshwater Wetland PV-39, located in the northeast corner of the site. As described in the project DEIS (May 28, 2009), an extensive turtle survey conducted in 2004 by Terrestrial Environmental Specialists (TES) failed to detect Blanding's turtle, but failure to detect the species in one survey does not establish absence of the species if it has been previously documented onsite, so the site is still considered occupied. Nesting of the species is not known from the site, but the site does contain Hoosic soils, which are well-drained gravelly soils that are used by Blanding's turtle for nesting. Nassau-Cardigan complex soils are often coincident with Hoosic soils, and may also be used for turtle nesting. The turtles typically nest in bare soil areas or areas with sparse herbaceous vegetation. The only potential nesting habitat that currently exists within Hoosic soil areas on the site are presently active agricultural fields that are tilled annually. Farming activity can pose a risk to the turtles, because tilling often coincides with the timing of turtle nesting, so turtles or nests may be destroyed by tilling. Use of pesticides and herbicides in agricultural applications may also adversely affect turtles. Hoosic soils also occur in wooded and shrubland habitats on the site, but these habitats are not used by the turtles for nesting, due to shading and dense woody roots.

Current State and Federal Permitting Status

As described in the DEIS, minor, unavoidable temporary impacts to freshwater wetlands (0.02 acre) are anticipated on the site for two small utility crossings. This work required authorization by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act, under Nationwide General Permit #29. Per Section 7(a)(2) of the Endangered Species Act (ESA), the USACE must coordinate with the USFWS to ensure that recovery of federally listed endangered species is not jeopardized by the authorization of the proposed Project. We prepared a Biological Assessment (BA) on behalf of the USACE, who submitted it to USFWS in 2019. USFWS accepted the BA, and responded in 2020 with a Biological Opinion (BO) concurring with the BA and setting forth Reasonable and Prudent Measures (RPMs) that were appended to the NWP #29 authorization as conditions. **The Applicant received the NWP #29 authorization in December 2020 (Attachment D).** The RPMs and other conservation and mitigation measures were incorporated into the *Indiana Bat Mitigation Plan* (31 March 2021) for

the project.

NYSDEC requires a Threatened & Endangered Species License under Article 11 of the New York State Environmental Conservation Law (NYSECL) to authorize take of any threatened or endangered species. In addition, a Freshwater Wetlands Permit is required under NYSECL Article 24 for vegetation clearing, ground disturbance, and construction in and within 100 feet of regulated freshwater wetlands. The Joint Application for Permit (Application #3-1334-00251/0001 (FW)/00002 (ETS)/00003 (WQ)), covering Article 11, Article 24 (Freshwater Wetlands), and CWA Section 401 (Water Quality Certification for NWP #29), is currently under review by Region 3 NYSDEC. Permit issuance regulations for the Threatened and Endangered Species License, outlined under 6NYCRR Part 182, require that any action that results in the take of a listed species must result in a net conservation benefit for the species in order to be authorized. **This is the stringent standard to which we have adhered in developing conservation measures for both the Indiana bat and Blanding’s turtle for the LTC project.**

Anticipated Impacts to Species of Concern

Potential impacts to Indiana bats and Blanding’s turtles from the LTC project generally stem from a conversion of natural and agricultural upland habitats on the site to developed land uses (residential and commercial buildings, streets, infrastructure). This will result in a loss of habitat summarized by habitat type in the table below.

Acreeage Impacts by Habitat Type, LaGrange Town Center

Habitat Type	Existing Acreeage	Acres of Temporary Impacts	Acres of Permanent Impacts	Total Impact Acres	Acres Remaining
Deciduous Forest Upland	28.49	0.07	20.23	20.30	8.19
Successional Shrubland	28.40	1.11	16.56	17.67	10.90
Open Field	24.50	3.01	12.44	15.45	9.16
Agricultural Land	45.95	3.59	35.51	39.10	6.85
Developed Land	12.58	0.26	10.62	10.88	1.70
Deciduous Forest Wetland	37.88	0.00*	0.23*	0.23*	37.65
Scrub-Shrub Swamp	7.50	0.00	0.00	0.00	7.50
Emergent Marsh	5.08	0.00	0.00	0.00	5.08
Wet Meadow	2.80	0.02	0.00	0.02	2.80
Open Water	0.86	0.00	0.00	0.00	0.86

* Impacts to wet meadow wetlands will be temporary, and will be restored in kind/in place, so there will be no net loss of wetland area on the site.

† Impacts to forested wetland are limited to un-regulated Wetland C, a small woodland pool



Thinking outside

However, through conservation-oriented planning and coordination with both USFWS and NYSDEC, the Applicant has planned to conserve and protect more than 50% of the parcel in natural, enhanced, and restored habitats.

Loss of forested habitat primarily impacts the Indiana bat, which relies on forested habitat for roosts, foraging, commuting between roosting and foraging habitat, and longer distance migration. Construction activities may temporarily impact bats on the site through noise, dust and vibration. Increasing human development can also impact bats through increased exterior lighting and increased use of pesticides, which can reduce insect prey. Proposed conservation measures avoid significant take that could jeopardize recovery of Indiana bats, and provide a net conservation benefit for this species that would not otherwise be provided in the absence of the project. These measures are outlined under Proposed Conservation Measures, below.

Loss of open, early-successional habitats (old fields, agricultural fields) will primarily impact Blanding's turtles, which use these habitats for nesting and dispersal. A total of 38.37 acres of these upland habitats (29.13 acres of agriculture fields; 9.24 acres of old field) exist on the site, but they are not protected, and the agricultural fields may pose a threat to the Blanding's turtles, as described above. Development can also potentially affect water quality in wetlands, which can indirectly affect the turtles, however, water quality on the site will be maintained, based on the stormwater management plan for the site. The proposed increase in roads and human activity on the site can lead to turtle mortality from roadkill, as well as encounters with pets, or human collection and handling. Proposed conservation measures avoid significant take that could jeopardize Blanding's turtles, and provide a net conservation benefit for the turtles and their habitat. These measures are outlined under Proposed Conservation Measures, below

Proposed Conservation Measures

Conservation measures have been developed for both bats and turtles that avoid direct take, minimize adverse effects, and mitigate for unavoidable impacts for both species, yielding a net conservation benefit for both species. **Thus, populations of both species will benefit within New York State and the local region as part of this Project.**

The following conservation measures are proposed to benefit Indiana bats:

- 52 acres of forested habitat overlying and containing 2 entrances to the Barton Hill Mine in Essex County, NY, which is the largest Indiana bat hibernation site in the Northeast, have been purchased by the Applicant and will be placed under protection of a conservation easement to be held and enforced by the Lake Champlain Land Trust.
- Tree clearing on site will only be conducted between October 31 and March 31, when bats are hibernating offsite. This will avoid direct take of bats from tree clearing.
- Tree clearing has been minimized on the site to 20.46 acres (original proposal was for 45 acres of tree clearing)
- A 150-foot undisturbed buffer will be maintained around the former known roost tree location, and minimal disturbance will occur with 300 feet of the known roost tree location. This will preserve the habitat and microclimate around the former tree location so that if bats use other trees nearby, their habitat will not be disturbed. See these buffers on **Attachment E, Indiana bat Conservation Site Plans.**
- 99 trees of 3 species (shagbark hickory, red maple, and swamp white oak) will be planted in corridors around the proposed wetland crossing at the center of the site to establish a future forested corridor connecting the forested wetlands in the northeast,

northwest, and south-central area of the site. These plantings will create 4.54 acres of new forest cover on the site. See planting plan in **Attachment E, Indiana bat Conservation Site Plans**

- All of the state/federal-regulated forested wetland habitat (37.88 acres) will remain undisturbed on the site.
- 7.07 acres of upland forested habitat will be conserved on the site and is proposed to be protected under a Conservation Easement to be held by the Town of LaGrange. See “Upland Conservation Areas” on **Attachment E, Indiana bat Conservation Site Plans**
- Construction activities will be limited to daylight hours to avoid disturbance of foraging bats.
- Dust generation by construction equipment will be minimized by the application of water or similar inert flocculant.
- Outdoor lighting will be shielded to project light below the horizontal plane. This will minimize light pollution.
- Outdoor lighting near forest edges will be fitted with timers or motion sensors, where safe, to minimize night lighting of forest edge habitats.
- Sodium vapor street lighting will minimize insect attraction and concentration which could attract larger and more aggressive bat species (e.g., big brown bats, eastern red bats) that typically feed around lights and may compete with Indiana bats and northern long-eared bats.
- No pesticides or herbicides will be use in stormwater ponds to avoid direct intake by drinking bats, and to avoid reducing insect prey base.
- All construction personnel will be informed about the protected bats on the site and will be provided with a pamphlet with instructions of what to do in the event that bats are encountered on the site during construction.

The following conservation measures have been discussed with NYSDEC at length, and are proposed to benefit Blanding’s turtles:

- Permanent impacts to regulated wetlands on the site have been avoided; this includes the only wetland in which Blanding’s turtles have been found (Freshwater Wetland PV-39 (northeast portion of Wetland A, as shown on **Attachment F, Preliminary Overall Layout Plan**).
- The only regulated wetland disturbance on the site will be limited to temporary disturbance for installation of utilities, and will occur on wet meadow habitat in the center of the site, dominated by invasive reed canary grass and purple loosestrife, that Blanding’s turtles are unlikely to use.
- Disturbance within the 100-foot regulated adjacent area to wetlands has been limited to installation of several treated stormwater outfalls, construction of the road approaches to the wetland crossings of Road A and Road C, construction of a portion of a NYSDEC-required 12-inch high concrete curb to prevent turtles from entering the developed site (most of the turtle barrier will be outside of the regulated adjacent area to wetlands), removal of 2 existing buildings (this area will be restored to native vegetation), and creation of turtle nesting habitat and bat habitat. Most of the disturbance area will be for habitat creation and enhancement.

- Prior to site disturbance, project disturbance-limiting fence will be erected along the eastern side of the proposed construction to prevent Blanding's turtles from wandering into construction activities. Installation of these fences and site activities will be monitored by a qualified Blanding's turtle biologist before activity begins to avoid harm to turtles that may have accessed the site prior to fence installation. See **Attachment G, Blanding's Turtle Conservation Site Plans**.
- The construction fence will be replaced by a permanent 12-inch-tall concrete curb along the eastern side of the Project. The curb will prevent turtles from entering the developed portions of the site, and will prevent roadkill incidents, collection by people, or harm from pets. See **Attachment G, Blanding's Turtle Habitat Improvement Plans**.
- Habitat connectivity across the site will be maintained by protecting and enhancing wetland habitat, as well as through establishment and maintenance of several wildlife passage corridors that will allow wildlife to pass through the site entirely in natural and restored habitat substrates, and without crossing roads at grade. Road crossings of wetlands and wildlife corridors will be clear span arch culverts that will allow natural substrate underneath to be maintained, and will prevent turtles from having to cross roads to cross the site. See **Attachment G, Blanding's Turtle Habitat Improvement Plans**.
- Existing areas of early successional habitat that have Hoosic or Nassau-Cardigan Complex soils will be protected under the site conservation easement, thereby protecting 8.73 acres of early successional habitat over Hoosic soils, and 11.68 acres of early successional habitat over Nassau-Cardigan Complex soils for existing potential nesting habitat on the site. See **Attachment G, Blanding's Turtle Habitat Improvement Plans**.
- Areas of Hoosic soils on the site have been selected for nesting site creation, enhancement, maintenance, and monitoring for a period of 10 years. These areas will be cleared of existing vegetation and the soil will be tilled to facilitate the use of these soils for nesting by Blanding's turtles. The total area of nesting habitat to be created and monitored for a period of 10 years is 4.88 acres. See **Attachment G, Blanding's Turtle Habitat Improvement Plans**.
- Therefore, a total of 25.29 acres of potential Blanding's turtle habitat will be protected onsite.
- Agricultural activities on the site will be discontinued, thereby removing a threat to turtle movement and reproduction during tilling, planting, and harvest time.
- In addition, the Applicant has negotiated an agreement with The Wetlands Trust (TWT) to create, monitor, and maintain 9.1 acres of Blanding's turtle habitat on TWT's Overlook property, located about 5 miles north of the Project site, within the Town of LaGrange. This habitat will be protected with electric fences to keep turtle predators out, and will be monitored annually.
- A Blanding's turtle encounter and education poster/brochure (**Attachment H**) will be presented to and posted for construction crews and to each new homeowner or lessee in the LTC Project to make them familiar with these protected turtles, and to provide them with clear instructions of what to do if they encounter one. This will help to prevent collecting, and will ensure that the turtles are only handled by trained and experienced biologists.

The following mitigation and conservation measures are proposed for the 0.02 acre of wetland impacts that will result from utility installations, and are illustrated on **Attachment I, Wetland Mitigation Plan (Details)**:

- Native soils from the utility trenches will be sidecast onto tarps to facilitate returning the native soils to the trench following utility installation.
- No gravel bedding will be used in the utility trench to prevent a French drain effect in the trench that could potentially alter wetland hydrology.
- Upon completion of the utility installation, the trench will be backfilled with native soil.
- The backfilled trench will be graded to pre-construction contours and will be seeded with New England Wetland Plants' *New England Wetmix* seed mix (or similar), which is a native wetland emergent plant seed mix.
- The seeded wetland disturbance area will then be mulched with seed-free straw (or similar seed-free mulch) and will be monitored and maintained until rooted vegetation has been established.

Overall, more than 50% of the site area, including protected wetlands, regulated adjacent area, and undeveloped uplands, will be protected post-construction. The proposed conservation easement for the site includes areas of state-regulated upland adjacent areas to wetlands because under NYSECL Article 24, development within the regulated adjacent area may be permitted in certain circumstances. None of this area will be further developed, and natural habitats adjacent to wetlands will be protected in perpetuity under the conservation easement. **Attachment J, Overall Conservation Plan**, illustrates all of the proposed conservation areas on the LTC site, encompassing conservation areas for Indiana bat, Blanding's turtle, and wetlands. Overall, the conservation area of the site is about 54% of the site.

Net Conservation Benefits to Species of Concern

The proposed conservation measures for Indiana bats and Blanding's turtles will result in net conservation benefits for both species. For Indiana bats, an onsite known roost location and generous buffer area will be protected in perpetuity, along with corridors of connected forest habitat that will allow bats to roost, forage, commute and migrate across the site under forest cover. Tree plantings will provide protected habitat cover in the future, and a diverse selection of species for tree plantings will ensure against potential species-specific blights, such as the emerald ash borer. Further, off-site mitigation includes a land purchase of 2 entrances to the largest Indiana bat hibernation site in the Northeast, which will also be protected in perpetuity under a conservation easement to be held by the Lake Champlain Land Trust.

Proposed conservation measures for Blanding's turtles will eliminate a current potential threat to turtle reproduction and movement on the site by eliminating agriculture activity in upland areas adjacent to an occupied wetland that may be used by turtles for nesting. Future threats from roadkill, pet predation, or collection will be prevented by the installation of a physical barrier that will prevent turtles from entering developed areas. A total of 4.88 acres of potential turtle nesting habitat will be created on the site, and 25.29 acres of created and existing potential nesting habitat will be protected under the site conservation easement. In addition, 9.1 acres of Blanding's turtle nesting habitat will be created, preserved, maintained, and monitored for 5 years on TWT's Overlook site. This will yield a total of 39.27 acres of protected potential upland



Thinking outside

nesting habitat for Blanding's turtles within the Town of LaGrange. This is in addition to the state and federally protected wetland habitat that will remain undisturbed and will benefit both species. This more than replaces the 38.37 acres of potential nesting habitat that exists on the site, which includes active agricultural land that potentially threatens turtle movement and reproduction. **When the LTC Project is complete, habitat for both of these species will be safer and more secure from future development than it is today.**

Conclusion

The LTC Project has been proposed to implement the Town Center Zoning in LaGrange. This Zoning District was developed after a multi-year planning effort by the Town, in coordination with the Dutchess County Planning Department, to help avoid suburban sprawl in the Town of LaGrange. Numerous factors, including geographic centrality, the existing location of numerous community facilities, including the Town Hall, the High School, the Post Office, numerous existing businesses, houses of religious worship, and nexus of transportation uses, collectively formed the basis of locating the Town Center at this location. While all these factors favor the proposed development, and the applicant has proposed a compact, walkable development that will eliminate excessive vehicle trips and enhance pedestrian and bicycle connectivity, the site has environmental and habitat issues that call for sensitive treatment. The Applicant and their design team has worked closely with the NYSDEC, USFWS, and the USACE to develop a thoughtful and conservation-oriented plan that will result in no permanent wetland impacts and positive net conservation benefits for an endangered species and a state-threatened species.

Please review the attached material and let me know if you have any questions, or require additional information. Please feel free to contact me directly at (315) 456-8731, or at mfishman@edgewoodenviro.com.

Sincerely,

DRAFT – NO SIGNATURE

Michael S. Fishman, CWB
Conservation Biologist

cc: Steven Rieger, BRH Land, LLC
Bonnie Von Ohlsen, Kimley Horn
Anthony Guccione, Jr., David P. Lombardi, P.E., JMC Site Development Consultants

Attachments:

- A: USFWS IPaC Data
- B: NYNHP Letter
- C: NYSDEC Northern Long-eared Bat Occurrences by Town
- D: NWP #29 Authorization and Biological Opinion
- E: Indiana Bat Habitat Conservation Plan, Sheets IB-1, IB-2
- F: Preliminary Overall Layout Plan
- G: Blanding's Turtle Habitat Improvement Plan, Sheets BT-1 – BT-4
- H: Blanding's Turtle Education and Encounter Plan Poster
- I: Wetland Mitigation Plan
- J: Overall Conservation Plan



Thinking outside

Attachment A
USFWS IPaC Data

IPaC Information for Planning and Consultation

U.S. Fish & Wildlife Service

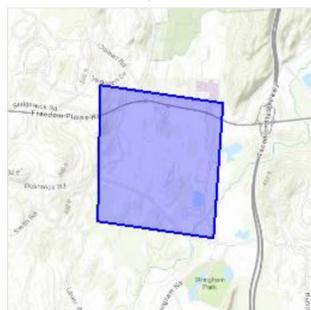
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Dutchess County, New York



Local office

New York Ecological Services Field Office

☎ (607) 753-9334

📠 (607) 753-9699

3817 Luker Road
Cortland, NY 13045-9385<http://www.fws.gov/northeast/nyfo/es/section7.htm>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered

Reptiles

NAME	STATUS
Bog Turtle <i>Clemmys muhlenbergii</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6962	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

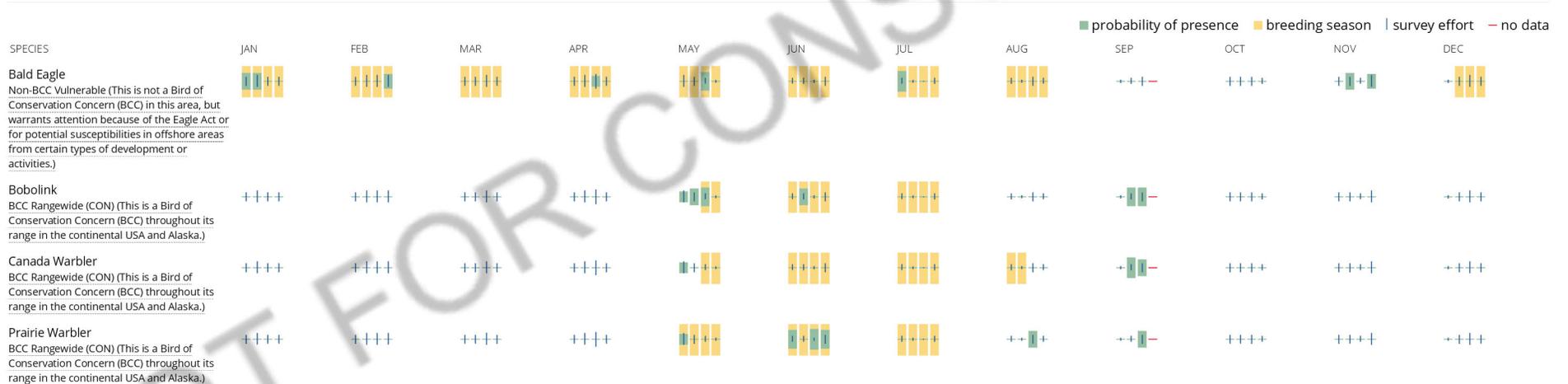
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Red-headed Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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Wood Thrush
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1C](#)
[PEM1F](#)
[PEM1E](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PFO1E](#)
[PFO1C](#)
[PSS1C](#)
[PSS1E](#)
[PFO1/SS1E](#)
[PFO1A](#)
[PSS1E](#)

FRESHWATER POND

[PUBHh](#)

[PUBHx](#)[PUBH](#)

RIVERINE

[R2UBH](#)[R4SBC](#)[R3UBH](#)[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

Attachment B NYNHP Letter

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

July 14, 2020

Michael Fishman
ERM
5784 Widewaters Parkway
Syracuse, NY 13214

Re: LaGrange Town Center
County: Dutchess Town/City: La Grange

Dear Mr. Fishman:

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

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

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

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 3 Office, Division of Environmental Permits, at dep.r3@dec.ny.gov.

Sincerely,



Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program



The following state-listed animals have been documented at the project site.

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

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

The following species has been documented at the project site.

<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>NY STATE LISTING</i>	<i>FEDERAL LISTING</i>
Reptiles			
Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened	4604

The following species has been documented at the project site. An impact of concern is the cutting or removal of potential roost trees.

<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>NY STATE LISTING</i>	<i>FEDERAL LISTING</i>
Mammals			
Indiana Bat <i>Maternity colony</i>	<i>Myotis sodalis</i>	Endangered	Endangered 11287

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

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

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



The following rare plant has been documented in the vicinity of the project site.

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

The following plant is listed as Threatened by New York State, and so is a vulnerable natural resource of conservation concern.

COMMON NAME	SCIENTIFIC NAME	NYSTATE LISTING	HERITAGE CONSERVATION STATUS
Vascular Plants			
Swamp Cottonwood	Populus heterophylla	Threatened	Imperiled in NYS

Documented within 0.5 mile southeast of the project site. Summer 1993. Hardwood swamp.

4385

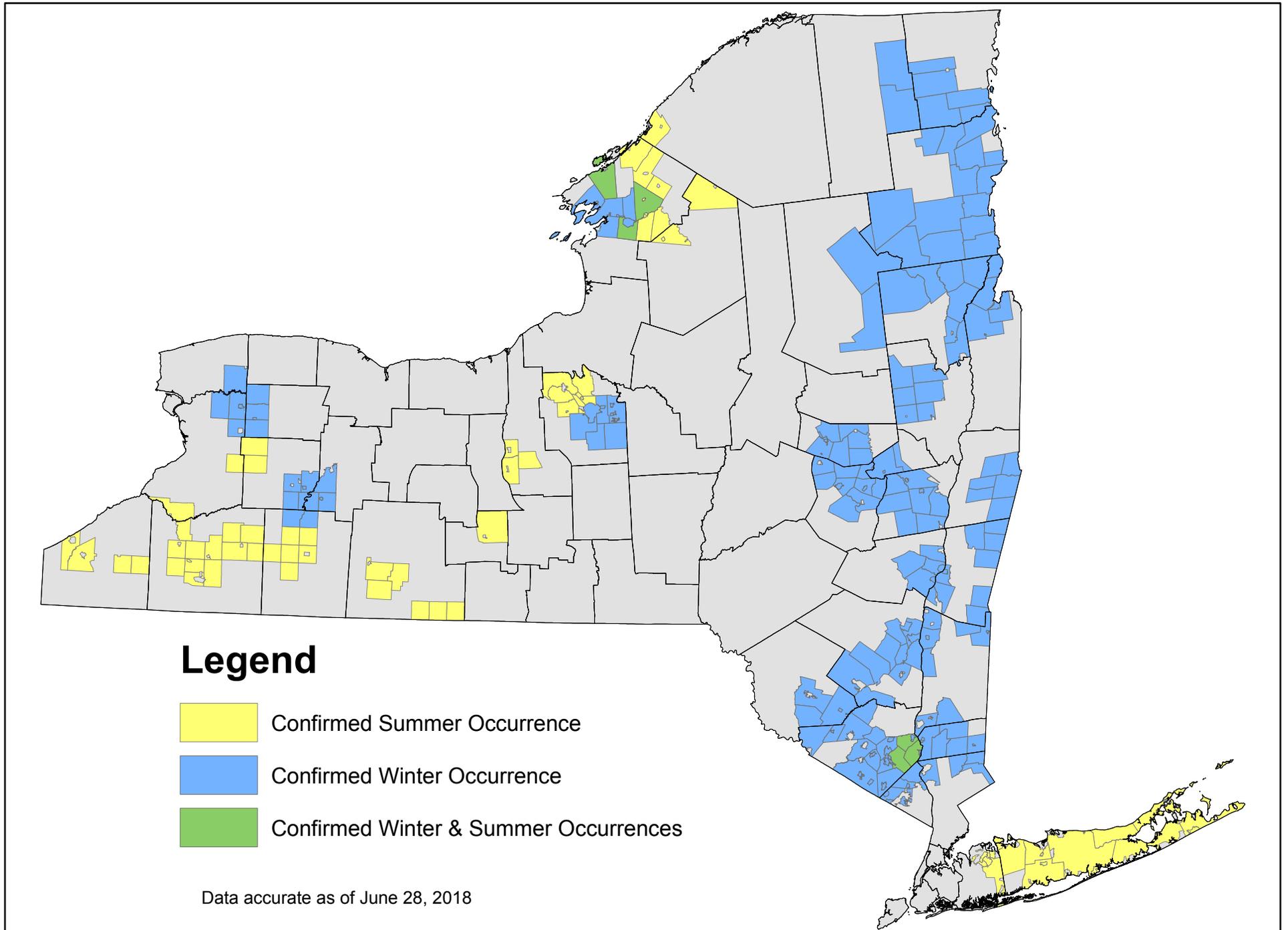
This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the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

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

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

Attachment C
Northern Long-eared bat occurrences by town
(NYSDEC, 2018)

Northern Long-eared Bat Occurrences by Town



Northern Long-eared Bat Occurrences by Town

*if your town is highlighted in yellow, please contact [NYNHP](#) to see whether your project site is within 0.25 miles of a hibernacula, or 150 feet of a summer occurrence.

County	Name	Occurrence	
		Summer	Winter
Albany	Altamont		Yes
	Berne		Yes
	Bethlehem		Yes
	Coeymans		Yes
	Guilderland		Yes
	Knox		Yes
	New Scotland		Yes
	Voorheesville		Yes
	Westerlo		Yes
Allegany	Allen	Yes	
	Angelica	Yes	
	Belfast	Yes	
	Caneadea	Yes	
	Friendship	Yes	
	Granger		Yes
	Hume		Yes
	New Hudson	Yes	
Cattaraugus	Ellicottville	Yes	
	Farmersville	Yes	
	Franklinville	Yes	
	Great Valley	Yes	
	Little Valley	Yes	
	Lyndon	Yes	
	Machias	Yes	
	Mansfield	Yes	
	Napoli	Yes	
	New Albion	Yes	
	Otto	Yes	
Salamanca	Yes		
Cayuga	Ledyard	Yes	
	Scipio	Yes	
	Springport	Yes	
Chautauqua	Chautauqua	Yes	
	Ellington	Yes	
	Gerry	Yes	
	Westfield	Yes	
Clinton	Ausable		Yes
	Black Brook		Yes
	Dannemora		Yes
	Peru		Yes
	Saranac		Yes

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact [NYNHP](#) or your [regional DEC office](#) to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Columbia	Ancram		Yes
	Austerlitz		Yes
	Canaan		Yes
	Chatham		Yes
	Copake		Yes
	Germantown		Yes
	Greenport		Yes
	Hudson		Yes
	Livingston		Yes
	New Lebanon		Yes
Dutchess	East Fishkill		Yes
	Fishkill		Yes
	Hyde Park		Yes
	Millerton		Yes
	Northeast		Yes
	Pine Plains		Yes
	Red Hook		Yes
	Rhinebeck		Yes
Erie	Akron		Yes
	Alden		Yes
	Clarence		Yes
	Collins	Yes	
	Newstead		Yes
	Wales	Yes	
Essex	Chesterfield		Yes
	Crown Point		Yes
	Elizabethtown		Yes
	Essex		Yes
	Jay		Yes
	Lewis		Yes
	Minerva		Yes
	Moriah		Yes
	Newcomb		Yes
	North Hudson		Yes
	Schroon		Yes
	Ticonderoga		Yes
	Westport		Yes
Wilmington		Yes	
Franklin	Bellmont		Yes
	Franklin		Yes
Genesee	Alabama		Yes
	Corfu		Yes
	Darien		Yes
	Pembroke		Yes

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact [NYNHP](#) or your [regional DEC office](#) to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Greene	Athens		Yes
	Cairo		Yes
	Catskill		Yes
	Coxsackie		Yes
Hamilton	Indian Lake		Yes
	Wells		Yes
Jefferson	Alexandria	Yes	
	Black River	Yes	
	Brownville		Yes
	Champion	Yes	
	Chaumont		Yes
	Clayton	Yes	Yes
	Dexter		Yes
	Evans Mills	Yes	
	Glen Park		Yes
	Hounsfield		Yes
	Le Ray	Yes	Yes
	Lyme		Yes
	Pamelia		Yes
	Philadelphia	Yes	
	Rutland	Yes	
	Theresa	Yes	
Watertown	Yes	Yes	
Lewis	Copenhagen	Yes	
	Denmark	Yes	
	Diana	Yes	
Livingston	Mount Morris		Yes
	Nunda		Yes
	Portage		Yes
Montgomery	Ames		Yes
	Canajoharie		Yes
	Charleston		Yes
	Glen		Yes
	Mohawk		Yes
	Nelliston		Yes
	Palatine		Yes
	Palatine Bridge		Yes
Root		Yes	
Nassau	Brookville	Yes	
	Muttontown	Yes	
	Oyster Bay	Yes	
	Oyster Bay Cove	Yes	
	Upper Brookville	Yes	
Niagara	Royalton		Yes

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact [NYNHP](#) or your [regional DEC office](#) to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Onondaga	Camillus	Yes	
	Clay	Yes	
	De Witt		Yes
	East Syracuse		Yes
	Fayetteville		Yes
	Geddes	Yes	
	La Fayette		Yes
	Liverpool	Yes	
	Lysander	Yes	
	Manlius		Yes
	Minoa		Yes
	Onondaga		Yes
	Pompey		Yes
	Salina	Yes	
	Syracuse		Yes
	Van Buren	Yes	
Orange	Blooming Grove		Yes
	Chester		Yes
	Cornwall	Yes	Yes
	Cornwall-on-Hudson		Yes
	Crawford		Yes
	Deerpark		Yes
	Goshen		Yes
	Greenwood Lake		Yes
	Hamptonburgh		Yes
	Harriman		Yes
	Highland Falls		Yes
	Highlands	Yes	Yes
	Kiryas Joel		Yes
	Monroe		Yes
	Mount Hope		Yes
	Otisville		Yes
	South Blooming Grove		Yes
	Tuxedo		Yes
	Tuxedo Park		Yes
	Wallkill		Yes
Warwick		Yes	
Washingtonville		Yes	
Woodbury	Yes	Yes	
Putnam	Brewster		Yes
	Carmel		Yes
	Cold Spring		Yes
	Kent		Yes
	Nelsonville		Yes
	Philipstown		Yes
	Putnam Valley		Yes
	Southeast		Yes

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact [NYNHP](#) or your [regional DEC office](#) to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Rensselaer	Berlin		Yes
	Grafton		Yes
	Petersburgh		Yes
	Poestenkill		Yes
	Sand Lake		Yes
	Stephentown		Yes
Rockland	Haverstraw		Yes
	Hillburn		Yes
	Pomona		Yes
	Ramapo		Yes
	Sloatsburg		Yes
	Stony Point		Yes
Saratoga	Corinth		Yes
	Edinburg		Yes
	Galway		Yes
	Greenfield		Yes
	Milton		Yes
	Providence		Yes
Schenectady	Delanson		Yes
	Duanesburg		Yes
	Princetown		Yes
Schoharie	Carlisle		Yes
	Cobleskill		Yes
	Esperance		Yes
	Esperance		Yes
	Fulton		Yes
	Middleburgh		Yes
	Schoharie		Yes
	Seward		Yes
	Sharon		Yes
	Wright		Yes
Schuyler	Hector	Yes	
St Lawrence	Hammond	Yes	
Steuben	Cameron	Yes	
	Canisteo	Yes	
	Caton	Yes	
	Jasper	Yes	
	Lindley	Yes	
	Tuscarora	Yes	
Suffolk	Brookhaven	Yes	
	Dering Harbor	Yes	
	East Hampton	Yes	
	Huntington	Yes	
	Islandia	Yes	
	Islip	Yes	
	Lloyd Harbor	Yes	
	Mastic Beach	Yes	

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact [NYNHP](#) or your [regional DEC office](#) to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Suffolk (cont'd)	Riverhead	Yes	
	Sag Harbor	Yes	
	Shelter Island	Yes	
	Shoreham	Yes	
	Smithtown	Yes	
	Southampton	Yes	
	Southold	Yes	
	Village of the Branch	Yes	
Sullivan	Bloomingburg		Yes
	Forestburgh		Yes
	Mamakating		Yes
	Thompson		Yes
	Wurtsboro		Yes
Ulster	Esopus		Yes
	Hurley		Yes
	Kingston		Yes
	Marbletown		Yes
	New Paltz		Yes
	Rochester		Yes
	Rosendale		Yes
	Shawangunk		Yes
	Ulster		Yes
Wawarsing		Yes	
Warren	Bolton		Yes
	Chester		Yes
	Hague		Yes
	Horicon		Yes
	Johnsburg		Yes
	Lake George		Yes
	Queensbury		Yes
Washington	Dresden		Yes
	Fort Ann		Yes
	Putnam		Yes
	Whitehall		Yes
Westchester	Cortlandt		Yes
	Lewisboro		Yes
	North Salem		Yes
	Somers		Yes
Wyoming	Bennington	Yes	
	Castile		Yes
	Gainesville		Yes
	Genesee Falls		Yes
	Pike		Yes
	Sheldon	Yes	

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact [NYNHP](#) or your [regional DEC office](#) to see whether your project site falls within known occupied habitat.

Attachment D
NWP #29 Authorization and Biological Opinion



DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10278-0090

December 28, 2020

Regulatory Branch

SUBJECT: Permit Application Number NAN-2011-01126-WNE
by BRH Land, LLC

Steven Rieger
BRH Land, LLC
6 Old North Plank Road
Newburgh, New York 12550

Dear Mr. Rieger:

On April 23, 2019, the New York District of the U.S. Army Corps of Engineers received a request for Department of the Army authorization for the discharge of fill material into waters of the United States in association with the construction of a development to be known as LaGrange Town Center. The site is in the Fishkill Creek watershed, located on New York State Route 55, between Todd Hill Road and Lauer Road, in the Town of LaGrange, Dutchess County, New York.

By letter dated December 2, 2020, (copy enclosed) this office confirmed the extent of waters of the United States on the subject property. These waters of the United States consist of approximately 53.88 acres of jurisdictional wetlands. The submitted information indicates that the total impacts to waters of the United States would involve the discharge of fill material into a maximum of 0.02 acres of waters, for the installation of utility lines. Upon completion of the utility line installation, the excavated areas would be restored to pre-construction contours. Two clear span arch culverts would be installed, each completely spanning jurisdictional waters. The work would be accomplished as shown on the following enclosed drawings:

- "Preliminary Overall Grading Plan LaGrange Town Center NYS Route 55 & Lauer Road Town of LaGrange, New York", Drawing No. PSP-8, prepared by John Meyer Consulting, Inc., dated November 13, 2019;
- "Preliminary Grading Plan LaGrange Town Center NYS Route 55 & Lauer Road Town of LaGrange, New York", Drawing No. PSP-10, prepared by John Meyer Consulting, Inc., dated November 13, 2019;
- "LaGrange Town Center Town of LaGrange, New York Road A Wetland Crossing Figure", Figure WCF-1A, prepared by John Meyer Consulting, Inc., dated June 9, 2020;
- "LaGrange Town Center Town of LaGrange, New York Road A Wetland Disturbance Figure", Figure WDF-1A, prepared by John Meyer Consulting, Inc., dated June 9, 2020;
- "LaGrange Town Center Town of LaGrange, New York Road C Wetland Crossing Figure", Figure WCF-1C, prepared by John Meyer Consulting, Inc., dated June 9, 2020; and

- “LaGrange Town Center Town of LaGrange, New York Road C Wetland Disturbance Figure”, Figure WDF-1C, prepared by John Meyer Consulting, Inc., dated June 9, 2020.

Based on the information submitted to this office, and accomplishment of notification in accordance with the applicable federal requirements, our review of the project indicates that an individual permit is not required. It appears that the activities within the jurisdiction of this office could be accomplished under Department of the Army Nationwide General Permit Number 29. The nationwide permits are prescribed as a Reissuance of Nationwide Permits in the Federal Register dated January 6, 2017 (82 FR 1860). The work may be performed without further authorization from this office provided the activity complies with the permit conditions listed in Section B, No. 29, Section C, any applicable New York District regional conditions, the following special condition, and any applicable regional conditions added by the State of New York, copies enclosed.

Special Condition

(A) This Corps permit does not authorize the permittee to take an endangered or threatened species, in particular the Indiana bat (*Myotis sodalis*). In order to legally take a listed species, the permittee must have a separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit or a Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply). The enclosed U.S. Fish and Wildlife Service (FWS) BO contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. The permittee's authorization under this Corps permit is conditional upon the permittee's compliance with all of the mandatory terms and conditions associated with incidental take of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with the Corps permit. However, the FWS is the appropriate authority to determine compliance with the terms and conditions of this BO, and with the ESA. For further clarification on this point, the permittee shall contact the FWS. Should the FWS determine that the conditions of the BO have been violated, normally the FWS will enforce the violation of the ESA, or refer the matter to the Department of Justice.

This determination covers only the work described in the submitted material. Any major changes in the project may require additional authorizations from the New York District.

Care should be taken so that construction materials, including debris, do not enter any waterway to become drift or pollution hazards. You are to contact the appropriate state and local government officials to ensure that the subject work is performed in compliance with their requirements.

This verification is valid until March 18, 2022, unless the nationwide permit is modified, reissued, or revoked. This verification will remain valid until March 18, 2022, if the activity complies with the terms of any subsequent modifications of the nationwide permit authorization. If the nationwide permits are suspended, revoked, or modified in such a way that the activity would no longer comply with the terms and conditions of a nationwide permit, and the proposed activity has commenced, or is under contract to commence, the permittee shall have 12 months from the date of such action to complete the activity.

Within 30 days of the completion of the activity authorized by this permit and any mitigation required by this permit, you are to sign and submit the attached compliance certification form to this office.

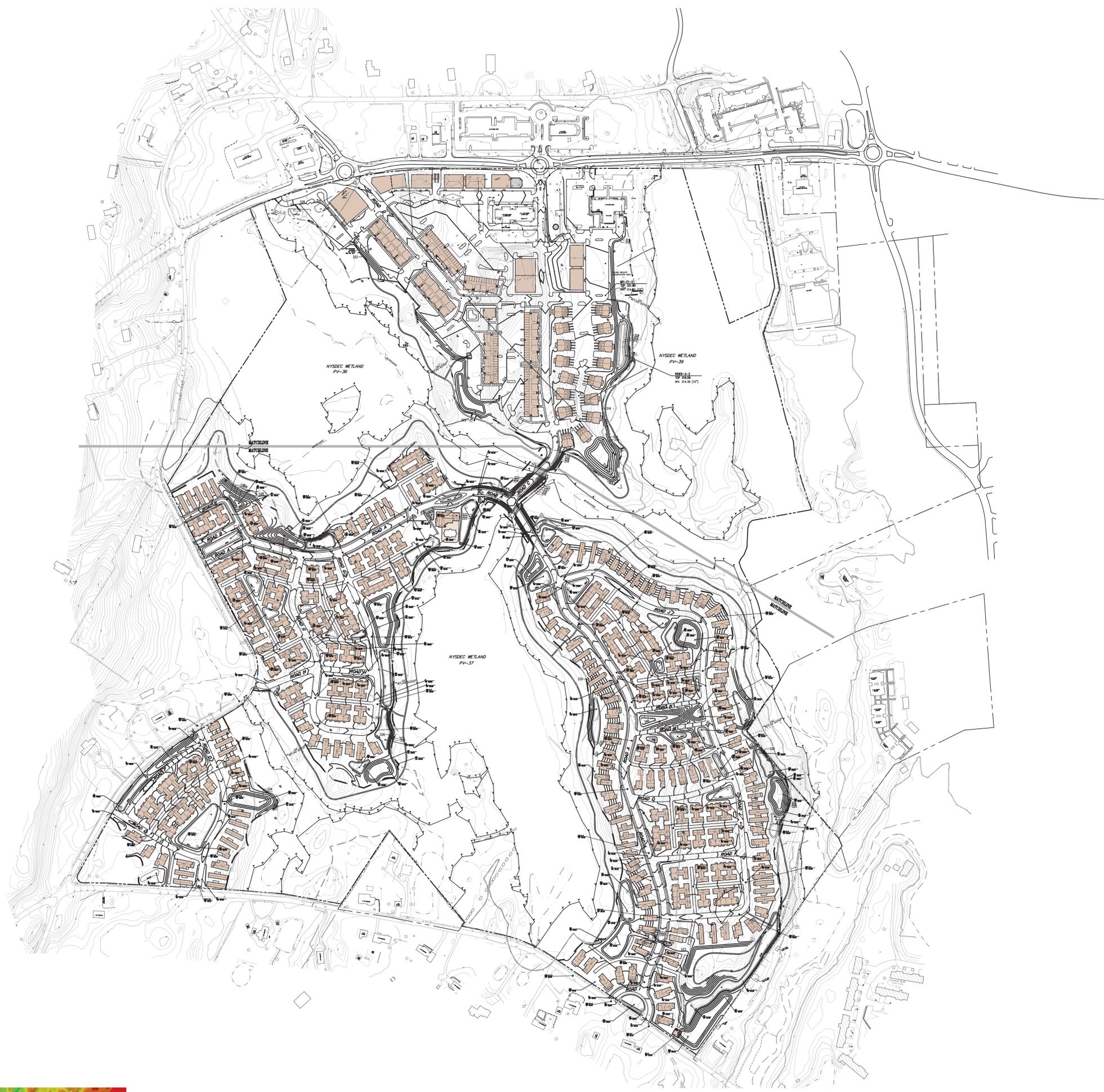
In order for us to better serve you, please complete our Customer Service Survey located at <http://www.nan.usace.army.mil/Missions/Regulatory/CustomerSurvey.aspx>.

If any questions should arise concerning this matter, please contact Brian A. Orzel, of my staff, at Brian.A.Orzel@usace.army.mil.

Sincerely,

Rosita Miranda
Chief, Western Section

Enclosures



NOT FOR CONSTRUCTION

GIS GEOGRAPHIC INFORMATION SYSTEMS

THE 2-FOOT CONTOURS DEPICTED ON THIS PLAN ARE INTENDED TO BE USED FOR PLANNING & PRELIMINARY ENGINEERING APPLICATIONS. THEY ARE NOT INTENDED TO BE USED IN ENGINEERING DESIGN AND DO NOT NEGATE THE NEED FOR A FIELD SURVEY. THE WESTCHESTER COUNTY GIS DATASET CONTAINS CONTOUR LINES MODELED AT A TWO FOOT INTERVAL. THE SOURCE INFORMATION USED IN THE COLLECTION OF THE DATASET WAS PART OF THE NEW YORK STATE DIGITAL ORTHORECTIFIED PROGRAM. PHOTOS TAKEN IN APRIL 2004. VERTICAL DATUM IS NAVD83.

THE COUNTY OF WESTCHESTER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE COMPLETENESS OR ACCURACY OF THE DATA AND ASSUMES NO LIABILITY WHATSOEVER FOR ANY PRODUCT OR ANALYSIS DERIVED FROM OR BASED ON THE DATA.

No.	Revised	Date	By

APPLICANT/OWNER:
RIEGER HOMES, INC.
 1000 W. 10TH STREET
 NEWBURGH, NEW YORK 12550

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
 JMC Site Development Consultants, LLC
 John Meyer Consulting, Inc.
 120 BEGFORD ROAD • ARMONK, NY 10504
 PH: 914.333.2323 • FAX: 914.233.2102
www.jmcpic.com

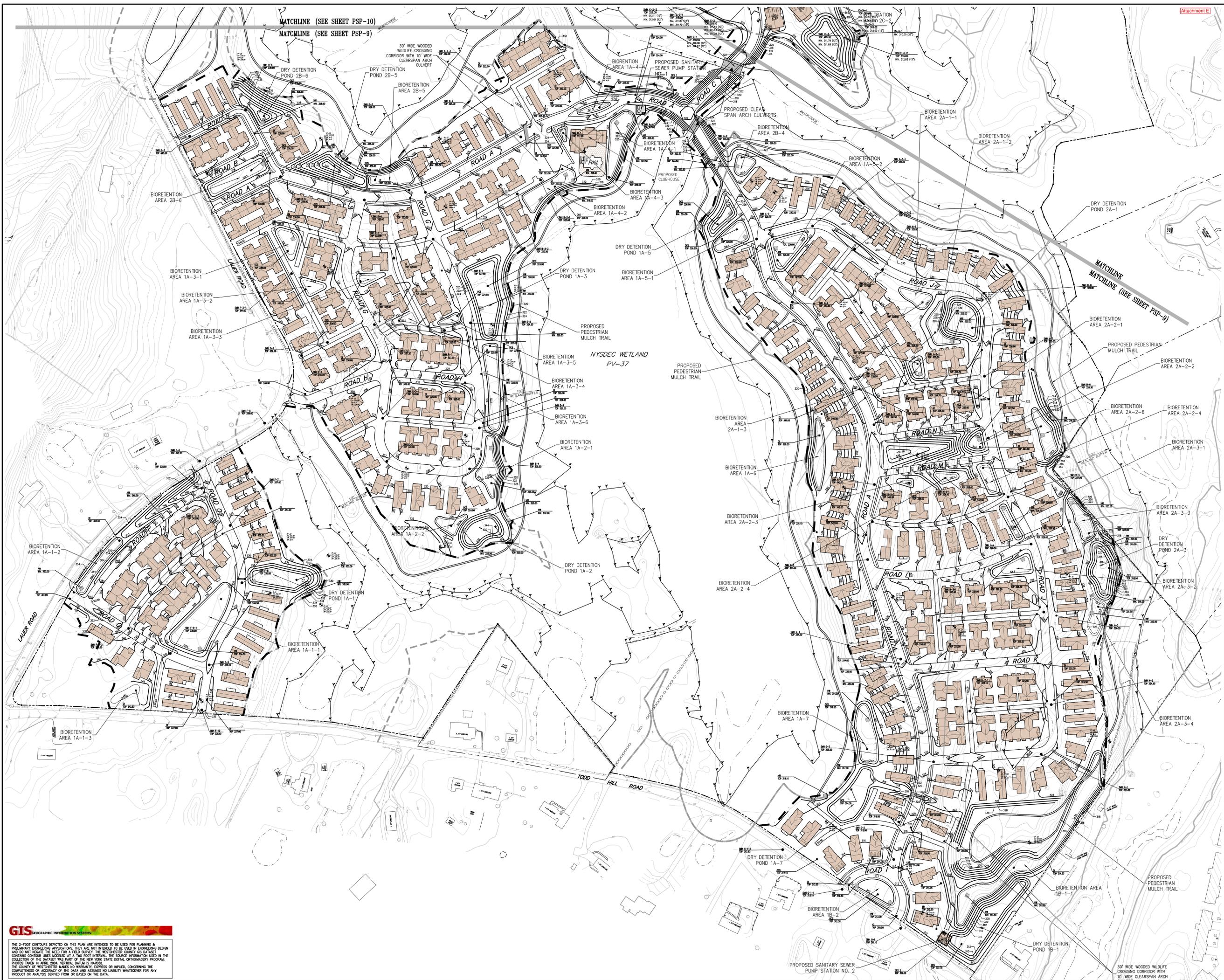


PRELIMINARY OVERALL GRADING PLAN
LAGRANGE TOWN CENTER
 TOWN OF LAGRANGE, NEW YORK

ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

Drawn	JE	Approved	AG
Scale:	1" = 80'		
Date:	11/13/2019		
Project No.:	5106		
908-0008	(OVERALL PLAN)	09/08/2019	
PSP-8			

MATCHLINE (SEE SHEET PSP-10)
MATCHLINE (SEE SHEET PSP-9)



No.	Date	By	Revised

APPLICANT/OWNER:
RIEGER HOMES, INC.
100 WEST 100TH STREET
NEW YORK, NY 10024

PREPARED BY:
JMC
JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
120 BEGFORD ROAD - ARMONK, NY 10504
PHONE: 914.333.3223 - FAX: 914.233.4102
WWW.JMCPINC.COM



PRELIMINARY GRADING PLAN
LAGRANCE TOWN CENTER
TOWN OF LAGRANCE, NEW YORK

ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

Drawn	JE	Approved	AG
Scale	1" = 80'	Date	11/13/2019
Project No.	5106	Sheet No.	PSP-10
Project Name	LAGRANCE TOWN CENTER	Project Location	LAGRANCE TOWN CENTER

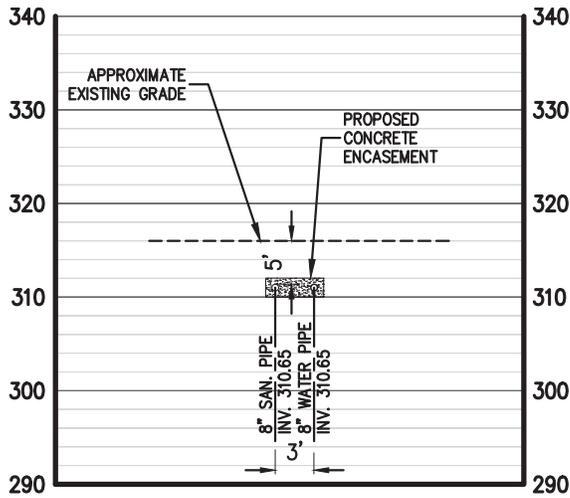
NOT FOR CONSTRUCTION

GIS GEOGRAPHIC INFORMATION SYSTEMS

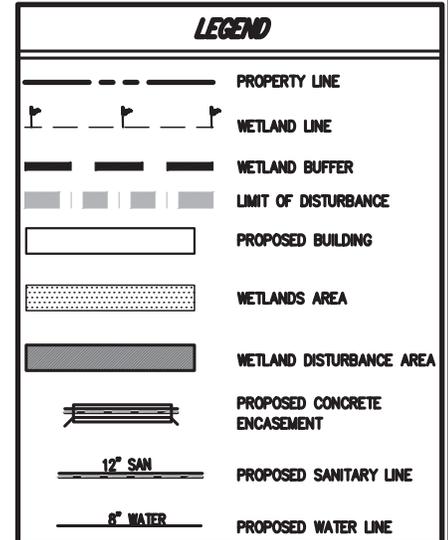
THE 2-FOOT CONTOURS DEPICTED ON THIS PLAN ARE INTENDED TO BE USED FOR PLANNING & PRELIMINARY ENGINEERING APPLICATIONS. THEY ARE NOT INTENDED TO BE USED IN ENGINEERING DESIGN AND DO NOT NEGATE THE NEED FOR A FIELD SURVEY. THE WESTCHESTER COUNTY GIS DATASET CONTAINS CONTOUR LINES MODELED AT A TWO FOOT INTERVAL. THE SOURCE INFORMATION USED IN THE COLLECTION OF THE DATASET WAS PART OF THE NEW YORK STATE DIGITAL ORTHOREMOGRAPHY PROGRAM. PHOTOS TAKEN IN APRIL 2004. VERTICAL DATUM IS NAVD83. THE COUNTY OF WESTCHESTER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE COMPLETENESS OR ACCURACY OF THE DATA AND ASSUMES NO LIABILITY WHATSOEVER FOR ANY PRODUCT OR ANALYSIS DERIVED FROM OR BASED ON THE DATA.

PROPOSED SANITARY SEWER PUMP STATION NO. 2

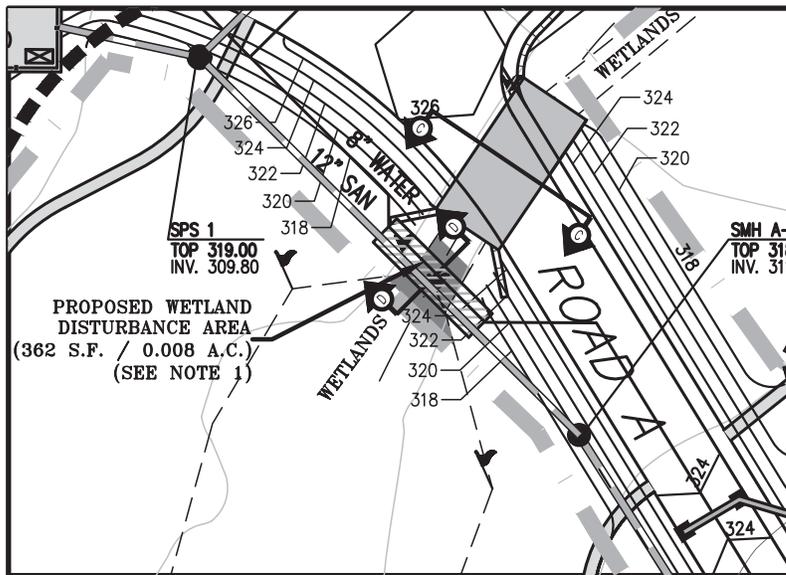
30' WIDE WOODED WILDLIFE CROSSING CORRIDOR WITH 10' WIDE CLEARSPAN ARCH



CROSS SECTION D-D
 HORZ.: 1" = 20'
 VERT.: 1" = 20'



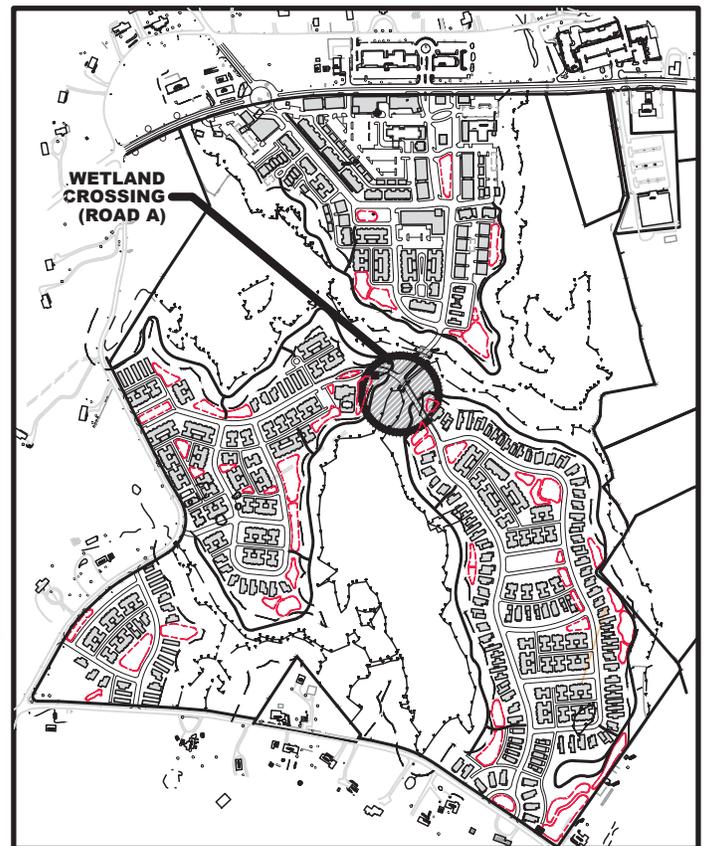
**SECTION VIEW
 SANITARY AND WATER MAINS AT
 WETLAND CROSSINGS**



PLAN VIEW
 1 inch = 60ft.
WETLAND CROSSING D-D

NOTE:

- TEMPORARY IMPACTS TO THE WETLAND AREAS WILL BE NECESSARY FOR THE INSTALLATION OF UTILITIES ADJACENT TO THE ROADWAYS AT THE WETLAND CROSSINGS. PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSES ARE NOT ANTICIPATED. TEMPORARY DISTURBANCES FOR UTILITY INSTALLATION WILL INCLUDE REMOVAL AND STORAGE OF WETLAND SOIL AND VEGETATION, BURIAL OF UTILITY LINES AND THE RESTORATION OF THE DISTURBED AREAS THROUGH REPLACEMENT OF THE EXCAVATED SOIL AND VEGETATION. THE PRE-DEVELOPMENT SURFACE ELEVATIONS WILL BE RESTORED UPON COMPLETION. DISTURBED WETLAND BUFFER AREAS WILL BE SEEDED WITH "NEW ENGLAND WETLAND PLANTS" NEW ENGLAND WETMIX SEED MIX (OR SIMILAR) AT THE MANUFACTURER'S SUGGESTED RATE AND WILL BE MULCHED AND MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISHED FOR ONE FULL GROWING SEASON.



SITE PLAN
 1 inch = 1,000 ft.

LAGRANGE TOWN CENTER
 TOWN OF LAGRANGE, NEW YORK

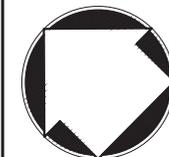
ROAD A WETLAND DISTURBANCE FIGURE

DATE: 06/09/2020

JMC PROJECT: 5106

FIGURE: WDF-1A

SCALE: AS NOTED

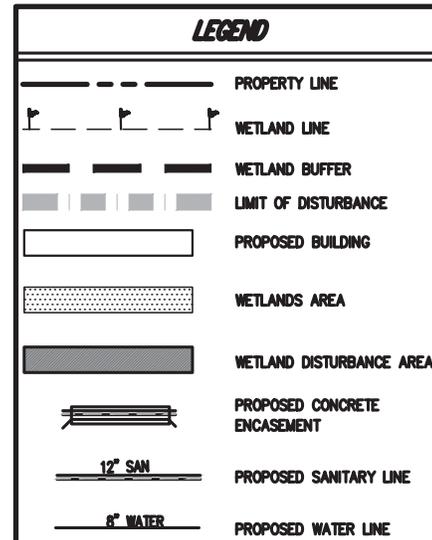
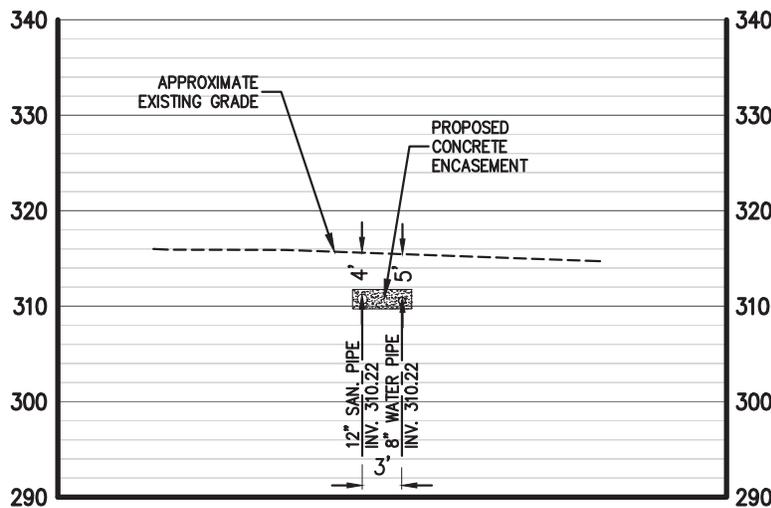


120 BEDFORD RD
 ARMONK
 NY 10504

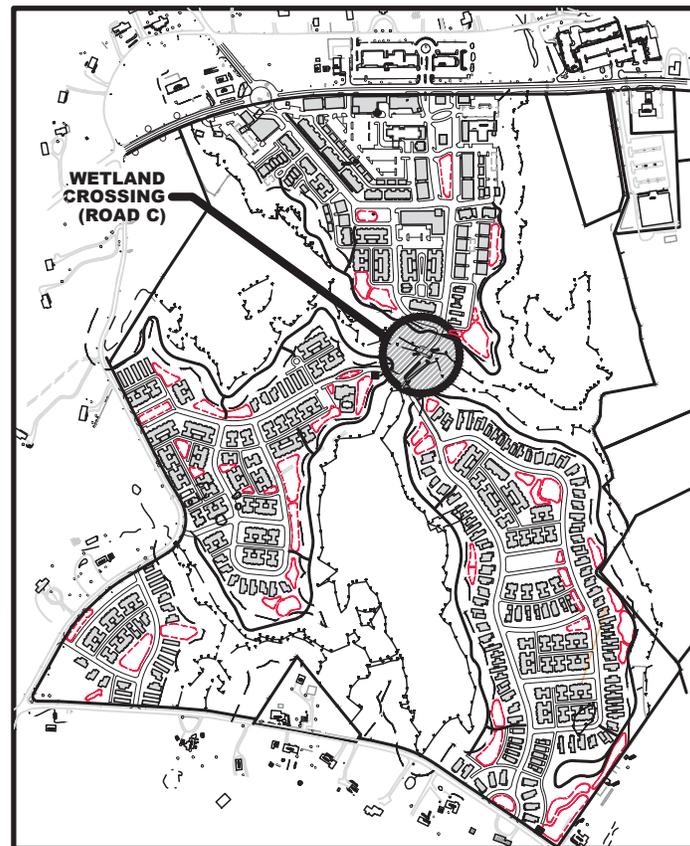
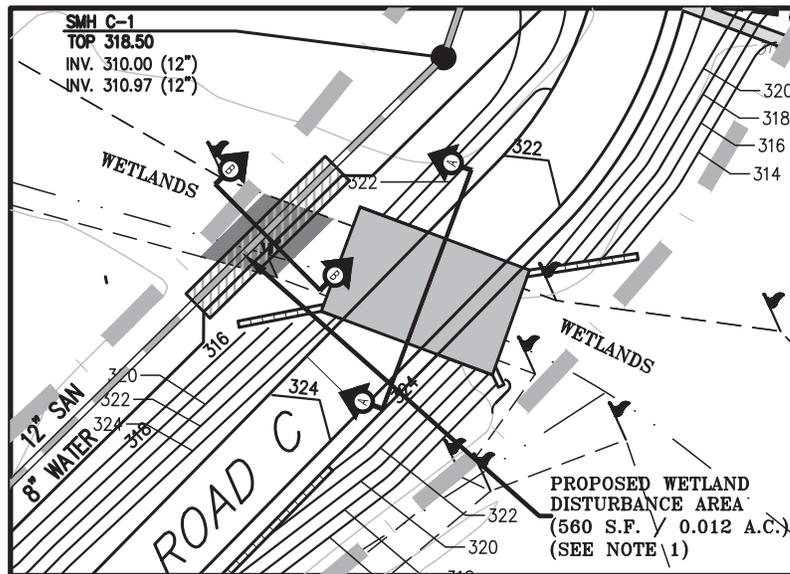
(914) 273-5225
 fax 273-2102

JMCP LLC.COM





**SECTION VIEW
 SANITARY AND WATER MAINS AT
 WETLAND CROSSINGS**



NOTE:

- TEMPORARY IMPACTS TO THE WETLAND AREAS WILL BE NECESSARY FOR THE INSTALLATION OF UTILITIES ADJACENT TO THE ROADWAYS AT THE WETLAND CROSSINGS. PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSES ARE NOT ANTICIPATED. TEMPORARY DISTURBANCES FOR UTILITY INSTALLATION WILL INCLUDE REMOVAL AND STORAGE OF WETLAND SOIL AND VEGETATION, BURIAL OF UTILITY LINES AND THE RESTORATION OF THE DISTURBED AREAS THROUGH REPLACEMENT OF THE EXCAVATED SOIL AND VEGETATION. THE PRE-DEVELOPMENT SURFACE ELEVATIONS WILL BE RESTORED UPON COMPLETION. DISTURBED WETLAND BUFFER AREAS WILL BE SEEDED WITH "NEW ENGLAND WETLAND PLANTS" NEW ENGLAND WETMIX SEED MIX (OR SIMILAR) AT THE MANUFACTURER'S SUGGESTED RATE AND WILL BE MULCHED AND MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISHED FOR ONE FULL GROWING SEASON.

LAGRANGE TOWN CENTER
 TOWN OF LAGRANGE, NEW YORK

ROAD C WETLAND DISTURBANCE FIGURE

DATE: 06/09/2020

JMC PROJECT: 5106

FIGURE: WDF-1C

SCALE: AS NOTED

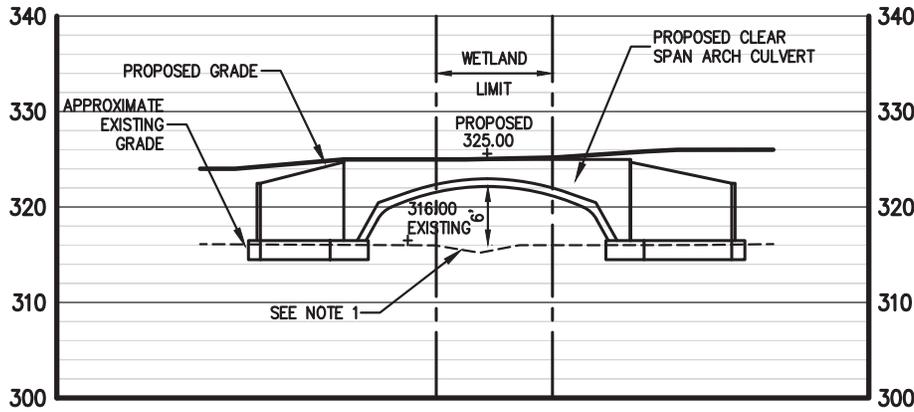


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(914) 273-5225
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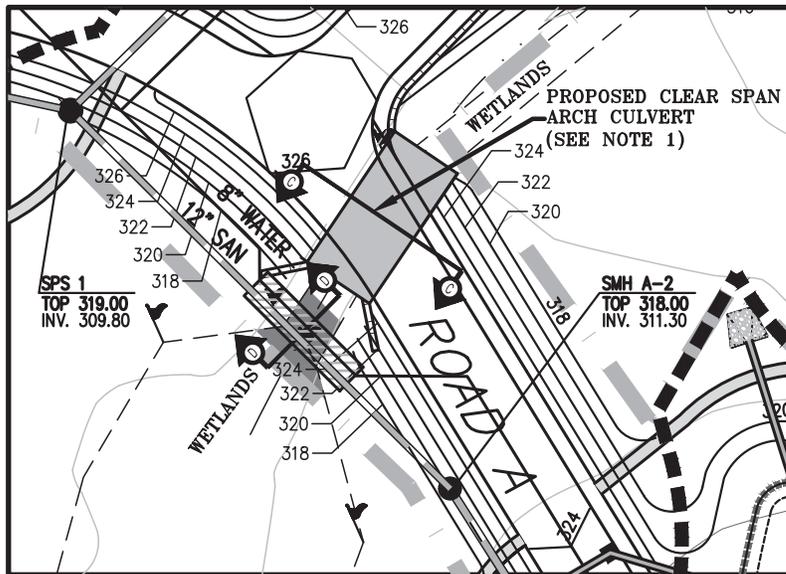
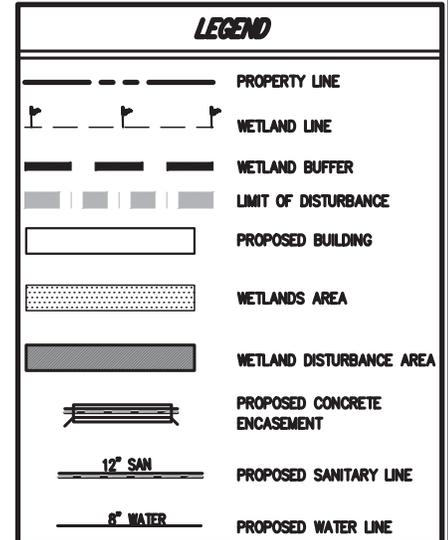
JMCP LLC.COM



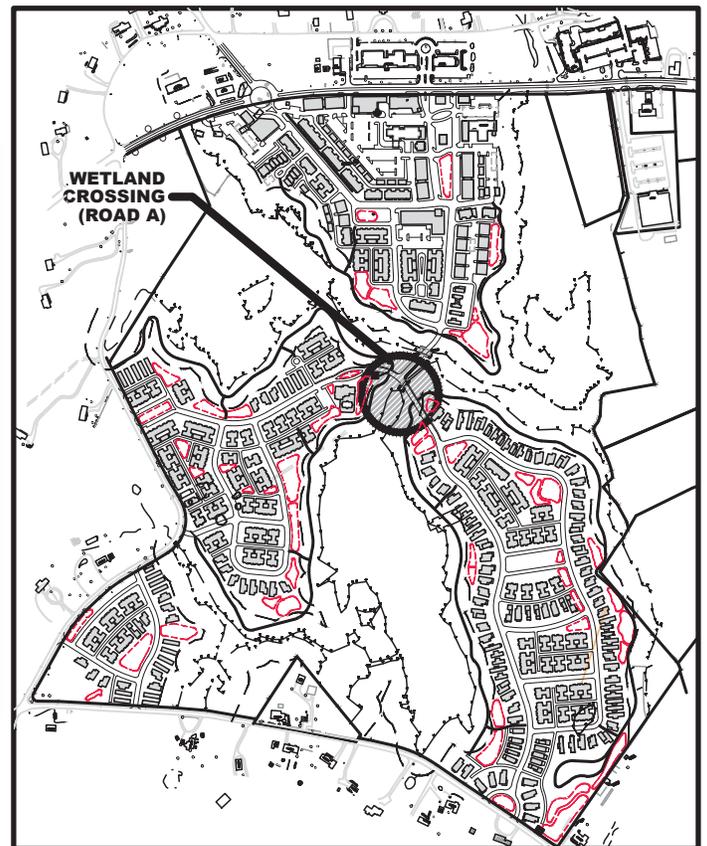


CROSS SECTION C-C
 HORZ.: 1" = 20'
 VERT.: 1" = 20'

**SECTION VIEW
 CLEAR SPAN ARCH CULVERT AT
 WETLAND CROSSINGS**



PLAN VIEW
 1 inch = 60ft.
WETLAND CROSSING C-C



SITE PLAN
 1 inch = 1,000 ft.

NOTE:

1. CLEAR SPAN ARCH CULVERTS ARE PROPOSED AT THE WETLANDS CROSSINGS FOR ROADS A & C TO MINIMIZE WETLANDS DISTURBANCE.

LAGRANGE TOWN CENTER
 TOWN OF LAGRANGE, NEW YORK

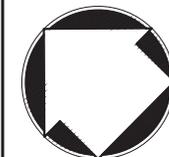
ROAD A WETLAND CROSSING FIGURE

DATE: 06/09/2020

JMC PROJECT: 5106

FIGURE: WCF-1A

SCALE: AS NOTED

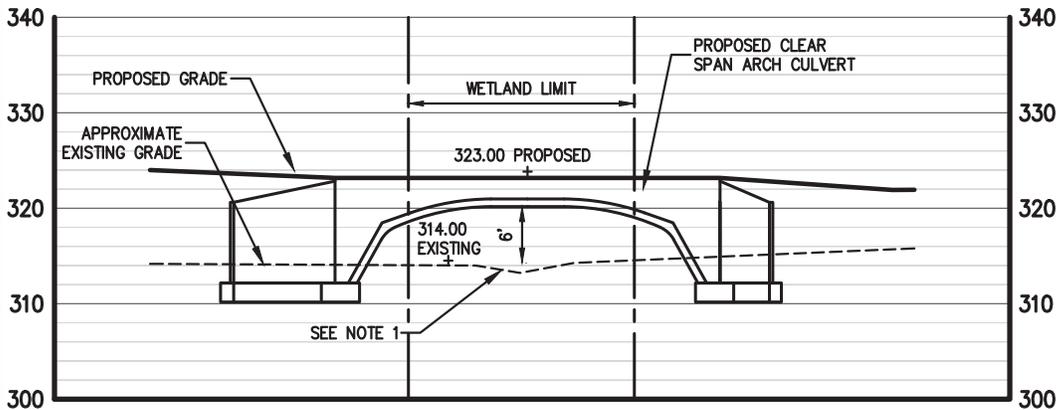


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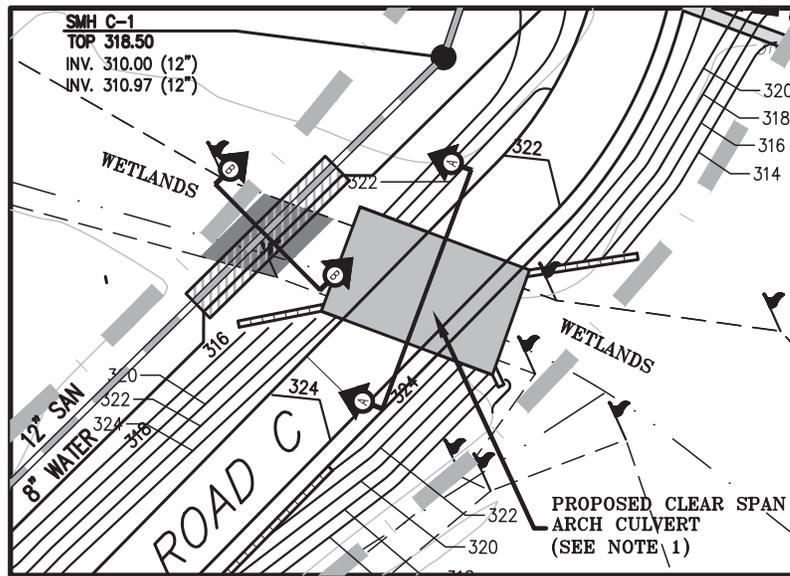
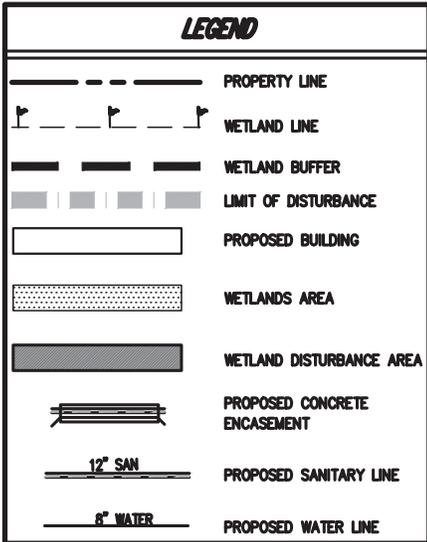


CROSS SECTION A-A

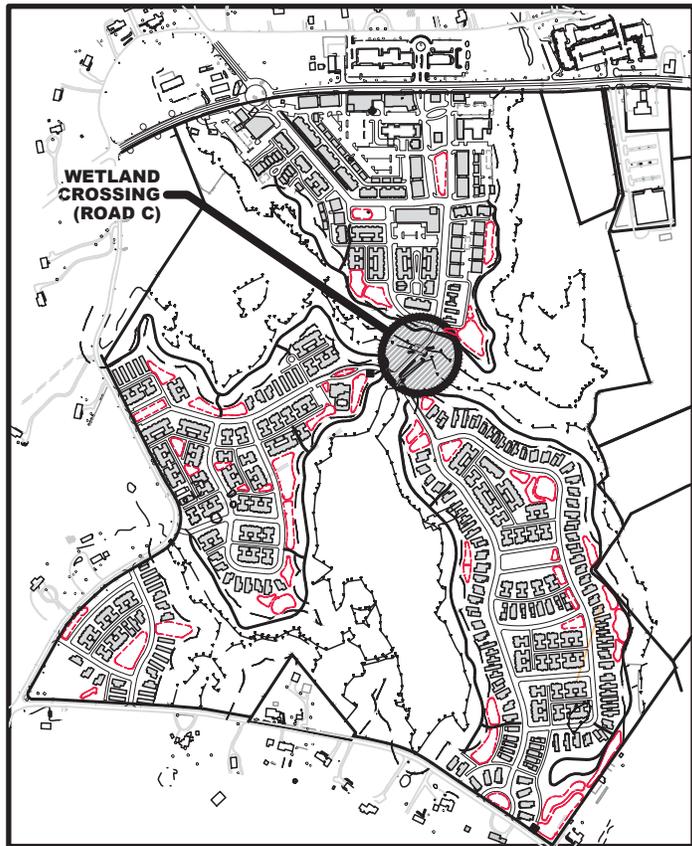
HORZ.: 1" = 20'

VERT.: 1" = 20'

**SECTION VIEW
CLEAR SPAN ARCH CULVERT AT
WETLAND CROSSINGS**



**PLAN VIEW
1 inch = 60ft.
WETLAND CROSSING A-A**



**SITE PLAN
1 inch = 1,000 ft.**

NOTE:

- 1. CLEAR SPAN ARCH CULVERTS ARE PROPOSED AT THE WETLANDS CROSSINGS FOR ROADS A & C TO MINIMIZE WETLANDS DISTURBANCE.

LAGRANGE TOWN CENTER
TOWN OF LAGRANGE, NEW YORK

ROAD C WETLAND CROSSING FIGURE

DATE: 06/09/2020

JMC PROJECT: 5106

FIGURE: WCF-1C

SCALE: AS NOTED



120 BEDFORD RD
ARMONK
NY 10504

(914) 273-5225
fax 273-2102

JMCPLLC.COM





United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, New York 13045



January 8, 2020

Rosita Miranda, Chief
Western Permits Section
U.S. Army Corps of Engineers
New York District
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 LaGrange Town Center (NAN-2011-01126-WNE) (Project) and its effects on the federally listed endangered Indiana bat (*Myotis sodalis*) and federally listed threatened northern long-eared bat (*Myotis septentrionalis*) (NLEB) in accordance with Section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544, 87 Stat. 884), as amended. Your June 25, 2019, request for formal consultation was received on June 25, 2019. The Service and U.S. Army Corps of Engineers (Corps) agreed to extend the consultation until January 14, 2020, upon realizing there was a discrepancy in some of the information provided to both the Service and Corps by Steven E. Reiger (Applicant). A revised biological assessment (BA) dated November 25, 2019, was provided by the Applicant on November 27, 2019.

Since initiation of formal consultation, the Service has revised our mapping for potential occurrences for the NLEB. Based on the best available information, we find that NLEBs are not reasonably likely to occur in the Project area. The NLEB may benefit from conservation activities proposed (e.g., permanent protection of a parcel at the Barton Hill hibernaculum) but all effects will be wholly beneficial, thus, the Project may affect, but is not likely to adversely affect, the NLEB.

This Opinion is based on information provided in the BA, written correspondence, 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.

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

The Applicant proposes a mixed-use residential and commercial development (LaGrange Town Center) on approximately 194 acres on the south side of State Route 55 in the Town of LaGrange, Dutchess County, New York (Figures 1a and 1b).

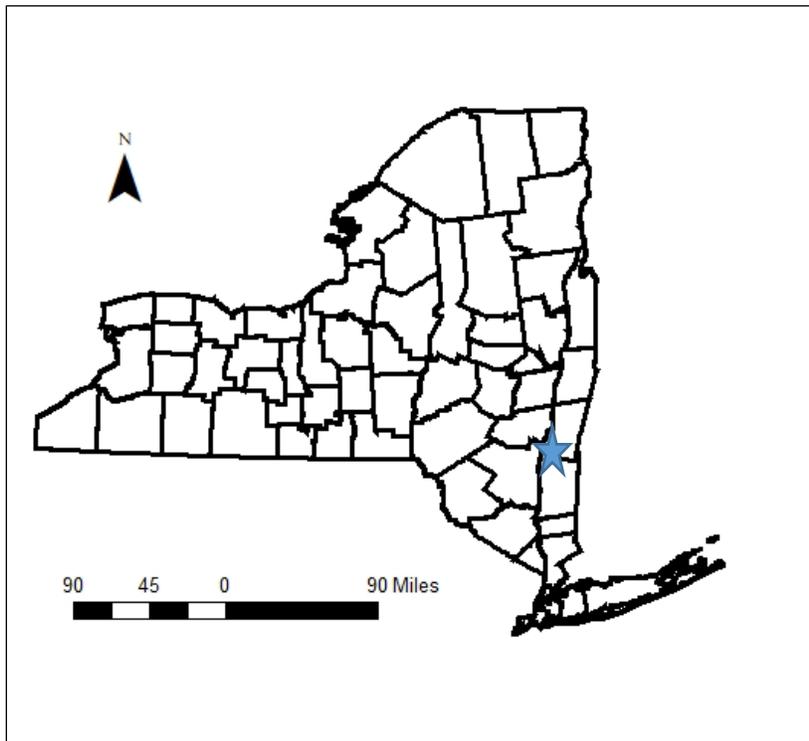


Figure 1a. LaGrange Town Center location.

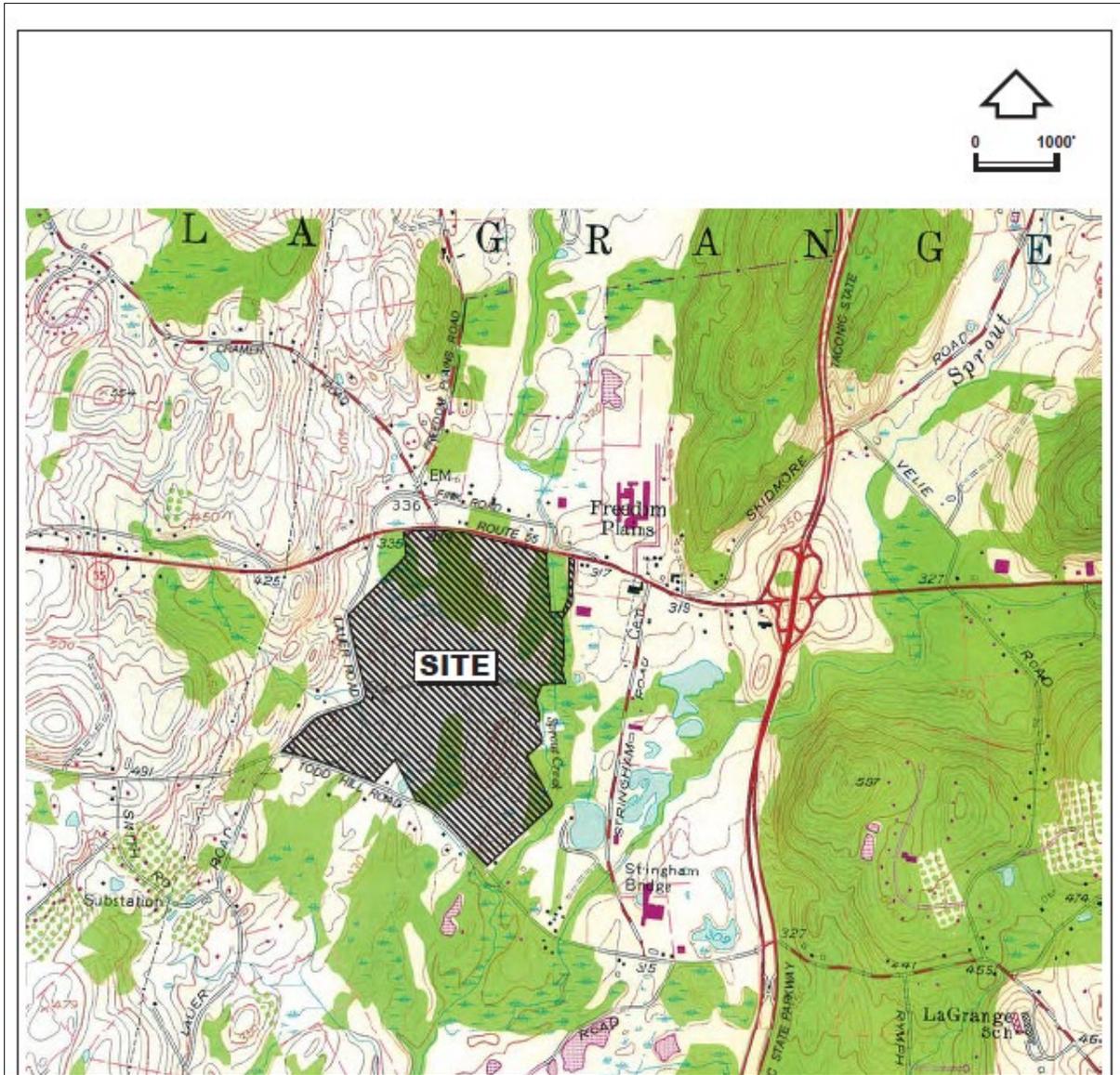


Figure 1b. LaGrange Town Center location.

Approximately 95 acres will be disturbed at the site, of which approximately 21 are forested. Build out of the Project is anticipated to take up to 10 years to complete. The construction will take place in three phases (see BA Figure 5.3-1, Phasing Plan). Construction will be market-driven, with construction not proceeding too far ahead of market demand. As a result, the Project sponsor may request of the Town of LaGrange permission to disturb more than 5 acres of soil at one time to accommodate such demand.

Phase 1, called the Town Center Area, will occupy 33.1 acres in the northern portion of the property, adjacent to State Route 55 and the existing developed area on the site. It will include construction of 259 residential units, some of which will be built to the southwest of the wetland crossing, in the Clubhouse District, 82,291 square feet of retail space, 41,325 square feet of office space, and 8,600 square feet of civic space. It will also include construction of a wetland

crossing and connecting road to Lauer Road, on the west side of the site. This connection to Lauer Road will be the prelude to construction of Phase 2.

Phase 2, which will include the remainder of the Clubhouse District and the Crossroads District, will be located on 26.8 acres located on the western and southwestern side of the Project site, along Lauer Road. This phase will include construction of 159 residential units.

Phase 3 will occupy 37.6 acres in the southeastern corner of the site, with access from Todd Hill Road from the south, and from a road that connects to the other phases of the development to the north. This phase, called the Upland District, will include 189 residential units.

The schedule for construction is estimated to be as follows, but may be subject to minor revision, based on market demand:

- Months 1-3 Tree Clearing for Phase 1, and in area of future Wastewater Lift Station and force main (“Sewer Project”)
- Months 2-6 Mass grading for Phase 1 and Sewer Project
- Months 7-36 Site Development and Construction for Phase 1
- Months 24-27 Tree Clearing for Phase 2
- Months 25-30 Site Development for Phase 2
- Months 31-78 Construction of Phase 2
- Months 48-51 Tree Clearing for Phase 3
- Months 49-54 Site development for Phase 3
- Months 55-96 Construction of Phase 3

Pursuant to Section 404 of the Clean Water Act, (33 USC 1344, Ch. 26, Subch. IV, (e)) the Applicant is applying to the Corps for a Nationwide General Permit 29 to impact 0.02 acres of wetlands in association with the construction of road crossings and utility lines.

Conservation Measures

Decreased Project Footprint

The Project as initially proposed had a relatively small footprint, as it incorporated a cluster subdivision approach to site layout in order to minimize ground disturbance. The Project sponsor further decreased the footprint of the proposed Project in 2011 following discussions in June 2011 with the Service and New York State Department of Environmental Conservation (NYSDEC), by eliminating residential units to maintain naturally vegetated wildlife crossing corridors in the northern and southeastern sections of the site, and by committing to planting trees in cleared areas and in the wetland corridors that divide the site following construction. As originally proposed, the Project would have required clearing about 45 acres of forested habitat on the site, but with development plan reductions and planned site plantings, the current Project involves clearing 21.4 acres of forested habitat. This conservation and restoration of forested habitat corridors will maintain assumed travel corridors for bats from the potential roost trees on the site to forested habitats in the surrounding landscape and regional range of the Indiana bats.

In addition, tree-clearing envelopes for each neighborhood and the Project core have been minimized to maintain pockets and hedgerows of mature forest in between homes and among buildings. These mature forested strips and patches will provide micro-corridors for more local movement of bats across and within the site, and may provide suitable foraging habitat for Indiana bats and other bats that feed along forest edges.

Protection of Roost Tree Area

The one known Indiana bat roost tree on the site has naturally fallen down. However, the Applicant has included an undisturbed, naturally vegetated buffer surrounding it that may include additional undocumented roosts and will range from a minimum of 150 feet to the northeast, to 206 feet to the southwest, and from 502 feet to the southeast to more than 1,180 feet to the northwest.

Project-Limiting Fence

A bright orange plastic mesh (or similar) temporary Project-limiting fence will be erected at the proposed limit of clearing on the site prior to any vegetation being cleared from the site, and will be maintained throughout the construction period for each phase of the development. This fence will provide a clear visual and physical barrier to prevent inadvertent clearing of natural vegetated areas and existing bat habitat that are not intended to be cleared for this Project. The Project-limiting fence will not be removed from Project phase areas until site construction and stabilization activities have been completed within that phase area. Open mesh fencing is proposed for this purpose to prevent disruption of localized movement of small mammals, reptiles, and amphibians, which can be prevented from moving by solid barriers (*i.e.*, silt fence).

Seasonal Restriction on Vegetation Clearing

Clearing of the site will be done in phases, corresponding to the site development phasing plan and in compliance with the NYSDEC's State Pollutant Discharge Elimination System General Stormwater Permit for Construction. The Project sponsor proposes to clear trees from the proposed development envelope between November 1 and March 31 in any given year, when Indiana bats will be in hibernation. This will avoid effects of occupied roost destruction on bats during the spring dispersal, summer maternity roost, or fall swarm seasons. Prior to clearing, the limits of proposed clearing will be clearly demarcated on the site with orange construction fencing (or similar) to prevent inadvertent over-clearing of the site.

Lighting

While the Proposed Lighting Plan for the site (BA Figure 5.5-3) illustrates an increase in site lighting, proposed lighting has been planned to minimize light pollution and adverse impacts to wildlife. Exterior light fixtures will be hooded to direct light down toward the ground (below the horizontal plane), and away from forest edges. Exterior lighting on the site will be specified as low-pressure sodium vapor fixtures. Light fixtures will also be directed away from forest edges to minimize light disturbance of potential summer foraging habitat areas. These measures will minimize light disturbance to Indiana bats by minimizing the lighting on the site at night.

Water Quality Protection

Stormwater runoff from impervious surfaces associated with the Project will be captured and treated prior to release into the natural environment. The stormwater basins on the site are proposed as wet basins, meaning that they will retain water for only as long as it takes for the water to percolate into the soil, evaporate, or transpire through plants. Thus, they are not anticipated to support algae or breeding insects. Therefore, the stormwater basins are not proposed to be maintained with any chemicals that might adversely affect bats or insect populations on which they may feed.

Further, stormwater on the site will run through catch basins and the vegetated forebays of the stormwater basins prior to reaching the main bays of the basins. This will reduce the amount of dissolved nutrients percolating into the ground which will also protect local water quality.

Wetland Impact Minimization

Wetland impacts on the site have been minimized to the extent practicable by designing the one wetland road crossing as a single span over the wetland, thereby avoiding wetland fill. The only wetland impact on the site will be from installation of subsurface utilities adjacent to the wetland road crossing. This will involve excavation of a narrow channel into which utilities will be placed. The channel will be backfilled and the area will be restored to preconstruction contours and seeded with a native wetland seed mix. Since the wetland in question is a shallow emergent marsh/wet meadow, and the restored plant community will re-create that cover type, the restoration in kind and in place will result in no net loss of wetland area on the site, and no net loss of wetland function. The wetland crossing detail for the Site is provided in BA Figure 5.5-4.

Habitat Protection

The Applicant will be placing 9.7 acres of non-regulated upland habitat on the site into a conservation easement to be held by the Town of LaGrange to preserve remaining habitat for bats on the site in perpetuity. This 9.7 acres is immediately adjacent to the protected wetland areas on site, which include 49.65 acres of mapped wetlands and 46.06 acres of wetland buffer protection area. A draft easement has been prepared to implement this conservation measure (BA Appendix A). The easement will be executed within 90 days of the issuance of the Corps authorization or NYSDEC Article 11 permit, whichever comes first. The proposed land includes all areas labeled as, "Upland Wildlife Conservation Area" on the Indiana bat Conservation Plan (BA Figures IB-1 and IB-2). Proposed language for the conservation easement was submitted to the Service, Corps, and NYSDEC for review and comment prior to permit application submittals, and the draft easement (BA Appendix A) addresses the comments received from each agency.

In addition, the Applicant has purchased ±52 acres of land that provides access to 2 entrances of the Barton Hill Mine, located north of Barton Hill Road, Mineville, Essex County, New York. The Barton Hill Mine is currently the largest known hibernaculum for Indiana bats in the Northeast. The Applicant is placing the property under a conservation easement (BA Appendix B) to be held by the Lake Champlain Land Trust (LCLT), and is installing chain link fence with a lockable gate to restrict access to the 2 entrances on the property from Barton Hill Road. This measure will help protect what has become one of the most important Indiana bat

hibernacula in New York, as well as in the northeast extent of the species' range. Recent winter hibernacula counts have shown that it contains the largest number of Indiana bats of any hibernacula in the Northeastern U.S., as well as significant numbers of eastern small-footed bats (*Myotis leibii*), a special concern species in New York. Barton Hill Mine is also a known hibernaculum for NLEBs, so the protection of the site will benefit that species as well. Although NLEBs have not been counted during recent winter surveys at the site, the species is known to use the site and has been observed during research efforts that involved close handling of bats.

Landscape Restoration

Areas that are cleared during construction that may be replanted to forest cover type, and streetscape areas, will be planted with native tree species that are likely to provide potential roost trees for Indiana bats as the trees mature and senesce. Tree species that will be planted include shagbark hickory (*Carya ovata*), which provides exfoliating bark on live trees as it matures and grows to about 40 cm DBH; red maple (*Acer rubrum*) and sugar maple (*A. saccharum*), which produce particularly resilient snags that provide large pieces of exfoliating bark under which bats will roost; and American elm (*Ulmus americana*), which provides large pieces of exfoliating bark on its snags. Red oak (*Quercus rubra*) and pin oak (*Quercus palustris*) are also proposed for streetscape trees, due to their resilience to streetscape conditions. While green ash (*Fraxinus pennsylvanica*) and white ash (*F. americana*) also provide large plates of exfoliating bark on their snags and are known to be used as roost trees by bats, these species are not recommended for planting in New York at this time due to the invasion of the Emerald Ash Borer (*Agrilus planipennis*), an invasive beetle that uses these species as its host trees.

Construction Monitoring

The Project sponsor will have a qualified wildlife biologist visit the site regularly during construction to observe Project milestones for the implementation of proposed mitigation measures. The wildlife biologist will provide annual written reports to the NYSDEC, Corps, and the Service addressing compliance with these proposed conservation measures, including notes on recommendations for further action to maintain compliance, as needed.

The Project sponsor will have the wildlife biologist visit the site to observe the following measures:

- Installation of Project-limiting fence and markers prior to commencement of clearing;
- Start of vegetation clearing – to observe that limits are clearly demarcated and seasonal restrictions are observed;
- Completion of vegetation clearing – to observe compliance with Project limits and seasonal restrictions;
- Completion of rough grading – to observe compliance with disturbance limits;
- Start of Site Planting – to confirm materials against planting plan;
- Completion of Site Planting – to confirm that planting complies with plan; and
- Completion of light fixture installation, when lights are operational – to observe light coverage per the proposed lighting plan.

In addition, the wildlife biologist will forward a copy of the executed conservation easement to the NYSDEC, Corps, and the Service when it has been recorded.

Human Activity

The layout of the proposed development concentrates developed areas into three clusters separated by wetlands and their 100-foot regulated adjacent areas. Human use of the property will increase significantly, due to the increase in residences and commercial operations, but human activity will be largely confined to the immediate areas around proposed buildings, as sidewalks and recreational activities have been designed to integrate with residential and commercial spaces, and to minimize the Project disturbance footprint. The wetlands and their adjacent upland areas, as well as selected upland areas around the property, will be conserved. The wetland corridor that connects the larger wetland areas in the northeast, northwest, and south sections of the property will be enhanced through tree plantings to provide naturally vegetated corridors for bats. These areas are expected to have little, if any, increase in human activity as a result of the proposed development.

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 has determined that the action area for this Project is the Project area and offsite mitigation area as no impacts are anticipated outside of these areas.

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.”

Indiana bat

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.

To assess the current status of the species, it is helpful to understand the species’ conservation needs. The Service frequently describes conservation needs 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 3 Rs) (Shaffer et al. 2002; Wolf et al. 2015; Smith et al. 2018). The Service can then apply the appropriate regulatory framework and standards to these principals to address a variety of ESA-related decisions (e.g., listing status, recovery criteria, jeopardy, and adverse

modification analysis). For Section 7(a)(2) purposes, the 3 Rs can be translated into the reproduction, numbers, and distribution (RND) of a species.

Recovery plans can also serve as a resource to describe species conservation needs. The Service prepared a recovery plan for the species in 1983 (Service 1983) and drafted a revised recovery plan (recovery plan) that was made available for public comment in 2007 (Service 2007). While it was not officially adopted (as white-nose syndrome [WNS] impacts were discovered in that timeframe and resources were shifted towards addressing this new threat), it embodies the best available scientific information and it outlines recovery actions that are relevant to the majority of stressors for the species. In addition, 5-year reviews (Service 2009; 2019b) provide current summaries of the status of the species rangewide, including updates on threats, status of hibernacula counts, and recommended priority actions. The following is a summary of the Indiana bat's needs drawn from the recovery plan (Service 2007) and the Northeast Region Indiana Bat Conservation Strategy (Service 2018).

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).

The 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 2). To help maintain adaptive capacity for the species (representation), multiple (redundant) healthy (resilient) populations should occur in all four RUs.

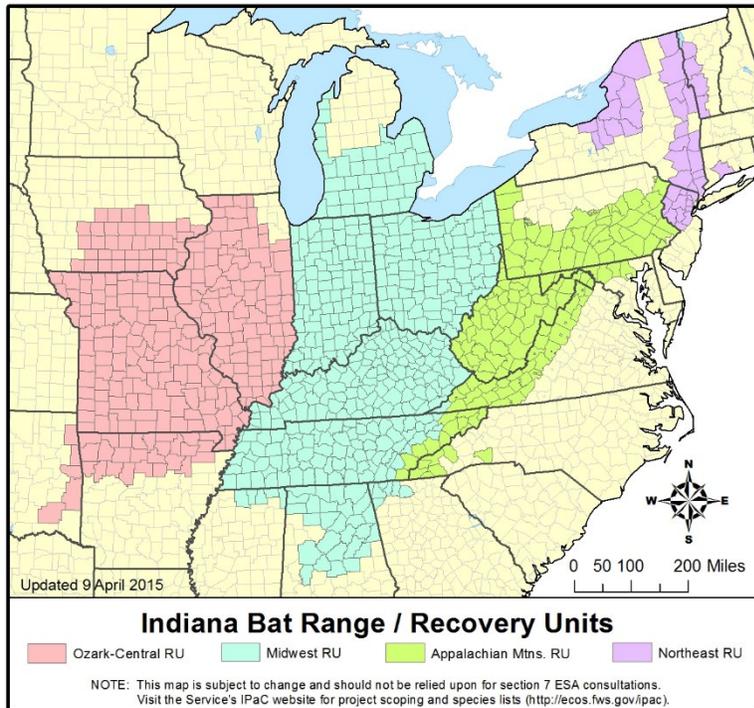


Figure 2. Indiana bat recovery units (Service 2007).

The Service's Northeast Region tiered off the recovery plan to describe our current focus of addressing the following four conservation needs for the Indiana bat (Service 2018):

- Managing the effects of WNS;
- Conserving and managing winter colonies, hibernacula, and surrounding swarming habitat;
- Conserving and managing maternity colonies; and
- Conserving migrating bats.

Now that we have described the species basic needs, we can assess its current condition. Currently, the rangewide status of the species is declining (Figure 3, Service 2019a). Declines are associated with the onset of WNS (described below) which has spread from New York south and west across the range. Impacts to Indiana bats are most severe to date in areas with the longest exposure to WNS (e.g., 75-99% declines in New York, West Virginia, and Pennsylvania) but declines have been observed in all RUs. The Project is located within the Northeast RU.

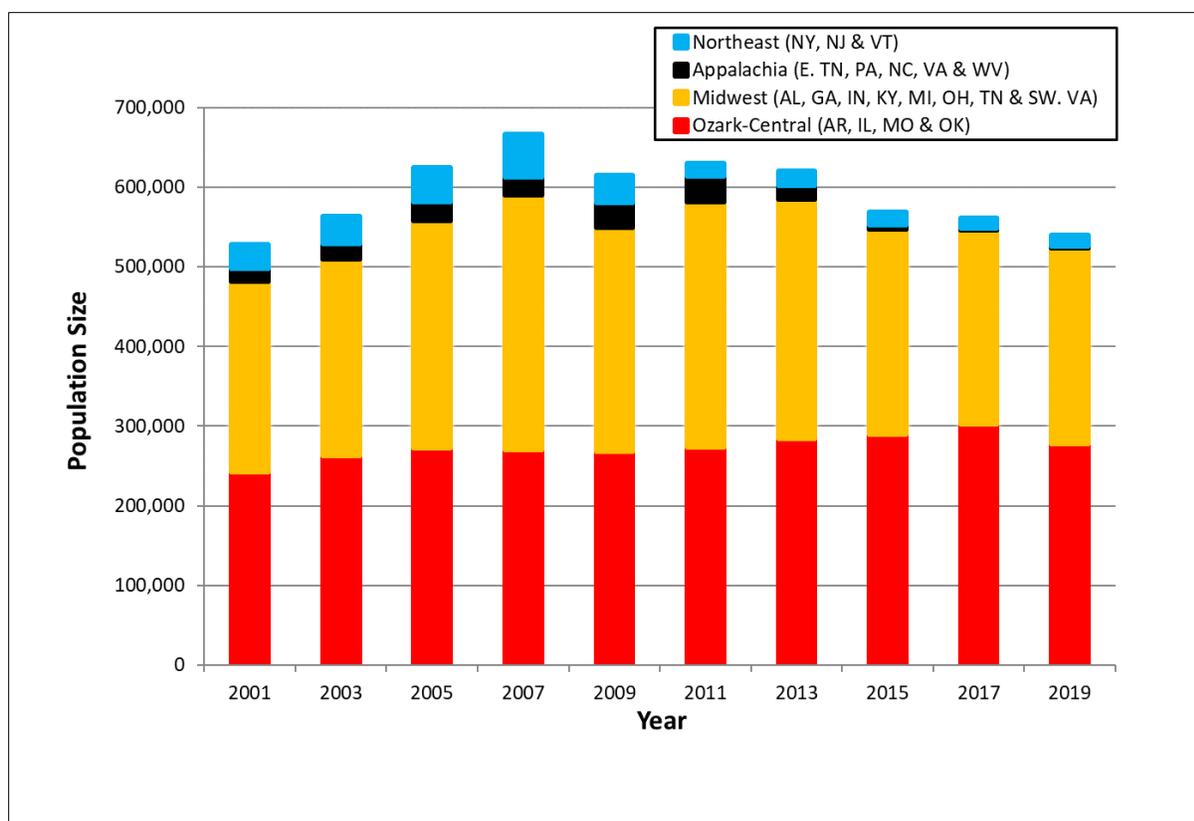


Figure 3. Indiana bat population estimates by RU from 2001 to 2019 (Service 2019a, Figure 4).

Redundancy of populations rangewide has been significantly reduced with several hibernacula now believed to have no Indiana bats and larger percentages of Indiana bats occurring in fewer sites. For example, as of February 2019, 93% (12,570 of 13,510 of Indiana bats) occur at 1 location in the Northeast RU and 72% (1,435 of 1,996 of Indiana bats) occur at 3 locations in the Appalachia RU (Service 2019a). This concentration of individuals in a few locations puts the species at risk should adverse impacts occur at these locations. Based on winter counts rangewide, the resiliency of populations varies, with some winter populations believed to be extirpated and others with virtually no decline. We do not have an understanding of causes of variation in mortality by site and why some sites appear to have greater survival rates. We also lack a good understanding of the changes to associated maternity colonies, but we expect the variation to be the same as that observed in winter.

Threats to Indiana Bats

Threats to the Indiana bat are discussed in detail in the recovery plan (Service 2007), the 5-year reviews (Service 2009, 2019b), and Northeast Region Indiana Bat Conservation Strategy (Service 2018). Traditionally, occupied habitat loss/degradation, winter disturbance, and environmental contaminants have been considered the greatest threats to Indiana bats. The recovery plan (Service 2007) identified and expounded upon additional threats, including collisions with man-made objects (*e.g.*, wind turbines). The 2009 5-year review (Service 2009) was the first review to include the threat of WNS, which is now considered the most significant threat to the recovery of the species. The WNS has spread across the range of the Indiana bat (Figure 4) with declines varying among hibernacula. Overall, the Service finds that WNS has

significantly reduced the redundancy and overall resiliency of the Indiana bat to withstand other cumulative threats. For example, Erickson *et al.* (2016) modeled the interaction of WNS and wind turbine mortality and the interaction resulted in a larger population impact than when considering the effects of either stressor alone.

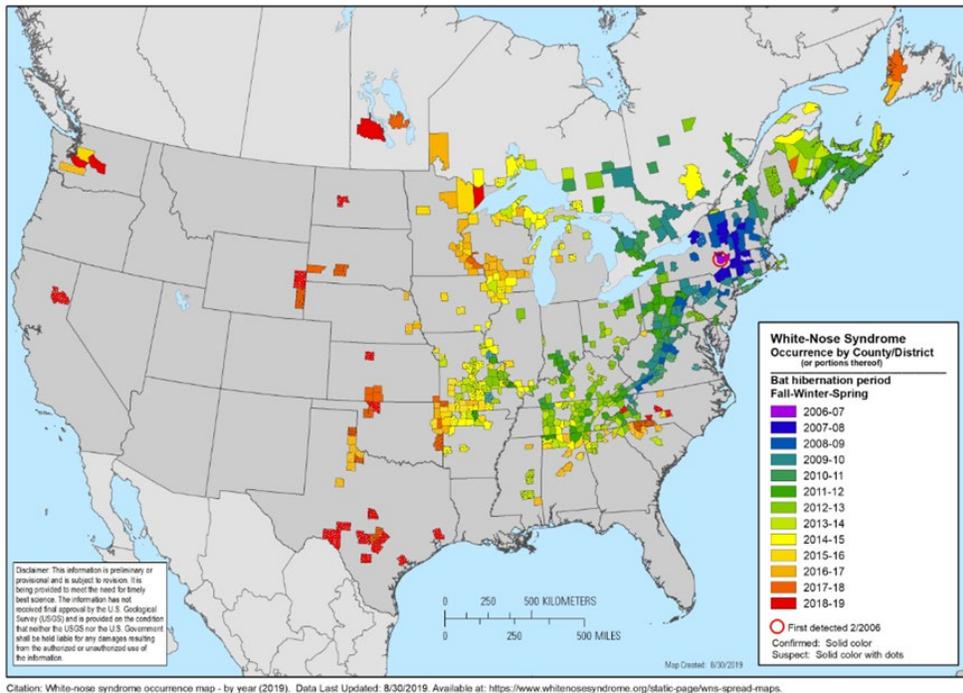


Figure 4. White-nose syndrome spread map (<https://whitenosesyndrome.org> accessed 10/22/2019)

In addition to extrinsic factors, there are several intrinsic biological constraints affecting Indiana bats. High Indiana bat adult female survival is required for stable or increasing growth rates (Thogmartin *et al.* 2013). Given the significant declines in populations across much of the range, it is essential to minimize impacts to reproductive potential for surviving Indiana bats. Healthy adult females have a maximum of 1 pup per year. Thus, the ability of the species to increase reproductive success is limited.

Summary

At present, few healthy winter populations (and likely associated maternity colonies) remain in the Northeast RU. The WNS impacts are expected to continue across the range for years to come as are other ongoing threats (e.g., climate change, wind turbines) to the bats and their habitats. Given the species' limited reproductive potential, populations are not likely to rebound in the near term. In short, over the past decade, WNS has increased the species' risk of extinction as the 3 Rs of its remaining populations have declined. The majority of the Indiana bats' population-based and protection-based recovery criteria have not yet been achieved, identified threats have not yet been sufficiently reduced, and stable population growth at the most important hibernacula has not been sustained. In summary, as a whole, the rangewide status of the species appears to be declining (with some populations improving and most declining) and the Service recommended maintaining the current classification as an endangered

species in its last 5-year review (Service 2019b). 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>;
- the Service’s 2018 Northeast Region Indiana Bat Conservation Strategy https://www.fws.gov/northeast/nyfo/es/IbatConsStrategy_20180102.pdf; and
- the Service’s 2018 Revised Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat <https://www.fws.gov/midwest/endangered/section7/fhwa/index.html>.

Status of the Species within the Northeast Recovery Unit

The Northeast RU declined from 53,763 Indiana bats in 2007 to a low of 12,693 in 2017. In 2019, numbers slightly increased to 13,412 (Service 2019a); however, 93% of the Indiana bats are located in just one hibernaculum. The primary factor affecting Indiana bats in the Northeast RU is WNS.

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

In accordance with 50 CFR 402.02, the environmental baseline refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency’s discretion to modify are part of the environmental baseline.

Here we provide the environmental baseline of the Project Area and Barton Hill.

Project Area

Current Condition of the Species within the Project Area

The Service and NYSDEC conducted radio tracking of bats emerging in spring from the Williams Lake Complex of hibernacula (19 miles away) in 2004, 2005, and 2007. In April 2007, we tracked a female to a roost tree on the Project property. Limited staff was available for emergence counts and the highest count obtained was 9 bats. The female was also tracked to one roost 0.4 miles north of the Project.

No additional capture and tracking or more extensive acoustics on- and off-site were conducted to determine the likely colony size nor the home range size for Indiana bats using the Project site. 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). In addition, the Service has provided guidance¹ for determining an area that may be occupied by *all* individuals associated with a maternity colony, and it is generally considered areas within 2.5 miles of documented roosts.

In 2004, 4 Indiana bat roosts were located approximately 1.4 miles to the south of the Project with a maximum exit count of 98 in early May. In 2005, 2 Indiana bat roosts were located approximately 1.8 miles to the north of the Project at James Baird State Park with a high emergence count of 21 in early May. The female Indiana bat tracked to the Project in 2007 is likely associated with a maternity colony that includes individuals using these other roosting areas. Given that the three roosting areas were found in three different years, and all in early spring when colonies are still forming, it is reasonable to assume that there is one maternity colony in this area. We have limited additional information about the colony since 2007. The NYSDEC conducted 7 nights of acoustic surveys at James Baird State Park and did not record any likely Indiana bat calls (L. Masi, NYSDEC, personal communication). The NYSDEC also conducted acoustic surveys at Noxon Road, but the results are pending. There is no information near the Project site itself. The status of the Williams Complex has been declining since WNS was first discovered with over 38,000 Indiana bats in 2007 to less than 1,400 in 2019 (Service unpublished data). Given the status of the associated hibernacula complex, the status of this colony should be the same (declining).

Conservation Role of the Project Area

As stated above, the Project area provides some habitat for an Indiana bat maternity colony that we assume has additional roosting areas documented to the north and south of the Project site. Indiana bats may be found within the action area spring through late summer. There are no hibernacula onsite and no known hibernacula nearby to anticipate fall swarming activity.

Offsite Mitigation Area

Current Condition of the Species within the Mitigation Area

When WNS impacts began in parts of New York in 2007, there were 9,393 Indiana bats at Barton Hill. Numbers fluctuated by a few thousand Indiana bats until 2015 when the highest recorded Indiana bat count was documented at 14,023. The population then declined to 11,083 in 2017 and increased to 12,570 in 2019.

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

Conservation Role of the Mitigation Area

As of the winter of 2018-2019, 93% (12,570 of 13,510 Indiana bats in the Northeast RU) occur at Barton Hill (Service 2019a). This site is the 8th largest hibernacula rangewide and essential for the conservation of the species.

EFFECTS OF THE ACTION

In accordance with 50 CFR 402.02, effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see § 402.17).

The Service established additional requirements for making the determination of reasonably certain to occur, which must be followed after October 28, 2019, the effective date of new regulations under 50 CFR 402. After determining that the “activity is reasonably certain to occur,” based on clear and substantial information², using the best scientific and commercial data available, there must be another conclusion that the consequences of that activity (but not part of the proposed action or activities reviewed under cumulative effects) are reasonably certain to occur. In this context, conclusion of reasonably certain to occur must be based on *clear and substantial information*, using the *best scientific and commercial data available* after consideration of three factors in 402.17(b)(1-3).

There is no intent that the 2019 regulatory changes alter how we will analyze the effects of a proposed action or the scope of effects. We will continue to review all relevant effects of a proposed action as we have in past decades, but the Service determined it was not necessary to attach labels to various types of effects through regulatory text. That is, we intend to capture all of those effects (now “consequences”) previously listed in the regulatory definition of effects of the action— *direct, indirect, and the effects from interrelated and interdependent activities*—in the new definition. These effects are captured in the new regulatory definition by the term “all consequences” to listed species and critical habitat.

The test for determining effects includes the consequences resulting from actions previously referred to as “interrelated or interdependent” activities. In order for consequences of other activities *caused by* the proposed action, *but not part of the proposed action*, to be considered effects of the action, both those activities and the consequences of those activities must satisfy the two-part test: they would not occur but for the proposed action and are reasonably certain to occur. As a result, when we discuss effects or effects of the action throughout the Opinion, we are referring only to those effects that satisfy the two-part test. Requiring evaluation of all

² By *clear and substantial*, we mean that there must be a firm basis to support a conclusion that a consequence of an action is reasonably certain to occur. This term is not intended to require a certain numerical amount of data; rather, it is simply to illustrate that the determination of a consequence to be reasonably certain to occur must be based on solid information. This added term also does *not* mean the nature of the information *must support* that a consequence is *guaranteed* to occur, but must have a degree of certitude.

consequences caused by the proposed action allows the Services to focus on the impact of the proposed action to the listed species and critical habitat, while being less concerned about parsing what label to apply to each consequence.

The potential effects of the proposed action are described in Appendix B. The following Project components are unlikely to result in any impacts to Indiana bats:

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

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 bats, 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 most components conservation measures have been incorporated to ameliorate those effects (see Appendix B). These include:

- tree removal
- wetland/stream crossing
- land preparation
- construction
- 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 (i.e. are not likely to adversely affect 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 lighting. 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 (0.02 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 2018).

Effects from loss of 21 acres of suitable roosting habitat are anticipated. The one documented roost tree onsite will not be removed and will have a naturally vegetated buffer that will range from a minimum of 150 feet to the northeast, to 206 feet to the southwest, and from 502 feet to the southeast to more than 1,180 feet to the northwest. Dense, mixed evergreen and hardwood forest with a thick understory lies to the northeast of the roost tree. Additional undocumented roosts may occur on the Project site. The following is a synopsis of anticipated impacts from loss of maternity roosts. For detailed analyses regarding roost tree loss impacts, please see the Service’s recent Opinion (Service 2018). 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 21 acres of forested roosting/foraging/commuting habitat is likely to occur from the Project. In addition, approximately 24 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 2018). 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 21 acres of forest represents a potential reduction of 2.5-10%³ 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 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.

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.

³ 21 acres/205.1-827.8 acres*100

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).

The Service is not aware of any future State, tribal, local, or private actions that are reasonably certain to occur within the LaGrange Town Center portion of the action area at this time; therefore, no cumulative effects in this area are anticipated. At Barton Hill, there are routine NYSDEC surveys to assess the status of the bats present at the site.

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 RND of that species (50 CFR 402.02). In accordance with policy and regulation, the jeopardy analysis in this Opinion 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 rangewide 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 (see 50 CFR 402.14(g)).

In this section, we add the effects of the action and the cumulative effects to the status of the species and critical habitat and to the environmental baseline to formulate our Opinion as to whether the proposed action is likely to appreciably: (1) reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the RND of that species; or (2) appreciably diminish the value of critical habitat for both the survival and recovery of a listed species.

Per the Service’s consultation handbook (Service and NMFS 1998), survival is defined as “the species’ persistence as listed or as a recovery unit, beyond the conditions leading to its endangerment, with sufficient resilience to allow for the potential recovery from endangerment. Said another way, survival is the condition in which a species continues to exist into the future while retaining the potential for recovery. This condition is characterized by a species with a sufficient population, represented by all necessary age classes, genetic heterogeneity, and number of sexually mature individuals producing viable offspring, which exists in an

environment providing all requirements for completion of the species' entire life cycle, including reproduction, sustenance, and shelter.”

Per the Service’s consultation handbook (Service and NMFS 1998), recovery is defined as “improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in Section 4(a)(1) of the ESA.” The “criteria set out in Section 4(a)(1)” means determining when a species no longer meets the definition of an “endangered species” or a “threatened species” because of any of the following factors:

- (A) present or threatened destruction, modification, or curtailment of habitat or range;
- (B) overutilization for commercial, recreational, scientific, or educational purposes;
- (C) disease or predation;
- (D) inadequate existing regulatory mechanisms; and
- (E) other natural or manmade factors affecting the species continued existence.

An endangered species is “in danger of extinction throughout all or a significant portion of its range” (see ESA Section 3(6)). A threatened species is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range” (see ESA Section 3(20)).

Analysis for Jeopardy

Indiana bat

Impacts to Individuals – The proposed action includes the permanent removal of 21 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 95 acres of habitat onsite will provide for future use of the site. In addition, we anticipate beneficial impacts to Indiana bats associated with the protection of a parcel at the Barton Hill hibernaculum.

In summary, we anticipate adverse impacts to individual Indiana bats.

Impacts to Populations – As we have concluded that individual Indiana bats are likely to experience some reductions in their annual survival or reproductive rates, we need to assess the aggregated consequences of the anticipated impacts 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. Alternate suitable roosting areas are already known within 1.4 and 1.8 miles from the Project. In addition, the Applicant has proposed other conservation measures to reduce 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 both bat species 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.

In addition, we anticipate beneficial effects to Indiana bats that use the Barton Hill hibernaculum from the permanent protection of ±52 acres of land that provides access to 2 entrances. The Applicant is also installing chain link fence with a lockable gate to restrict access to the 2 entrances.

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

In addition, given the importance of the Barton Hill hibernaculum to the Northeast RU and the species as a whole, we anticipate significant benefits from the protection of 2 entrances at this site.

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 in Section 3 of the ESA 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). 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 (ITS).

The measures described below are nondiscretionary, and must be undertaken by the Corps so that they become binding conditions of any permit issued to the Applicant, 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 ITS. 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 ITS 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 ITS [50 CFR 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE ANTICIPATED

50 CFR 402.14(i)(1)(i) states that surrogates may be used to express the amount or extent of anticipated take provided the Opinion or ITS: (1) describes the causal link between the surrogate and take of the listed species; (2) describes why it is not practical to express the amount of anticipated take or to monitor take-related impacts in terms of individuals of the listed species; and (3) sets a clear standard for determining when the amount or extent of the taking has been exceeded.

The following ITS will use acres of habitat as a surrogate because determining the exact numerical limits on the amount of incidental take are not practical. In this situation, acres of habitat impacted will serve as a reasonable and appropriate surrogate for incidental take of the Indiana bat because any activities within suitable habitat will directly and indirectly cause the anticipated incidental take within the bounds of the identified acres of habitat.

The ESA does not require use of precise, empirical scientific data to make decisions, but instead requires use of the best available scientific and commercial data to make determinations within specified statutory time frames. Therefore, when lacking empirical data, the Service must make science-based assumptions in its decision-making process. This is often the case when the Service must complete its effects analysis, jeopardy and adverse modification determinations, and ITS based on data that is incomplete, and lacks site-specific, empirical data.

For the Indiana bat, it is not practical to express the amount of anticipated take in terms of individuals because there is no density or abundance estimate for the portion of the Action Area where take is anticipated. As a result, predicting the precise number of individuals that will be taken is not possible. Additionally, it is not practical to monitor take-related impacts in terms of individual Indiana bats for the following reasons: 1) the Indiana bat has a small body size, is drab in color, which makes encountering dead or injured individuals unlikely; 2) Indiana bats occupy summer habitats (heavily forested) where they are difficult to locate (multiple roosts located within and outside of the Action Area); 3) Indiana bats spend a substantial portion of their lifespan underground; 4) take may occur offsite (e.g., the bat dies outside of the Action Area); 5) starvation or failure to reproduce cannot be detected; and 6) losses may be masked by fluctuations in numbers associated with WNS.

However, because the location, timing, and acreage of habitat impacts can be readily identified, measured, and monitored, this surrogate is the most reasonable means for detecting when take may be exceeded. While working outside of the evaluated parameters (e.g., work zones, seasonal or timing restrictions, and specified acreages) it does not automatically mean that take has been exceeded, these events provide a clear trigger that requires the Corps to reinitiate consultation, during which the Service will determine whether incidental take has been exceeded since detection of individuals taken, as described above, is not practical.

The anticipated take is described in Table 1 below.

Table 1. 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	21 acres of forest	Adults	Harm	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.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures (RPM) are 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 95.7 acres at the Project site through recording of the conservation easement with the Town of LaGrange.

3. Complete permanent protection of 52.33 acres at Barton Hill through recording of the conservation easement with the Town of Moriah.

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 RPM 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 easements to the Service within 90 days of the issuance of the Corps authorization or NYSDEC Article 11 permit, whichever comes first (RPM 2 and 3).
3. The Applicant will ensure gating/fencing is installed at Barton Hill within 6 months of the issuance of the Corps authorization unless determined to be unnecessary by LCLT, NYSDEC and USFWS (RPM 3).

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 conduct surveys to monitor the status of Indiana bats within the Project area portion of the action area during the active season of **the first year following the removal of forest**. Phase 2 level acoustic or netting surveys 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 the final phase is completed**.
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. 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

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.

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. We recommend the Corps consider the following conservation measures:

- Encourage applicants to permanently protect Indiana bat habitat during wetland mitigation projects.
- Develop a programmatic consultation to improve the assessment of impacts of the New York District's regulatory program on the Indiana bat.

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 initiation 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,

/s/ David A. Stilwell

David A. Stilwell
Field Supervisor

cc: BRH Land, LLC, Newburgh, NY (S. Rieger)
ERM, Syracuse, NY (M. Fishman)
NYSDEC, Albany, NY (C. Herzog)
NYSDEC, New Paltz, NY (L. Masi)

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Appendix A.

Consultation History

- 7-2-03 The Service received a letter from Terrestrial Environmental Specialists, Inc. (TES), regarding listed species at the site.
- 7-22-03 The Service responded that we have no information regarding the presence of listed species at the site.
- 1-24-07 The Service received a letter from TES providing thoughts on listed species at the site after visiting our website for an updated species list.
- 2-27-07 The Service replied to TES suggesting it appears that suitable Indiana bat roosting and foraging habitat occurs at the site and recommended assessing the potential for bog turtle habitat.
- 4-24-07 The Service tracked a radio-tagged female Indiana bat to the Project location but did not walk onto the property.
- 4-25-07 The Service received permission from the Applicant to enter the property.
- April 07 The Service conducted additional roost checks and an emergence survey.
- 8-7-10 The Service received an Indiana bat/bog turtle habitat suitability assessment from Ecological Solutions, LLC.
- 10-1-10 The Service provided comments on the habitat assessment and requested a site visit.
- 5-13-11 The Service received memo and maps for site visit.
- 6-9-11 The Service, Applicant, and consultants from GHD attended a site visit to identify location of known roost tree, extent of suitable habitat on the Project site, discuss proposed conservation measures and anticipated impacts, discuss proposed mitigation, including conservation of local offsite habitat.
- 8-11-11 The Service sent a letter to the Applicant outlining the discussions from the June 2011 site visit.
- 10-25-11 The Service received a draft bat mitigation plan.
- 10-31-11 The Service received revised Project site plans.
- 1-6-12 The NYSDEC provided comments on the draft bat mitigation plan.
- 2-15-12 The Service provided comments on the draft bat mitigation plan.
- 3-14-12 The NYSDEC sent a notice of incomplete application to the Applicant.

- 4-24-12 The Service, Applicant, and consultant from Barton & Loguidace (B&L) met to discuss further Project footprint reductions, onsite mitigation measures, offsite mitigation proposals, mitigation ratios, and preparation of a BA.
- July 2013 The Service, B&L, and NYSDEC had multiple emails regarding status of the Project.
- 7-31-13 The Service, Applicant, B&L, NYSDEC, and LCLT participated in conference call to discuss acquisition and conservation of Barton Hill Mine.
- May 2014 The Corps and Service communicated regarding the status of the Project.
- 5-3-15 The Service contacted the Natural Resource Group consulting firm for an update on the status of the BA.
- 2013-2015 Additional communications among the Service, NYSDEC, Applicant, LCLT, consultants, and the landowner of the Barton Hill Mine property.
- January 2016 ERM consulting firm provided an update on status of the BA and coordinated with the Service and NYSDEC regarding the NLEB.
- 3-28-16 The Service received draft BA.
- 5-17-16 The Service provided comments on the draft BA.
- 6-9-16 The NYSDEC provided comments on the draft BA.
- 9-5-18 ERM contacted the Service, NYSDEC, and Corps regarding the status of the Project.
- 9-26-18 The Service, Applicant, NYSDEC, and Environmental Resources Management (ERM) participated in a conference call to discuss status of Project.
- May 2019 The Corps notified the Service of a new Project manager and status of their review of the Project.
- 6-14-19 The Service and Corps received revised BA.
- 6-25-19 The Service received the Corps' request to initiate formal consultation.
- 7-24-19 The Service sent a letter to the Corps acknowledging initiation of consultation.
- 9-27-19 The Service requested additional information from the Applicant and ERM after discovering discrepancies within the BA.
- 10-15-19 The Service requested an extension from the Corps.

- 10-15-19 The Corps granted the request for extension.
- 11-7-19 The Service requested an extension from the Corps.
- 11-12-19 The Corps granted the request for extension.
- 11-25-19 The Service received a letter from the Corps to the Applicant regarding outstanding information needs.
- 11-27-19 The Service received a revised BA.
- 12-9-19 The Service received GIS shapefiles for the on-site conservation areas.
- 12-23-19 The Service provided draft RPM, terms and conditions, and monitoring and reporting conditions to the Applicant and the Corps.
- 12-23-19 The Service and Corps agreed to extend the consultation to January 14, 2020.
- 12-30-19 ERM responded to draft conditions.

Appendix B: Indiana Bat Effects Pathway Analysis for LaGrange Town Center, Dutchess County, NY

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
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
	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)	There will be no tree cutting from April 1st – November 1st	None	NLAA
Tree Removal	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	As originally proposed, the Project would have required clearing about 45 acres of forested habitat on the site, but with development plan reductions and planned site plantings, the current Project involves clearing 21.4 acres of forested habitat. Prior to clearing, the limits of proposed clearing will be clearly demarcated on the site with orange construction fencing (or similar) to prevent inadvertent over-clearing of the site. Tree-clearing envelopes have been minimized to maintain pockets and hedgerows of mature forest in between homes and among buildings.	Loss/alteration of ~21 acres of forest is anticipated to result in a shift in habitat use by Indiana bats.	LAA

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
				<p>The one known Indiana bat roost tree on the site will remain undisturbed, and will have an undisturbed, naturally vegetated buffer surrounding it that will range from a minimum of 150 feet to the northeast, to 206 feet to the southwest, and from 502 feet to the southeast to more than 1,180 feet to the northwest.</p> <p>The Project sponsor will place a total of 9.7 acres of undeveloped upland forest area around the perimeter of the Proposed Development Area under permanent conservation easement. In addition, 95.7 acres of the site will remain undisturbed, including 37.9 acres of forested wetland, and will also be perpetually protected by the conservation easement.</p> <p>In addition, an offsite conservation area containing an important Indiana bat hibernaculum has been acquired and will be protected in perpetuity through a conservation easement. This offsite conservation area includes a 52-acre parcel providing access to the Barton Hill Mine.</p>		
	Loss or fragmentation of spring staging/ fall swarming habitat	<p>Resource: Forest (suitable roosts and foraging space)</p> <p>Life stage: Juveniles, adults</p>	None anticipated as the Project is not located in spring staging or fall swarming habitat	-	-	NE

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
		Function: Feeding, breeding, sheltering				
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, daytime arousal and flights	There will be no tree cutting from April 1st – November 1st	None.	NLAA
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.	Standard soil erosion conservation measures and reseeded/replanting the disturbed areas. Avoidance of wetlands, streams and buffers. Minor wetland encroachment.	None	NLAA

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
Land Preparation (grading, herbaceous vegetation removal, trenching for	Erosion, sedimentation, and/or dust causing a reduction of invertebrate prey	Resource: Invertebrate prey, water resources 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.	Standard soil erosion conservation measures and reseeded/replanting the disturbed areas. Avoidance of wetlands, streams and buffers. Minor wetland encroachment.	None	NLAA

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
utilities, vegetation disposal)	Loss of natural vegetation	Resource: shrubs, tall grass, invertebrates Life stage: Juveniles, adults Function: Foraging	Range of response depending on scale of Project – Negligible to abandonment of habitat or displacement of bats, increased energy expenditure.	Project design concentrates areas of development and retains large areas of natural vegetation that may serve as foraging areas.	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	-	Construction noise/disturbance over 10 years is anticipated to result in a shift in habitat use by Indiana bats. However, we are unable to differentiate any noise or lighting effects within those associated with the actual habitat removal.	LAA

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
Waterbody Crossing Work	Reduction of wetlands/water bodies(fill)	Resource: Clean drinking water Life stage: Juveniles, adults Function: Drinking	The minor wetland fill (0.02 acres) is not anticipated to change the amount of available water sources.	The only wetland impact on the site will be from installation of subsurface utilities adjacent to the wetland road crossing. This will involve excavation of a narrow channel into which utilities will be placed. The channel will be backfilled and the area will be restored to preconstruction contours and seeded with a native wetland seed mix.	None	NLAA
	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	The only wetland impact on the site will be from installation of subsurface utilities adjacent to the wetland road crossing. This will involve excavation of a narrow channel into which utilities will be placed. The channel will be backfilled and the area will be restored to preconstruction contours and seeded with a native wetland seed mix.	None	NLAA
Construction activities (building access roads, installing	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	-	Construction noise/disturbance over 10 years is anticipated to result in a shift in habitat use by Indiana bats. However, we are unable to differentiate any noise or lighting effects within those associated with the actual habitat removal.	LAA

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
utilities, erecting buildings)			habitat or displacement of bats, increased energy expenditure			
Construction activities (internal structure work)	Noise	Resource: Individuals Life stage: Juveniles, adults	None anticipated	-	-	NE
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.	Potentially beneficial measure to restore some areas that will be cleared prior to construction.	-	NLAA

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
	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	-	Limited duration and no additional effects beyond those associated with noise from construction activities/human presence in general.	NLAA
Operations - Presence of Above-ground facilities	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,	Range of response depending on scope of Project work and proximity of forested habitat– Negligible to abandonment of habitat or displacement of bats,	Exterior light fixtures will be hooded to direct light down toward the ground (below the horizontal plane), and away from forest edges. Exterior lighting on the site will be specified as low-pressure sodium vapor fixtures. Light fixtures will also be directed away from forest edges to minimize light disturbance of potential summer foraging habitat areas.	We are unable to differentiate any noise or lighting effects within those associated with the actual habitat removal.	LAA

<i>Sub- activity</i>	<i>Direct interaction (vehicle strike, crushing, trampling, etc.) OR Indirect interaction (Stressor)</i>	<i>Resources exposed to Direct interaction or Indirect interaction (Stressor)</i> <i>Resource or Individuals, Life stage & Conservation Functions of the Resource</i>	<i>Range of Responses to Exposure to Direct interaction or Indirect interaction (Stressor)</i>	<i>Avoidance Minimization Mitigation</i>	<i>Effects remaining</i>	<i>Determination</i>
		breeding, sheltering	increased energy expenditure			
	Human presence/noise 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	-	We are unable to differentiate any noise or lighting effects within those associated with the actual habitat removal.	LAA

Attachment E

Indiana Bat Habitat Conservation Plan



APPROXIMATE QUANTITY	BOTANICAL NAME/COMMON NAME	SIZE	SYMBOL
POTENTIAL STREET TREES			
345	QUERCUS RUBRA, RED OAK		
245	ACER RUBRUM, RED MAPLE		
345	QUERCUS PALMIS, PIN OAK	3" - 1 1/2" CAL.	
285	LIRIODENDRON, AMERICAN SWEETGUM		
POTENTIAL COMMON AREA TREES			
60	CAROLINA YEW, CAROLINA YEW		
60	QUERCUS RUBRA, RED OAK		
60	ACER SACCHARINUM, SUGAR MAPLE	3" - 1 1/2" CAL.	
POTENTIAL WETLAND BUFFER TREES			
33	CAROLINA YEW, CAROLINA YEW		
33	ACER RUBRUM, RED MAPLE		
33	QUERCUS BICOLOR, SWAMP WHITE OAK	1 1/2" - 2" CAL.	

AREA (SQUARE FEET)	AREA (ACRES)	PERCENT OF SITE	SYMBOL	DESCRIPTION
2,162,951 S.F.	49.66 AC.	25.99%	[Green Hatched]	WETLAND CONSERVATION AREA
1,841,385 S.F.	42.27 AC.	21.76%	[Light Green]	WETLAND BUFFER CONSERVATION AREA
385,056 S.F.	8.38 AC.	4.32%	[Purple]	UPLAND VOLUNTARY CONSERVATION AREA
4,298,805 S.F.	98.69 AC.	51.67%	[Green]	TOTAL CONSERVATION AREA

NOTES:
 (1) TOTAL SITE AREA IS 8,452,329 S.F. (194.04 ACRES)
 (2) INCLUDES STORMWATER MANAGEMENT AREAS.

LEGEND	
[Dashed Line]	PROPERTY LINE
[Dashed Line]	RIGHT-OF-WAY LINE
[Dashed Line]	EASEMENT LINE
[Dashed Line]	ROADWAY CENTER LINE
[Dashed Line]	EXISTING BUILDING LINE
[Dashed Line]	EXISTING PAVEMENT EDGE OR CURB LINE
[Dashed Line]	EXISTING CURBS TO BE REMOVED
[Dashed Line]	EXISTING GUIDE RAIL
[Dashed Line]	EXISTING FENCE
[Dashed Line]	EXISTING WETLAND BUFFER
[Dashed Line]	EXISTING TREE LINE
[Dashed Line]	PROPOSED BUILDING LINE
[Dashed Line]	PROPOSED CONCRETE CURB
[Dashed Line]	PROPOSED DROP CURB & RAMP
[Dashed Line]	PROPOSED CONCRETE SIDEWALK
[Dashed Line]	PROPOSED 4" WIDE YELLOW LINES 8' O.C.
[Dashed Line]	PROPOSED 18" WIDE WHITE STOP LINE
[Dashed Line]	PROPOSED ARROW MARKING ON PAVEMENT
[Dashed Line]	PROPOSED PARKING SPACES WITH NUMBER OF SPACES INDICATED
[Brown]	EXISTING BUILDING
[Brown]	PROPOSED BUILDING
[Green]	PROPOSED STORMWATER MANAGEMENT AREA
[Dashed Line]	REEMAN PATENT STONE WALL TO BE RECONSTRUCTED (AS LABELED)
[Dashed Line]	EXISTING STONE WALL TO REMAIN
[Orange]	BLANDINGS TURTLE NESTING AREA
[Purple]	UPLAND WILDLIFE CONSERVATION AREA
[Dashed Line]	WETLAND LIMIT LINE
[Dashed Line]	WETLAND BUFFER LINE
[Dashed Line]	PROPOSED LIMIT OF DISTURBANCE

- NOTES:
- ORANGE CONSTRUCTION FENCE (OR SIMILAR) WILL BE INSTALLED ALONG LIMITS OF DISTURBANCE BEFORE CLEARING COMMENCES TO PREVENT ACCIDENTAL INTRUSION INTO THE DESIGNATED UNDISTURBED AREA.
 - NO CHEMICAL HERBICIDES OR INSECTICIDES WILL BE USED IN ANY OF THE STORMWATER BASINS.
 - NYSDEC BUREAU OF WILDLIFE MUST BE CONTACTED WITHIN 24 HOURS IF A STATE LISTED SPECIES IS ENCOUNTERED. THE WILDLIFE OFFICE CAN BE REACHED AT 845-256-3059 OR BY EMAIL AT WILDLIFE@NYSDEC.GOV. THE LOCATION, PROJECT NAME, AND AN EXPLANATION OF THE INCIDENT MUST BE PROVIDED.
 - IN ORDER TO AVOID AND MINIMIZE IMPACTS TO INDIANA BAT, IMPLEMENT THE FOLLOWING: TREES WILL BE CUT FROM NOVEMBER 1 TO MARCH 31 TO AVOID A ROOST TREE BEING TAKEN WHILE OCCUPIED. A MINIMUM 50-FOOT BUFFER WILL BE PLACED AROUND THE ROOST TREE. CONSTRUCTION ACTIVITIES WILL TAKE PLACE ONLY DURING DAYLIGHT HOURS. TO REDUCE DISTURBANCE TO FORAGING BATS, DUST WILL BE MINIMIZED THROUGH APPLICATION OF WATER OR OTHER INERT OCCULANT. OUTDOOR LIGHTING WILL BE SHIELDED OR DIRECTED DOWNWARD, WHERE POSSIBLE. THE USE OF TIMBERS OR MOTION SENSORS WILL MINIMIZE LIGHTING POLLUTION ALONG FOREST EDGES; AND NO PESTICIDES OR HERBICIDES WILL BE USED IN STORMWATER PONDS.

BR LAND LLC
 6 C. C. ROAD
 NEWBURGH, NEW YORK 12550

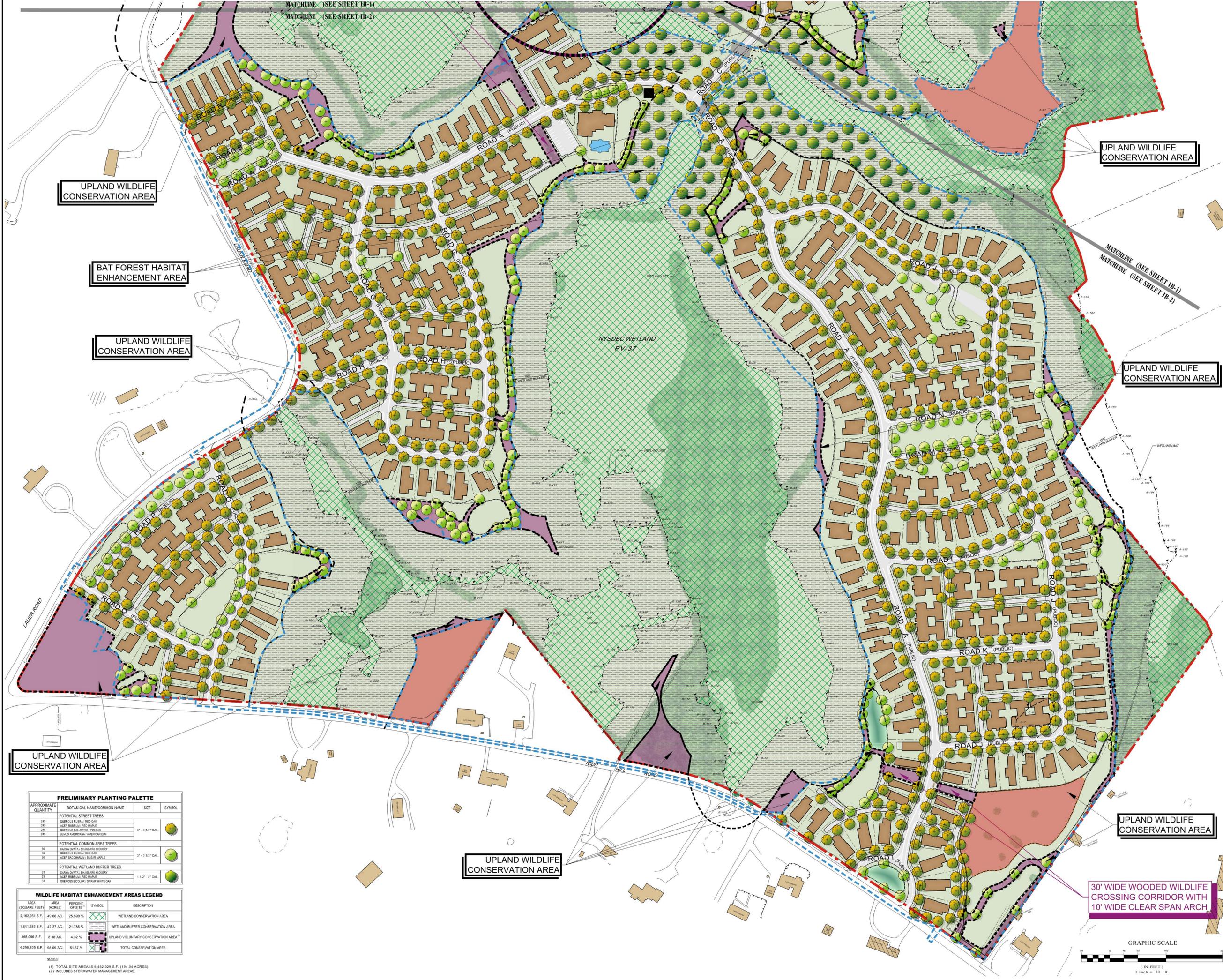
JMC
 JMC Planning, Engineering, Landscape Architecture & Land Surveying, LLC
 John Meyer Consulting, Inc.
 1201 BEAUFORT ROAD - FARMING, NY 10564
 PH: 845-252-2222 FAX: 845-252-2102
 WWW.JMCPINC.COM

INDIANA BAT HABITAT CONSERVATION PLAN
 LAGRANGE TOWN CENTER
 TOWN OF LAGRANGE, NEW YORK

PROGRESS PLOTTING
 Drawing: 5106-INDIANA-BAT
 Date: 2020-09-22
 Time: 4:04 PM
 By: [Signature]

IB-1

NOT FOR CONSTRUCTION



UPLAND WILDLIFE CONSERVATION AREA

BAT FOREST HABITAT ENHANCEMENT AREA

UPLAND WILDLIFE CONSERVATION AREA

30' WIDE WOODED WILDLIFE CROSSING CORRIDOR WITH 10' WIDE CLEAR SPAN ARCH

PRELIMINARY PLANTING PALETTE

APPROXIMATE QUANTITY	BOTANICAL NAME/COMMON NAME	SIZE	SYMBOL
245	POTENTIAL STREET TREES		
245	QUERCUS RUBRA RED OAK	2" - 3 1/2" CAL.	
245	ACER RUBRUM RED MAPLE		
245	QUERCUS FALLENB. PIN OAK		
245	ULMUS AMERICANA AMERICAN ELM		
66	POTENTIAL COMMON AREA TREES		
66	CARYA OBLATA SHAGBARK HICKORY	3" - 3 1/2" CAL.	
66	QUERCUS RUBRA RED OAK		
66	ACER SACCHARINUM SUGAR MAPLE		
33	POTENTIAL WETLAND BUFFER TREES		
33	CARYA OBLATA SHAGBARK HICKORY	1 1/2" - 2" CAL.	
33	ACER RUBRUM RED MAPLE		
33	QUERCUS RUBRA RED OAK		

WILDLIFE HABITAT ENHANCEMENT AREAS LEGEND

AREA (SQUARE FEET)	AREA (ACRES)	PERCENT OF SITE	SYMBOL	DESCRIPTION
2,162,951 S.F.	49.66 AC.	25.590 %		WETLAND CONSERVATION AREA
1,841,385 S.F.	42.27 AC.	21.786 %		WETLAND BUFFER CONSERVATION AREA
385,056 S.F.	8.38 AC.	4.32 %		UPLAND VOLUNTARY CONSERVATION AREA ⁽¹⁾
4,298,605 S.F.	98.69 AC.	51.67 %		TOTAL CONSERVATION AREA

NOTES:
 (1) TOTAL SITE AREA IS 8,452,329 S.F. (194.04 ACRES)
 (2) INCLUDES STORMWATER MANAGEMENT AREAS

No.	Date	Revised
1	10/07/2020	RESPOND TO NYSED COMMENTS

APPLICANT/OWNER:
 BRH LAND LLC
 6 CUBER ROAD
 NEWBURGH, NEW YORK 12550

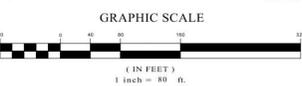
PREPARED BY:
 JMC Planning, Engineering, Landscape Architecture & Land Surveying, LLC
 John Meyer Consulting, Inc.
 100 BEGFORD ROAD - ARMONK, NY 10504
 PH: 914-439-5225 - FAX: 914-439-5102
 www.jmc.com

INDIANA BAT HABITAT CONSERVATION PLAN
 LAGRANGE TOWN CENTER
 TOWN OF LAGRANGE, NEW YORK



ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

PROGRESS PLOTTING
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 By: [Signature]
 Drawn: JJ Approved: AG
 Scale: 1" = 80'
 Date: 07/14/2011
 Project No: 5106
 Plot Name: IB-2
 Drawing No: [Signature]

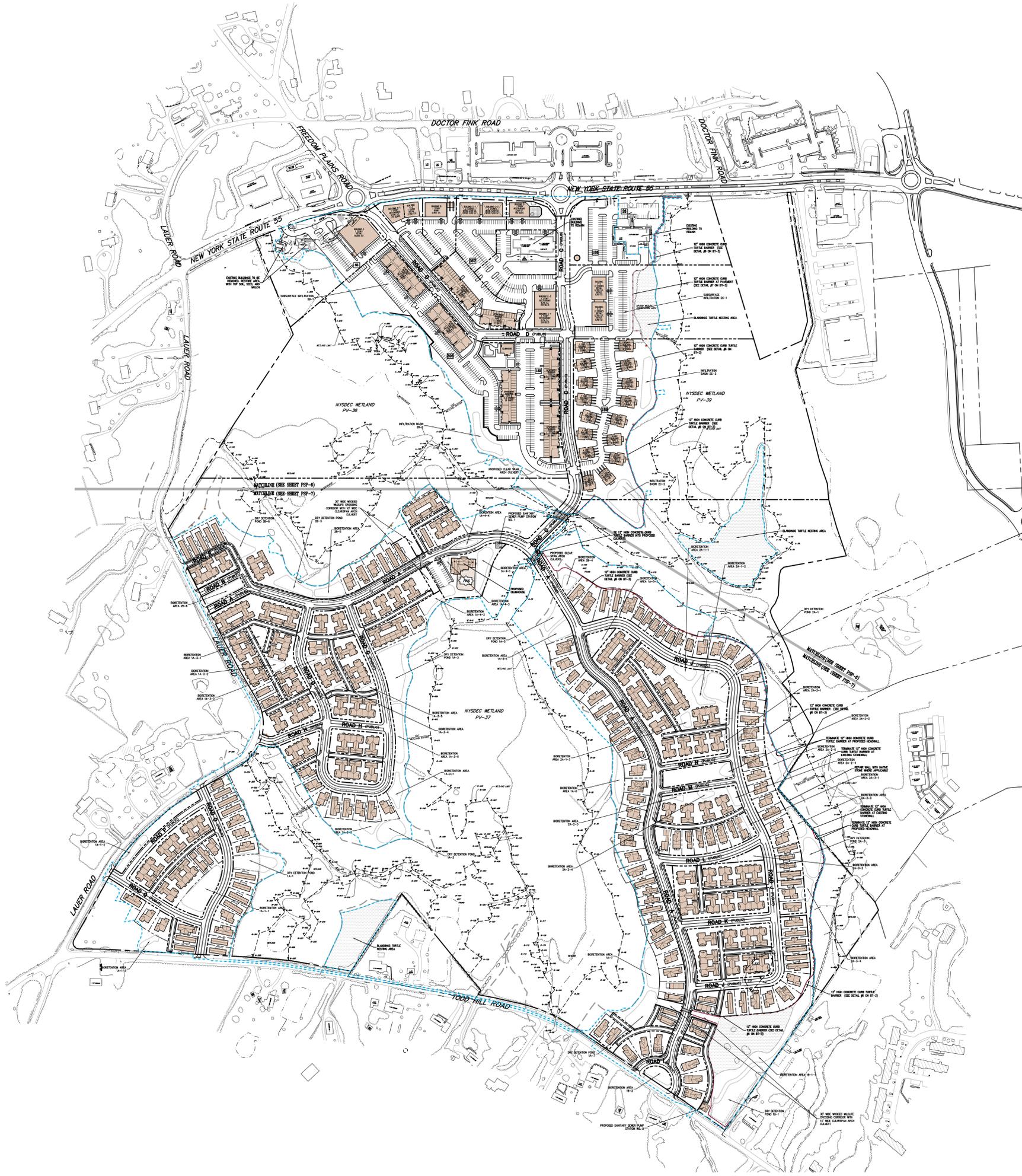


NOT FOR CONSTRUCTION

Attachment F

Preliminary Overall Layout Plan

NOT FOR CONSTRUCTION



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING WETLAND LINE AND DELINEATION
- EXISTING WATERCOURSE
- EXISTING BUILDING LINE
- EXISTING CURB LINE
- EXISTING GARD RAIL
- EXISTING FENCE
- EXISTING WETLAND ADJACENT AREA
- EXISTING FLOOD PLAN
- EXISTING TREE LINE
- PROPOSED TREE LINE
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED DROP CURB & RAMP
- PROPOSED CONCRETE SIDEWALK
- PROPOSED 2'-4" WIDE YELLOW LINES @T.O.C.
- PROPOSED 18" WIDE WHITE STOP LINE
- PROPOSED ARROW MARKING ON PAVEMENT
- PROPOSED PARKING SPACES WITH NUMBER OF SPACES INDICATED
- EXISTING BUILDING
- PROPOSED BUILDING
- PROPOSED 12" HIGH CONCRETE CURB TURTLE BARRIER
- PROPOSED WETLAND ADJACENT AREA SURFACE
- PROPOSED POND BOUNDARY
- PROPOSED STORMWATER MANAGEMENT AREA
- BENJAMIN PATENT STONE WALL TO BE RECONSTRUCTED (AS LARGED)
- EXISTING STONE WALL TO REMAIN

No.	1
Revised	RESPONSE TO NYSEEC COMMENTS
Date	07/27/2021
By	LAT

APPLICANT/OWNER	
BRH LAND, LLC 6 OLD NORFOLK PLANK ROAD NEWBURGH, NEW YORK 12550	

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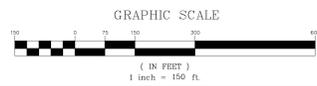


PRELIMINARY OVERALL LAYOUT PLAN
LAGRANCE TOWN CENTER
TOWN OF LAGRANCE, NEW YORK

ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

PROGRESS PLOTTING
Drawing: 5106-LAYOUT
Date: 2021-07-11
Time: 10:43 AM
By: LAT

Drawn	JJ	Approved	AG
Scale	1" = 150'		
Date	09/13/2019		
Project No.	5106		
Sheet No.	PSP-5	of	LAT
PSP-5			



Attachment G

Blanding's Turtle Habitat Improvement Plan

GENERAL NOTES:

- SILT FENCE (TEMPORARY BARRIER) WILL BE INSTALLED AT LIMIT OF DISTURBANCE AND 12" HIGH CONCRETE CURB BARRIER (PERMANENT BARRIER) WILL BE INSTALLED AS SHOWN ON THIS PLAN AND DETAIL ON SHEET BT-3 PRIOR TO START OF CONSTRUCTION.
- THE 12" HIGH CONCRETE CURB BARRIER WILL BE INSPECTED DURING THE ANNUAL MONITORING TO ENSURE FUNCTIONALITY AND CONTINUITY.

SOIL EROSION & SEDIMENT CONTROL NOTES:

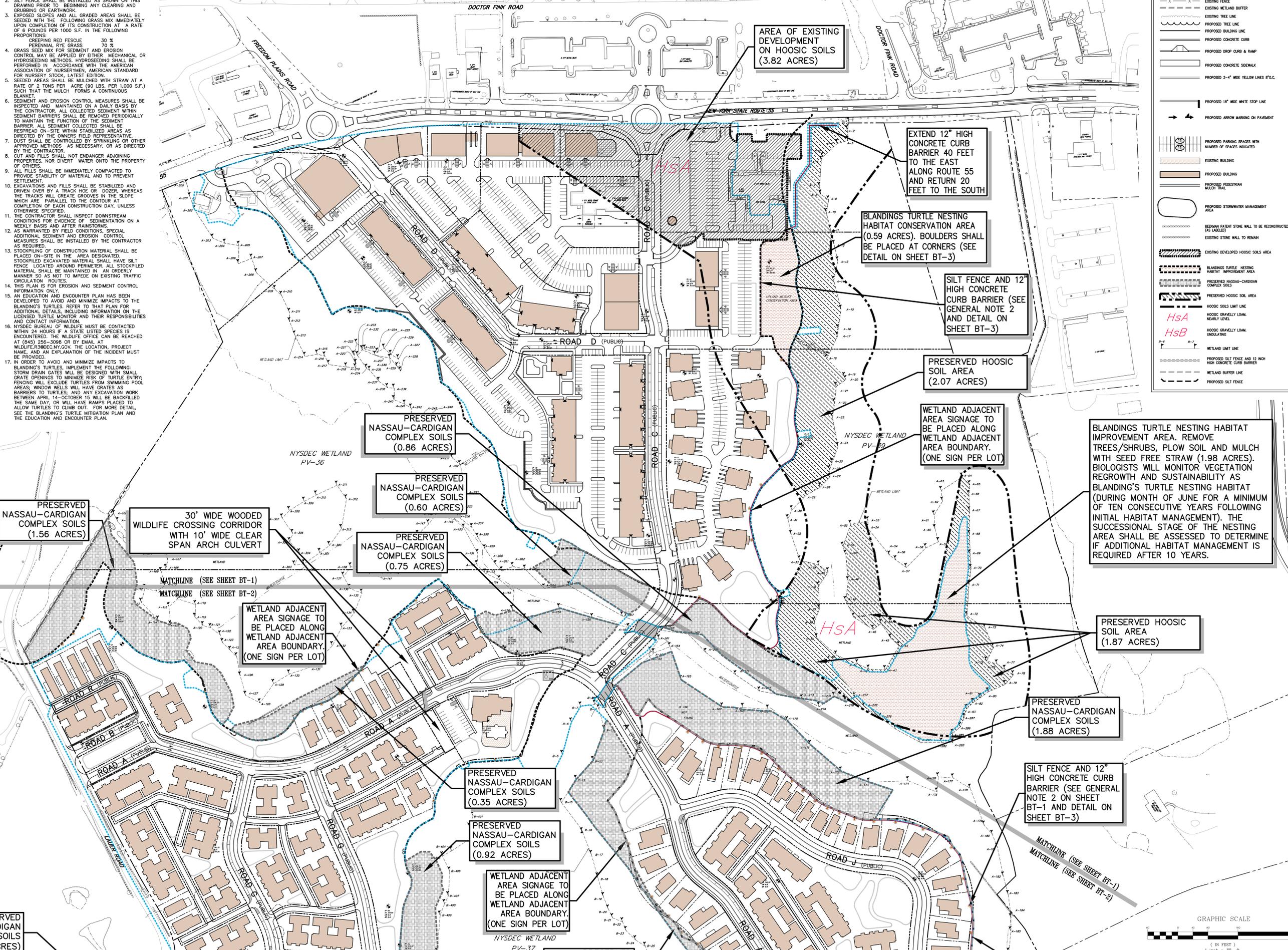
- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THESE PLANS, PRIOR TO BEGINNING ANY CLEARING, GRUBBING OR EARTHWORK.
- SILT FENCE SHALL BE INSTALLED AS SHOWN ON THIS DRAWING PRIOR TO BEGINNING ANY CLEARING AND GRUBBING OR EARTHWORK.
- EXPPOSED SLOPES AND ALL GRADED AREAS SHALL BE SEED WITH THE FOLLOWING GRASS MIX IMMEDIATELY UPON COMPLETION OF ITS CONSTRUCTION AT A RATE OF 6 POUNDS PER 1000 S.F. IN THE FOLLOWING PROPORTIONS:
 CREEPING RED FESCUE 30 %
 PERENNIAL RYE GRASS 70 %
- GRASS SEED MIX FOR SEDIMENT AND EROSION CONTROL MAY BE APPLIED BY EITHER MECHANICAL OR HYDROSEEDING METHODS. HYDROSEEDING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN, AMERICAN STANDARD FOR NURSERY STOCK, LATEST EDITION.
- SEEDING AREAS SHALL BE MULCHED WITH STRAW AT A RATE OF 2 TONS PER ACRE (90 LBS. PER 1000 S.F.) SUCH THAT THE MULCH FORMS A CONTINUOUS BLANKET.
- SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS BY THE CONTRACTOR. ALL COLLECTED SEDIMENT WITHIN SEDIMENT BARRIERS SHALL BE REMOVED DAILY TO MAINTAIN THE FUNCTION OF THE SEDIMENT BARRIER. ALL SEDIMENT COLLECTED SHALL BE RESPREAD ON-SITE WITHIN STABILIZED AREAS AS DIRECTED BY THE OWNER'S FIELD REPRESENTATIVE.
- DUST SHALL BE CONTROLLED BY SPRINKLING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE CONTRACTOR.
- ALL FILLS SHALL NOT ENDANGER ADJOINING PROPERTIES, NOR DIVERT WATER ONTO THE PROPERTY OF OTHERS.
- ALL FILLS SHALL BE IMMEDIATELY COMPACTED TO PROVIDE STABILITY OF MATERIAL AND TO PREVENT SETTLEMENT.
- EXCAVATIONS AND FILLS SHALL BE STABILIZED AND DRIVEN OVER BY A TRACK HOE OR DOZER, WHEREAS THE TRACKS WILL CREATE GROOVES IN THE SLOPE WHICH ARE PARALLEL TO THE CONTOUR AT COMPLETION OF EACH CONSTRUCTION DAY, UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR SHALL INSPECT DOWNSTREAM CONDITIONS FOR EVIDENCE OF SEDIMENTATION ON A WEEKLY BASIS AND AFTER RAINSTORMS.
- AS WARRANTED BY FIELD CONDITIONS, SPECIAL ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AS REQUIRED.
- STOCKPILING OF CONSTRUCTION MATERIAL SHALL BE PLACED ON-SITE IN THE AREA DESIGNATED. STOCKPILED EXCAVATED MATERIAL SHALL BE SILT FENCE LOCATED AROUND PERIMETER. ALL STOCKPILED MATERIAL SHALL BE MAINTAINED IN AN ORDERLY MANNER SO AS NOT TO IMPEDE ON EXISTING TRAFFIC CIRCULATION ROUTES.
- THIS PLAN IS FOR EROSION AND SEDIMENT CONTROL INFORMATION ONLY.
- AN EDUCATION AND ENCOUNTER PLAN HAS BEEN DEVELOPED TO AVOID AND MINIMIZE IMPACTS TO THE BLANDING'S TURTLES. REFER TO THAT PLAN FOR ADDITIONAL DETAILS, INCLUDING INFORMATION ON THE LICENSED TURTLE MONITOR AND THEIR RESPONSIBILITIES AND CONTACT INFORMATION.
- NYSDEC BUREAU OF WILDLIFE MUST BE CONTACTED WITHIN 24 HOURS IF A STATE LISTED SPECIES IS ENCOUNTERED. THE WILDLIFE OFFICE CAN BE REACHED AT (845) 256-3098 OR BY EMAIL AT WILDLIFE.R3@DEC.NY.GOV. THE LOCATION, PROJECT NAME, AND AN EXPLANATION OF THE INCIDENT MUST BE PROVIDED.
- IN ORDER TO AVOID AND MINIMIZE IMPACTS TO BLANDING'S TURTLES, IMPLEMENT THE FOLLOWING: FENCING WILL EXCLUDE TURTLES FROM SWIMMING POOL AREAS; WINDOW WELLS WILL HAVE GRATES AS BARRIERS TO TURTLES; AND ANY EXCAVATION WORK BETWEEN APRIL 14-OCTOBER 15 WILL BE BACKFILLED TO ALLOW TURTLES TO CLIMB OUT. FOR MORE DETAIL, SEE THE BLANDING'S TURTLE MITIGATION PLAN AND THE EDUCATION AND ENCOUNTER PLAN.

BLANDING'S TURTLE CONSERVATION AREAS		
AREA TYPE	SQUARE FEET	ACRES
PRESERVED HOOSIC SOIL AREA	380,028	8.72
PRESERVED NASSAU-CARDIGAN COMPLEX SOILS AREA	506,202	11.67
BLANDING'S TURTLE NESTING IMPROVEMENT AREAS	216,180	4.96
TOTAL BLANDING'S TURTLE CONSERVATION AREAS	1,102,410	25.35

LEGEND	
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	EASEMENT LINE
	ROADWAY CENTER LINE
	EXISTING BUILDING LINE
	EXISTING PAVEMENT EDGE OR CURB LINE
	EXISTING CURB TO BE REMOVED
	EXISTING GUIDE RAIL
	EXISTING FENCE
	EXISTING WETLAND BUFFER
	EXISTING TREE LINE
	PROPOSED TREE LINE
	PROPOSED BUILDING LINE
	PROPOSED CONCRETE CURB
	PROPOSED DROP CURB & RAMP
	PROPOSED CONCRETE SIDEWALK
	PROPOSED 2'-4" WIDE YELLOW LINES 8" O.C.
	PROPOSED 18" WIDE WHITE STOP LINE
	PROPOSED ARROW MARKING ON PAVEMENT
	PROPOSED PARKING SPACES WITH NUMBER OF SPACES INDICATED
	EXISTING BUILDING
	PROPOSED BUILDING
	PROPOSED PEDESTRIAN WALK TRAIL
	PROPOSED STORMWATER MANAGEMENT AREA
	BEDROCK FOUNDATION STONE WALL TO BE RECONSTRUCTED (AS LABELED)
	EXISTING STONE WALL TO REMAIN
	EXISTING DEVELOPED HOOSIC SOILS AREA
	BLANDING'S TURTLE NESTING HABITAT IMPROVEMENT AREA
	PRESERVED NASSAU-CARDIGAN COMPLEX SOILS
	PRESERVED HOOSIC SOIL AREA
	HOOSIC SOILS LIMIT LINE
	HOOSIC GRAVELLY LOAM, NEARLY LEVEL
	HOOSIC GRAVELLY LOAM, UNDULATING
	WETLAND LIMIT LINE
	WETLAND BUFFER LINE
	WETLAND ADJACENT AREA SIGNAGE
	PROPOSED 12" HIGH CONCRETE CURB BARRIER
	PROPOSED SILT FENCE

No.	Revised	By	Date	Reason
1	REVISED PER NYSDEC	JMC	07/14/2011	REVISED PER NYSDEC
2	RESPOND TO NYSDEC COMMENTS	JMC	07/07/2012	RESPOND TO NYSDEC COMMENTS
3	RESPOND TO NYSDEC COMMENTS	JMC	10/02/2012	RESPOND TO NYSDEC COMMENTS
4	RESPOND TO NYSDEC COMMENTS	JMC	10/07/2020	RESPOND TO NYSDEC COMMENTS

APPLICANT/TOWNSHIP: BRH LAND, LLC
 120 BEGWOOD ROAD, ARMONK, NY 10504
 914-896-1100
 NEWBURGH, NEW YORK 12550



JMC
 JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
 120 BEGWOOD ROAD, ARMONK, NY 10504
 914-896-1100
 www.jmcpllc.com

BLANDING'S TURTLE HABITAT IMPROVEMENT PLAN
 LAGRANGE TOWN CENTER
 TOWN OF LAGRANGE, NEW YORK

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PROGRESS PLOTTING

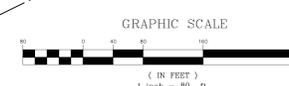
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 Time: 6:21 PM
 By: JMC

Scale: 1" = 80'
 Date: 12/17/2010
 Project No: 5106
 Drawing No: BT-1

BT-1

NOT FOR CONSTRUCTION

PRESERVED NASSAU-CARDIGAN SOILS (ACRES)



MATCHLINE (SEE SHEET BT-1)
MATCHLINE (SEE SHEET BT-2)

WETLAND ADJACENT AREA SIGNAGE TO BE PLACED ALONG WETLAND ADJACENT AREA BOUNDARY. (ONE SIGN PER LOT)

PRESERVED HOOSIC SOIL AREA (1.87 ACRES)

PRESERVED NASSAU-CARDIGAN COMPLEX SOILS (1.88 ACRES)

SILT FENCE AND 12" HIGH CONCRETE CURB BARRIER (SEE GENERAL NOTE 2 ON SHEET BT-1 AND DETAIL ON SHEET BT-3)

PRESERVED NASSAU-CARDIGAN COMPLEX SOILS (0.35 ACRES)

PRESERVED NASSAU-CARDIGAN COMPLEX SOILS (0.92 ACRES)

WETLAND ADJACENT AREA SIGNAGE TO BE PLACED ALONG WETLAND ADJACENT AREA BOUNDARY. (ONE SIGN PER LOT)

PRESERVED NASSAU-CARDIGAN COMPLEX SOILS (0.87 ACRES)

PRESERVED NASSAU-CARDIGAN COMPLEX SOILS (2.10 ACRES)

PRESERVED NASSAU-CARDIGAN COMPLEX SOILS (0.70 ACRES)

WETLAND ADJACENT AREA SIGN TO BE PLACED ALONG WETLAND ADJACENT AREA BOUNDARY (ONE SIGN PER LOT)

PRESERVED NASSAU-CARDIGAN COMPLEX SOILS (1.09 ACRES)

WETLAND ADJACENT AREA SIGNAGE TO BE PLACED ALONG WETLAND ADJACENT AREA BOUNDARY. (ONE SIGN PER LOT)

SEASONAL MAINTENANCE OF BIORETENTION AND DRY DETENTION POND AREAS AND WILDLIFE CROSSING SHALL BE PERFORMED IN MID-JULY AND MID-OCTOBER AND INCLUDE REMOVAL OF INVASIVE SPECIES BY HAND CUTTING

PRESERVED HOOSIC SOIL AREA (0.53 ACRES)

SILT FENCE AND 12" HIGH CONCRETE CURB BARRIER (SEE GENERAL NOTE 2 AND DETAIL ON SHEET BT-3)

BLANDINGS TURTLE NESTING HABITAT CONSERVATION AREA (1.33 ACRES). BOULDERS SHALL BE PLACED AT CORNERS (SEE DETAIL ON SHEET BT-3)

BLANDINGS TURTLE NESTING HABITAT IMPROVEMENT AREA. REMOVE TREES/SHRUBS, PLOW SOIL AND MULCH WITH SEED FREE STRAW (0.98 ACRES). BIOLOGISTS WILL MONITOR VEGETATION REGROWTH AND SUSTAINABILITY AS BLANDINGS TURTLE NESTING HABITAT (DURING MONTH OF JUNE FOR A MINIMUM OF TEN CONSECUTIVE YEARS FOLLOWING INITIAL HABITAT MANAGEMENT). THE SUCCESSIONAL STAGE OF THE NESTING AREA SHALL BE ASSESSED TO DETERMINE IF ADDITIONAL HABITAT MANAGEMENT IS REQUIRED AFTER 10 YEARS.

PRESERVED HOOSIC SOIL AREA (4.26 ACRES)

EXISTING 58"x40" CMP CULVERT

EXISTING 18" CMP CULVERT

EXISTING 58"x40" CMP CULVERT DISCHARGE

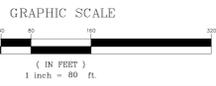
30' WIDE WILDLIFE CROSSING CORRIDOR WITH 8"-9" WIDE CLEAR SPAN ARCH TO BE MAINTAINED CLEAR OF DEBRIS AND PASSABLE FOR WILDLIFE (SEE SHEET BT-3 FOR SECTION)

EXTEND 12" HIGH CONCRETE CURB BARRIER TO THE EAST ALONG TODD HILL ROAD AND RETURN 20 FEET ALONG EAST PROPERTY LINE

INSET

EXTEND 12" HIGH CONCRETE TO THE EAST ALONG TODD HILL ROAD RETURN 20 FEET ALONG EAST PROPERTY LINE

EXISTING DUAL 58"x40" CMP CULVERT



NOT FOR CONSTRUCTION

No.	By	Date
1	JMC	07/14/2011
2	JMC	07/07/2012
3	JMC	10/02/2012
4	JMC	10/07/2020

Revised	By	Date	Reason
1	JMC	07/14/2011	REVISED PER INITIAL BAIT CONSERVATION PLAN
2	JMC	07/07/2012	RESPONSE TO NYDEC COMMENTS
3	JMC	10/02/2012	RESPONSE TO NYDEC COMMENTS
4	JMC	10/07/2020	RESPONSE TO NYDEC COMMENTS

APPLICANT/TOWNSHIP:
BRH LAND LLC
1000 W. 10TH ST.
NEWBURGH, NEW YORK 12550

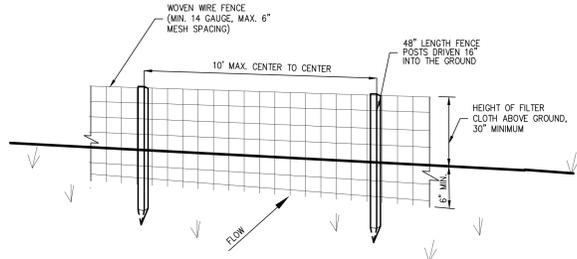
JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
John Meyer Consulting, Inc.
120 BEGFORD ROAD - ARMONK, NY 10504
PHONE: 914.233.2222 - FAX: 914.233.2192
www.jmcplc.com



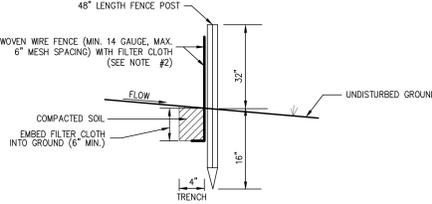
BLANDINGS TURTLE HABITAT IMPROVEMENT PLAN
LAGRANGE TOWN CENTER
TOWN OF LAGRANGE, NEW YORK

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PROGRESS PLOTTING
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By: JMC
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Project No: 5106
Sheet No: BT-2 of 2
Drawing of: 30x24

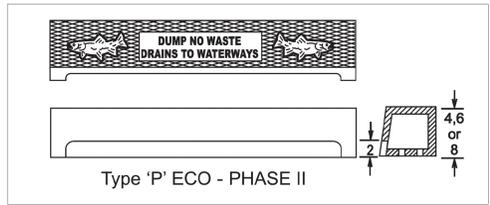


PERSPECTIVE VIEW

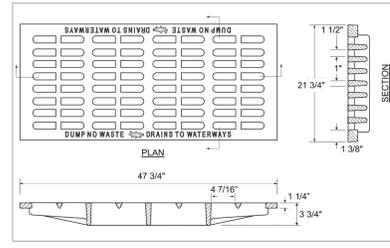


SECTION

- NOTES:
1. WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL, EITHER T OR U TYPE OR HARDWOOD.
 2. FILTER CLOTH SHALL BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
 3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABLIKA T140N, OR APPROVED EQUAL.
 4. PREFABRICATED UNITS SHALL BE GEOTAB, ENVROFENCE, OR APPROVED EQUAL.
 5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED AND REPLACED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
 6. SILT FENCE IS 48" STAKES WITH 36" WIDE FILTER FABRIC TO BE INSTALLED IN ACCORDANCE WITH NYSDEC DESIGN MANUAL.



Type 'P' ECO - PHASE II

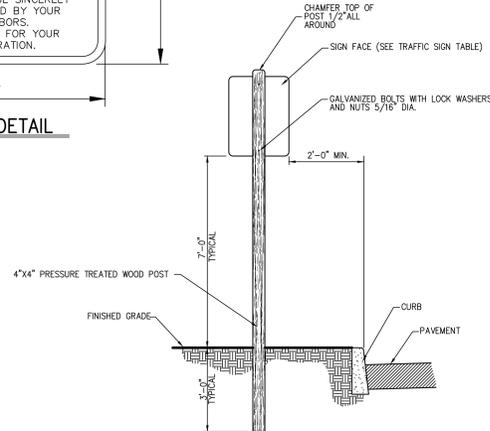


- NOTE:
1. DETAIL PROVIDED BY CAMPBELL FOUNDRY COMPANY.
 2. MATERIAL - GRAY CAST IRON, ASTM A48-B3, CLASS 35B.
 3. LOADING - AASHTO HS25 HIGHWAY LOADING.

ATTENTION

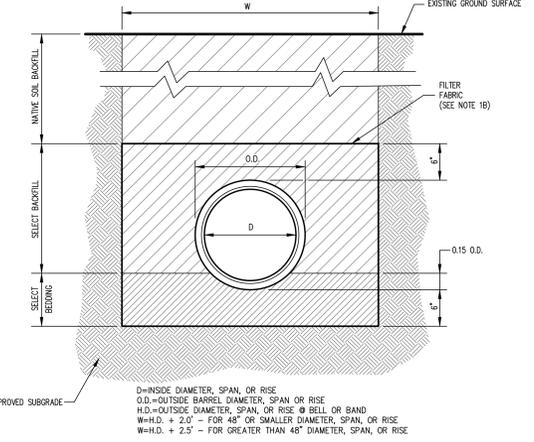
THIS IS A WETLANDS / OPEN SPACE BOUNDARY LINE. THE AREA BEHIND THIS SIGN IS A PROTECTED WETLANDS OR OPEN SPACE AREA. THESE AREAS PROVIDE SOME OF THE LAST REMAINING HABITAT FOR WILDLIFE, AS WELL AS STORAGE AREAS FOR CONTROL OF FLOODING AND TREATMENT OF STORMWATER. YOUR HELP IN PRESERVING THE INTEGRITY OF THESE PROTECTED AREAS WILL BE SINCERELY APPRECIATED BY YOUR NEIGHBORS. THANK YOU FOR YOUR COOPERATION.

SIGN DETAIL



- NOTES:
1. THIS SIGN SHALL BE INSTALLED AT THE WETLAND ADJACENT AREA BOUNDARY. ONE SIGN SHALL BE INSTALLED AT THE MIDPOINT OF EACH LOT.
 2. A BOULDER SHALL BE PLACED AT EACH CORNER OF THE NESTING AREA. BOULDER SHALL BE AT LEAST 3 FEET IN SIZE MEASURED IN ANY DIRECTION.

SIGN SECTION



- NOTES:
1. FOR TYPE II TRENCH, MATERIAL FOR SELECT BEDDING AND SELECT BACKFILL SHALL BE:
 - 1.1. EITHER SAND OR CRUSHED STONE IF NO WATER IS ENCOUNTERED IN TRENCH.
 - 1.2. 3/4" CRUSHED STONE WRAPPED IN FILTER FABRIC IF GROUND WATER IS ENCOUNTERED. FILTER FABRIC SHALL BE MIRAFI 150N OR FW 500 FOR CLAYS & SILTY SOILS.
 2. TYPE II TRENCH SHALL BE USED FOR PIPE CROSSINGS IN WETLAND ADJACENT AREA.
 3. BACKFILL FOR PIPE AND CONDUIT SHALL BE PLACED EVENLY AND CAREFULLY AROUND AND OVER THE PIPE OR CONDUIT IN SIX (6) INCH MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED UNTIL TWELVE (12) INCHES OF COVER EXISTS OVER THE PIPE OR CONDUIT. THE REMAINDER OF THE BACKFILL MAY THEN BE PLACED AND COMPACTED IN A MAXIMUM OF TWELVE (12) INCH LAYERS. EACH LAYER SHALL BE COMPACTED BY APPROVED MECHANICAL TAMPING MACHINES. UNLESS OTHERWISE SPECIFIED BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 92% MAXIMUM MODIFIED DENSITY IN ACCORDANCE WITH ASTM DESIGNATION D-1557 IN THE MANNER HEREIN DESCRIBED. BACKFILL SHALL PROCEED UP TO THE LINES AND GRADES AS SHOWN ON THE DRAWINGS.

SILT/BARRIER FENCE

1

ECO FRIENDLY CATCH BASIN GRATES

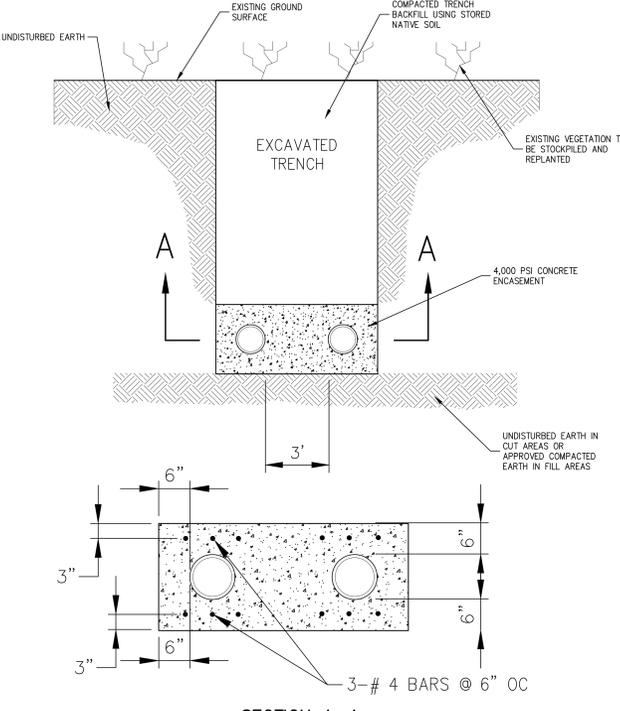
2

WETLAND ADJACENT AREA BOUNDARY SIGN

3

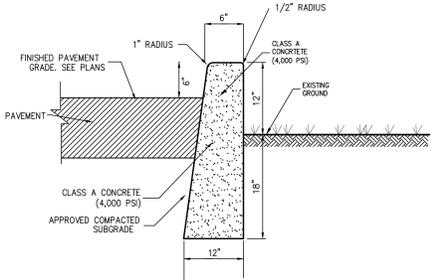
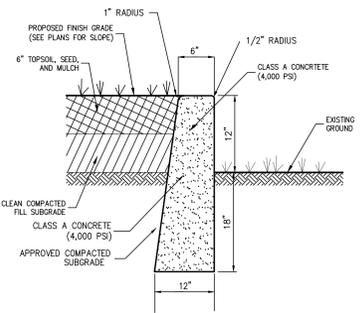
WETLAND ADJACENT AREA TYPE II TRENCH

4

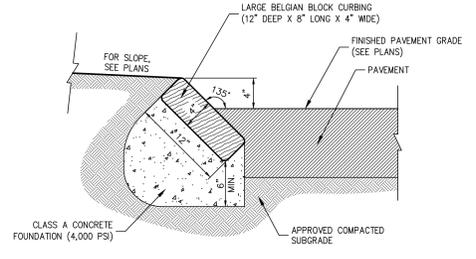


SECTION A-A

- NOTE:
1. CONCRETE ENCASEMENT SHALL BE USED FOR PIPES CROSSING EXISTING WETLANDS.



- NOTES:
1. INSTALL 1/2" PREMOLDED BITUMINOUS EXPANSION JOINT EVERY 20 FEET.
 2. UNLESS DIRECTED OTHERWISE, EXPANSION JOINTS SHALL ALSO BE INSTALLED AT THE PC AND PT OF ALL RADIUS CURB.
 3. EACH EXPANSION JOINT SHALL BE LEFT EXPOSED AND NOT COVERED WITH A SKIM COAT OF CONCRETE.
 4. INSTALL CONSTRUCTION JOINTS MID-WAY BETWEEN EXPANSION JOINTS SO THAT LENGTH OF CURB SEGMENTS WILL BE TEN (10) FEET.
 5. LENGTH OF CURB SEGMENTS AT CLOSURES MAY BE VARIED BUT SHALL NOT BE LESS THAN FOUR (4) FEET.
 6. WHEN INSTALLED ADJACENT TO SIDEWALK OR CONCRETE PAVEMENT, MATCH EXPANSION JOINTS.



- NOTES:
1. JOINTS SHALL BE NO WIDER THAN 3/4" AND SHALL BE MORTARED. JOINTS SHALL BE FULLY FILLED WITH 1:2 CEMENT MORTAR, NEATLY POINTED AND CLEANED OF EXCESS MORTAR.

WETLAND CROSSING CONCRETE ENCASEMENT

5

12" HIGH CONCRETE CURB BARRIER

6

12" HIGH CONCRETE CURB BARRIER AT PAVEMENT

7

ON-SITE ROADWAY MOUNTABLE STONE CURB

8

By: _____
Date: _____
Revised: _____
No: _____

BRH LAND LLC
1000 ROUTE 9W
NEWBURGH, NEW YORK 12550

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
120 BEETWOOD ROAD - ARMONK, NY 10554
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JMC

BLANDINGS TURTLE HABITAT IMPROVEMENT DETAILS
LAGRANGE TOWN CENTER
TOWN OF LAGRANGE, NEW YORK

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PROGRESS PLOTTING
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Date: 2021-01-17
Time: 6:28 PM
By: _____

Drawn: JY Approved: AG
Scale: AS NOTED
Date: 10/07/2012
Project No: 5106
SHEET NO: 081 OF 4 TURTLE
Drawing No: BT-4

NOT FOR CONSTRUCTION

Attachment H
Blanding's Turtle Education and Encounter Plan Poster

Have you seen me?



Blanding's turtles are about 7-9 inches long with elongated, dome, or helmet-shaped shells. They are greenish brown to black with yellow or cream colored spots and streaks on their shells, and their heads are dark above with a bright yellow chin and throat.

I'm a *Blanding's Turtle*, and I'm protected.

The Blanding's Turtle (*Emydoidea blandingii*) is a New York State-listed **Threatened Species** that is protected under New York State's Environmental Conservation Law, and it is known to occur near this site. **Harm of these turtles is punishable by severe fines and civil penalties.** Blanding's turtles usually spend most of their time in shrubby swamps, but they are known to travel long distances through open and wooded areas to nest and to hibernate, so **one could show up on this site**. It is important for you to **know how to identify a Blanding's turtle** and what to do if you find a Blanding's turtle on this site. This poster shows you what a Blanding's Turtle looks like and how not to confuse it with other turtles found in this area. Please follow the instructions and contact information below if you find a Blanding's turtle here.

Please note:

- **ALL** native turtles are protected under New York State law, and **none may be handled, killed, or collected** without a special permit from the New York State Department of Environmental Conservation (NYSDEC).
- **ALL** turtles are capable of biting and some can inflict very severe wounds. Please **DO NOT HANDLE** any turtles if you are not specially trained and licensed to do so.
- **Turtles are important to the health of our environment.** Please **DO NOT KILL ANY TURTLES** if you find them, even if you think they are dangerous or interfering with work on this site. If left alone, most turtles will move off the site on their own, and won't interfere with or hurt people or pets.

If you see a Blanding's turtle on this site

Please do the following:

- **Stop all site work or maintenance activities** near the turtle immediately
- **Notify the Project Manager**
- **Allow the turtle to continue on its way;** do not handle the turtle or help it on its way
- Email a photo of the turtle to Michael Fishman at Edgewood Environmental Consulting, LLC (mfishman@edgewoodenviro.com) to identify the turtle.
- The Project Manager should immediately **contact the state-licensed turtle biologist listed below to safely relocate the turtle** away from the active area of the site before activity on the site continues.

Turtle Biologist: _____ Tel. #: _____

- Any encounters with a Blanding's turtle must be reported by the Project Manager to the NYSDEC's Bureau of Wildlife at (845) 256-3098 within 24 hours of the encounter.

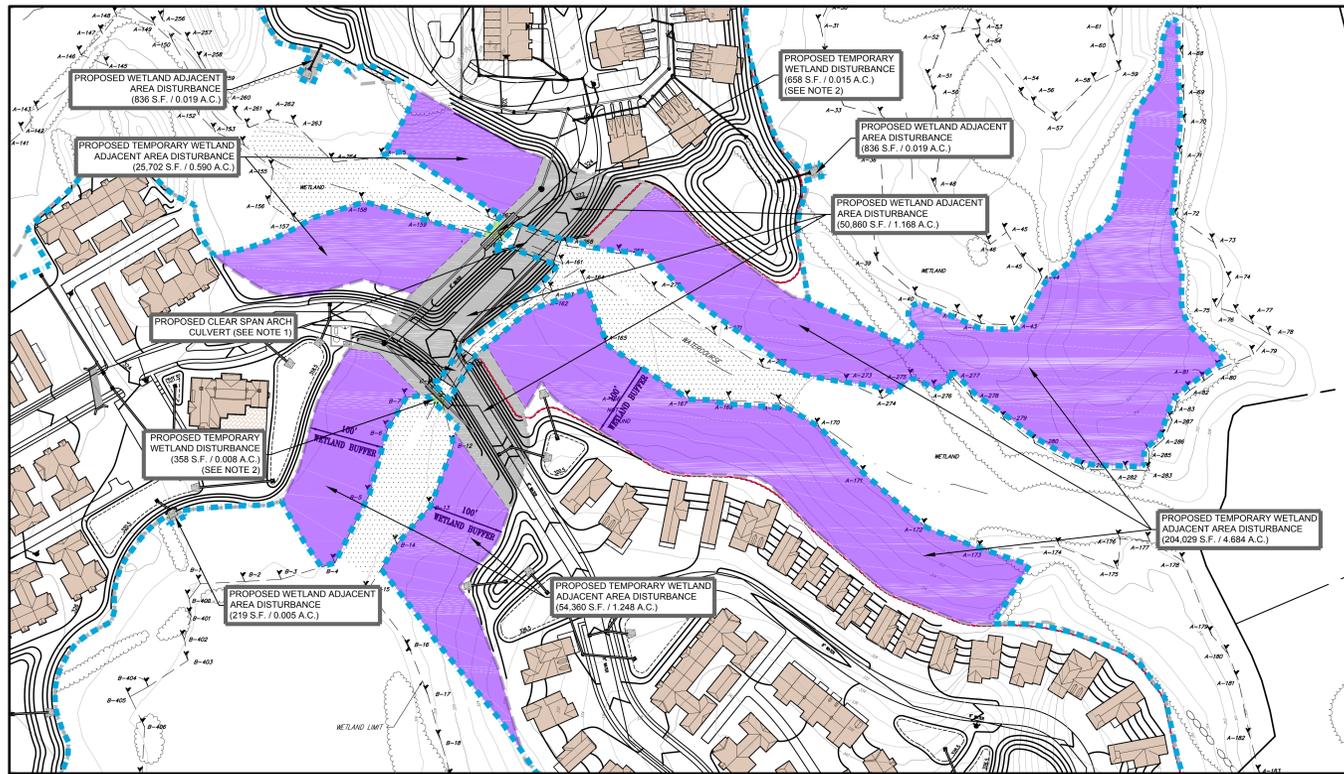
Please **DO NOT**:

- Kill, harass, handle, move, or block the turtle's path.

Thank You!

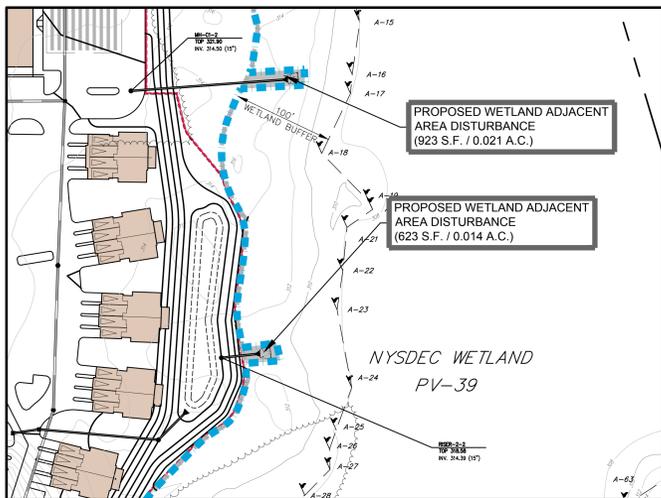
LaGrange Town Center

Attachment I Wetland Mitigation Plan



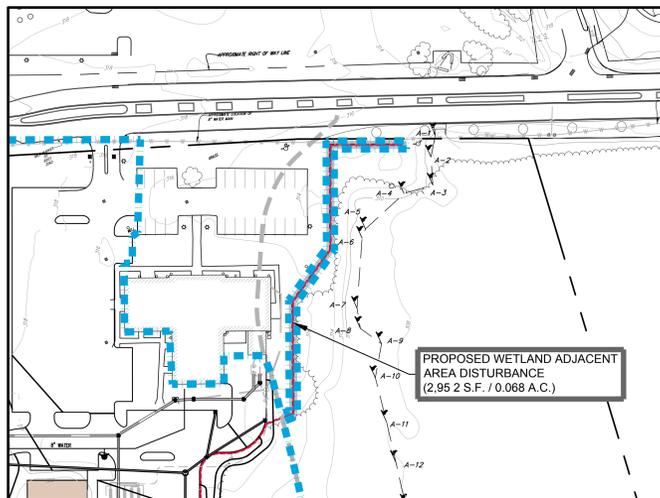
WETLAND & ADJACENT AREA DISTURBANCE (AREA A)

1" = 80'



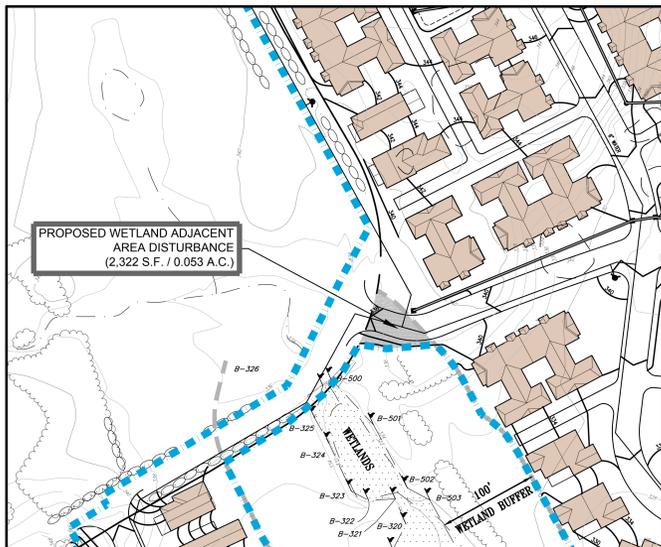
WETLAND ADJACENT AREA DISTURBANCE (AREA B)

1" = 60'



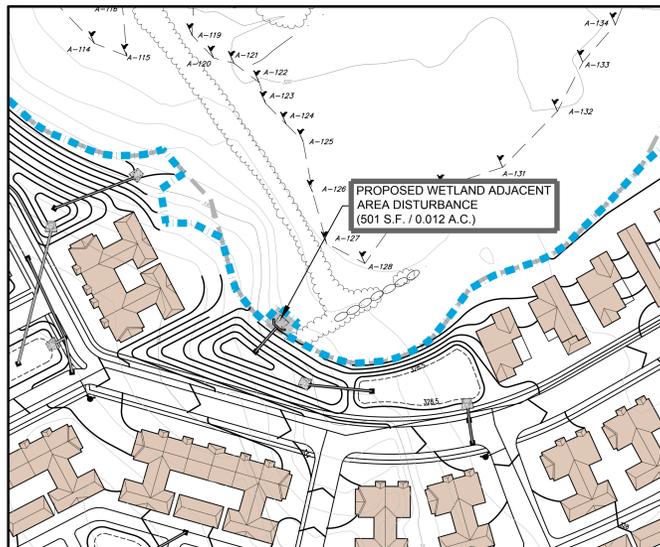
WETLAND ADJACENT AREA DISTURBANCE (AREA C)

1" = 60'



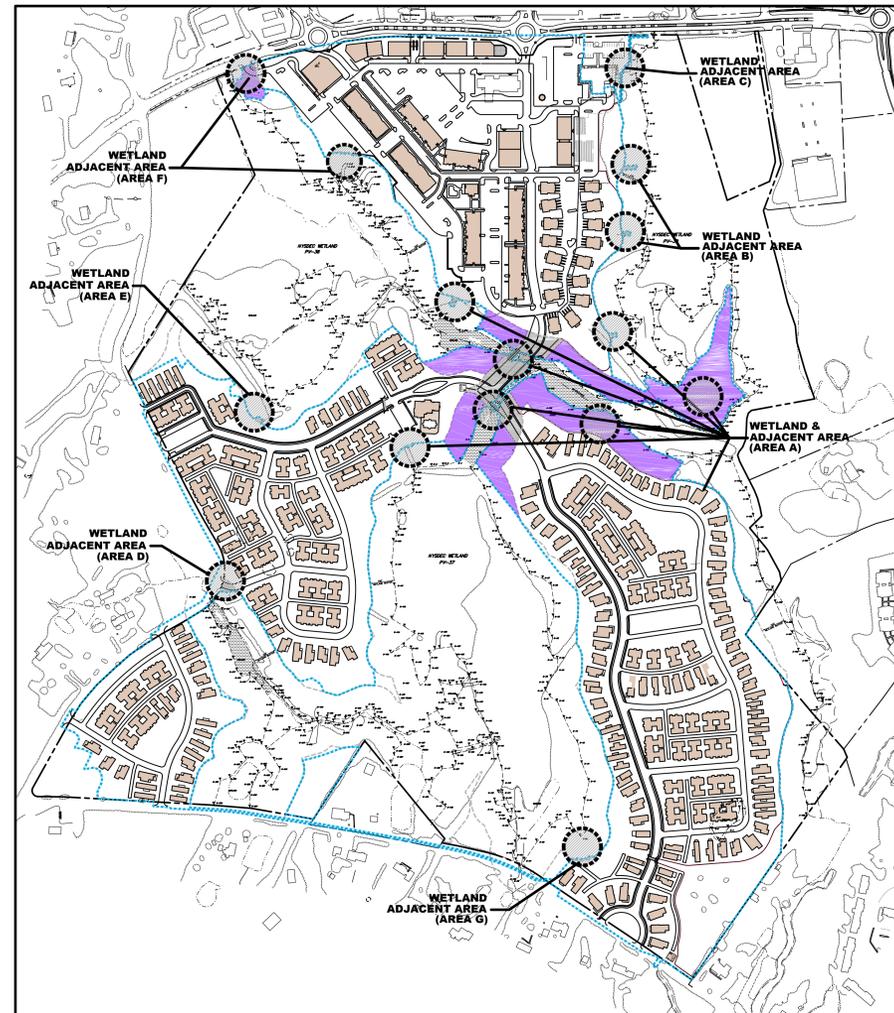
WETLAND ADJACENT AREA DISTURBANCE (AREA D)

1" = 60'



WETLAND ADJACENT AREA DISTURBANCE (AREA E)

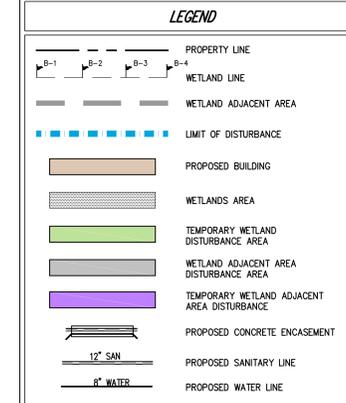
1" = 60'



KEY MAP
WETLAND & ADJACENT AREA DISTURBANCES

1" = 250'

WETLAND AREA AND WETLAND ADJACENT AREA DISTURBANCE			
LOCATION (SEE KEY MAP)	TEMPORARY WETLAND DISTURBANCE AREA (SQUARE FEET)	TEMPORARY WETLAND ADJACENT AREA DISTURBANCE (SQUARE FEET)	PERMANENT WETLAND ADJACENT AREA DISTURBANCE (SQUARE FEET)
AREA 'A'	1,183 S.F.	-	50,157 S.F.
AREA 'B'	-	-	2,068 S.F.
AREA 'C'	-	-	2,952 S.F.
AREA 'D'	-	-	2,322 S.F.
AREA 'E'	-	-	501 S.F.
AREA 'F'	-	11,927 S.F.	251 S.F.
AREA 'G'	-	-	576 S.F.
TOTAL DISTURBANCE (S.F. / ACRES)	1,183 S.F.	11,927 S.F.	58,627 S.F.



NOTES:

- CLEAR SPAN ARCH CULVERTS ARE PROPOSED AT THE WETLANDS CROSSINGS FOR ROADS A & B TO MINIMIZE WETLANDS DISTURBANCE.
- TEMPORARY IMPACTS TO THE WETLAND AREAS WILL BE NECESSARY FOR THE INSTALLATION OF UTILITIES ADJACENT TO THE ROADWAYS AT THE WETLAND CROSSINGS. PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSES ARE NOT ANTICIPATED. TEMPORARY DISTURBANCES FOR UTILITY INSTALLATION WILL INCLUDE REMOVAL AND STORAGE OF WETLAND SOIL AND VEGETATION, BURIAL OF UTILITY LINES AND THE RESTORATION OF THE DISTURBED AREAS THROUGH REPLACEMENT OF THE EXCAVATED SOIL AND VEGETATION. THE PRE-DEVELOPMENT SURFACE ELEVATIONS WILL BE RESTORED UPON COMPLETION. DISTURBED WETLAND BUFFER AREAS WILL BE SEEDED WITH "NEW ENGLAND WETLAND PLANTS" NEW ENGLAND WETMIX SEED MIX (OR SIMILAR) AT THE MANUFACTURER'S SUGGESTED RATE AND WILL BE MULCHED AND MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISHED FOR ONE FULL GROWING SEASON.

No.	DATE	REVISION
1.	06/24/2015	ADDED DISTURBANCE AREAS
2.	10/07/2020	RESPONSE TO NYSDEC COMMENTS

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120 BEGFORD ROAD - ARMONK, NY 10504
NEWBURGH, NEW YORK 12550

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120 BEGFORD ROAD - ARMONK, NY 10504
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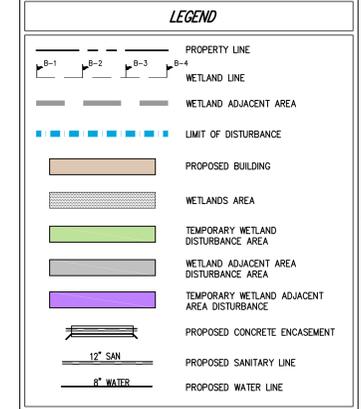
WETLAND MITIGATION PLAN
LAGRANGE TOWN CENTER
TOWN OF LAGRANGE, NEW YORK

ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

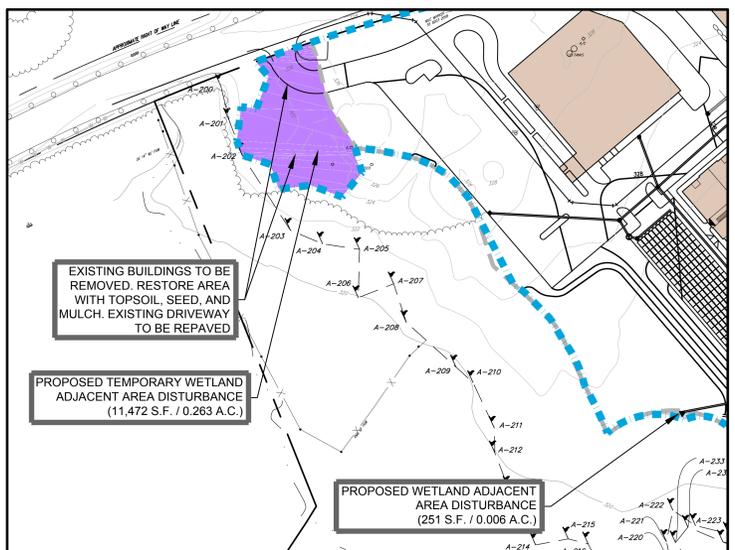
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SHEET NO: 5.5-2
Drawing No: WETLAND - A

NOT FOR CONSTRUCTION

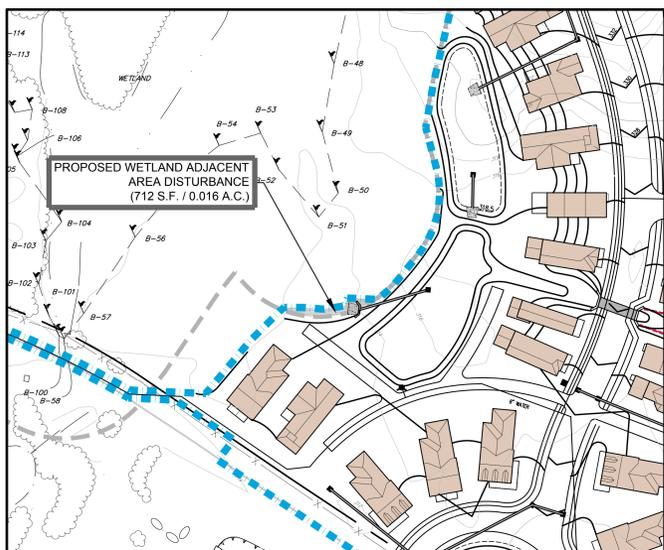
WETLAND AREA AND WETLAND ADJACENT AREA DISTURBANCE			
LOCATION (SEE KEY MAP)	TEMPORARY WETLAND DISTURBANCE AREA (SQUARE FEET)	TEMPORARY WETLAND ADJACENT AREA DISTURBANCE (SQUARE FEET)	PERMANENT WETLAND ADJACENT AREA DISTURBANCE (SQUARE FEET)
AREA 'A'	1,016 S.F.	300,426 S.F.	52,302 S.F.
AREA 'B'	-	-	1,544 S.F.
AREA 'C'	-	-	2,952 S.F.
AREA 'D'	-	-	2,322 S.F.
AREA 'E'	-	-	501 S.F.
AREA 'F'	-	11,927 S.F.	251 S.F.
AREA 'G'	-	-	576 S.F.
TOTAL DISTURBANCE (S.F.)	1,016 S.F.	312,353 S.F.	60,448 S.F.



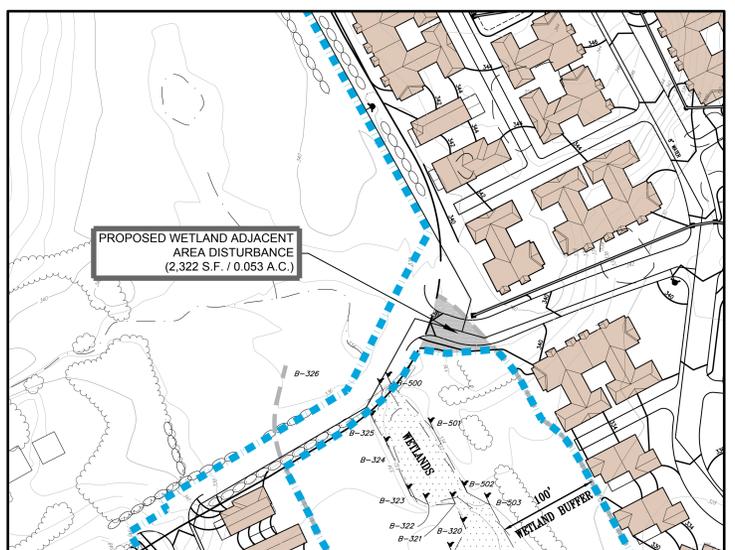
- NOTES:**
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 - TEMPORARY IMPACTS TO THE WETLAND AREAS WILL BE NECESSARY FOR THE INSTALLATION OF UTILITIES ADJACENT TO THE ROADWAYS AT THE WETLAND CROSSINGS. PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSES ARE NOT ANTICIPATED. TEMPORARY DISTURBANCES FOR UTILITY INSTALLATION WILL INCLUDE REMOVAL AND STORAGE OF WETLAND SOIL AND VEGETATION, BURIAL OF UTILITY LINES AND THE RESTORATION OF THE DISTURBED AREAS THROUGH REPLACEMENT OF THE EXCAVATED SOIL AND VEGETATION. THE PRE-DEVELOPMENT SURFACE ELEVATIONS WILL BE RESTORED UPON COMPLETION. DISTURBED WETLAND BUFFER AREAS WILL BE SEED WITH "NEW ENGLAND WETLAND PLANTS" NEW ENGLAND WETMIX SEED MIX (OR SIMILAR) AT THE MANUFACTURER'S SUGGESTED RATE AND WILL BE MULCHED AND MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISHED FOR ONE FULL GROWING SEASON.



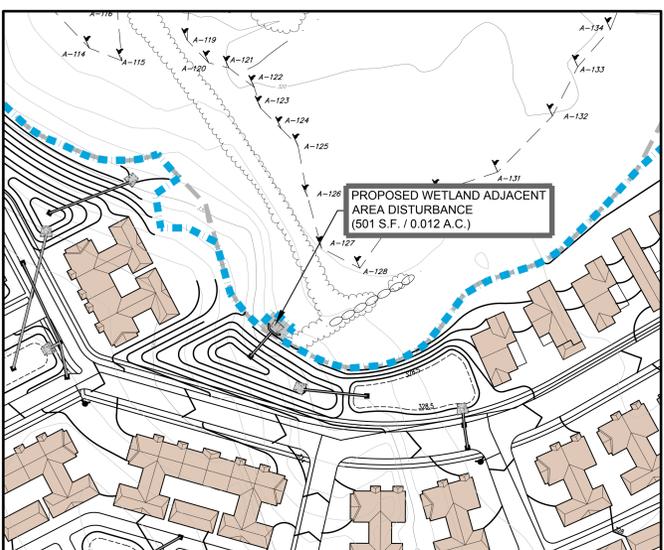
WETLAND ADJACENT AREA DISTURBANCE (AREA F)
1" = 60'



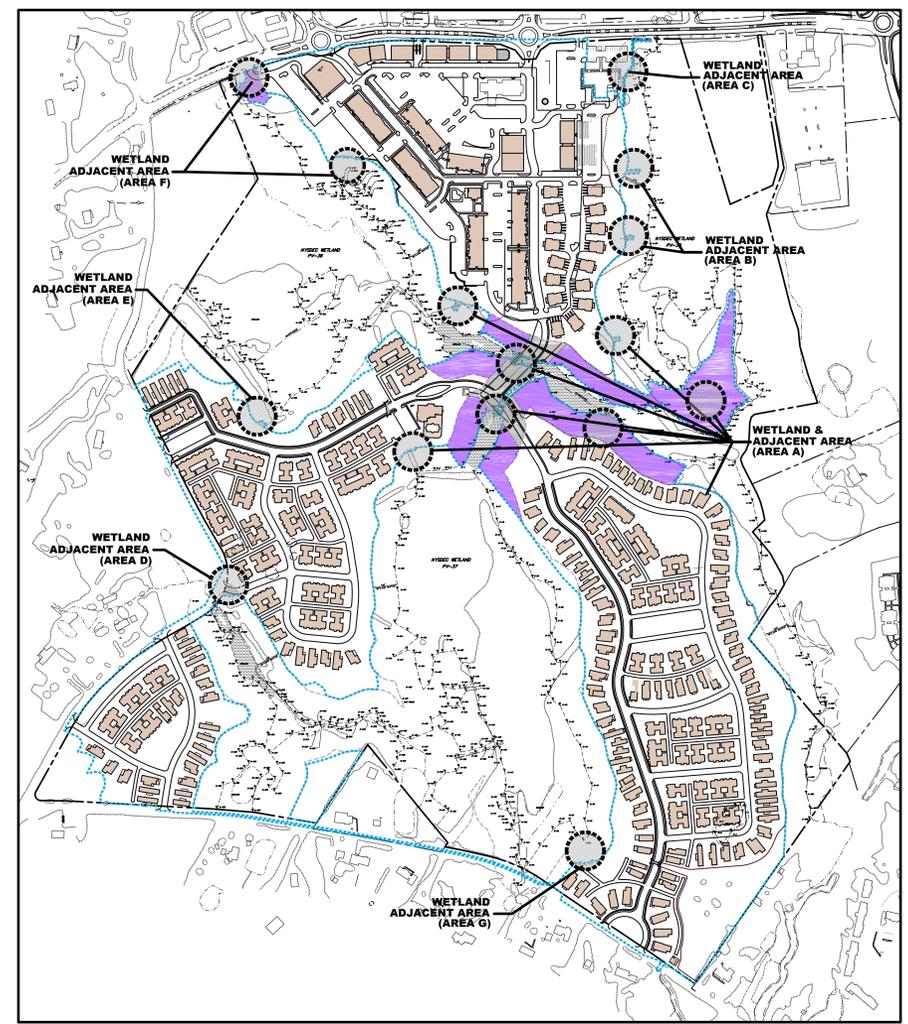
WETLAND ADJACENT AREA DISTURBANCE (AREA G)
1" = 60'



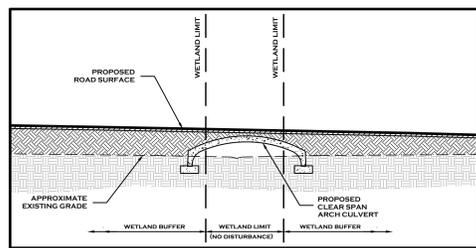
WETLAND ADJACENT AREA DISTURBANCE (AREA D)
1" = 60'



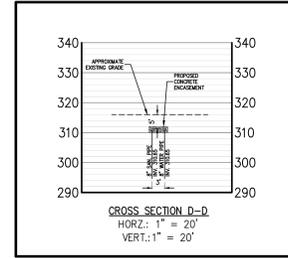
WETLAND ADJACENT AREA DISTURBANCE (AREA E)
1" = 60'



KEY MAP WETLAND & ADJACENT AREA DISTURBANCES
1" = 250'



SECTION VIEW
GRAPHIC SCALE
1" = 20'
CLEAR SPAN ARCH CULVERT AT WETLAND CROSSINGS (ROADS A & C)



SECTION VIEW
GRAPHIC SCALE
1" = 80'
CLEAR SPAN ARCH CULVERT AT WETLAND CROSSINGS (ROADS A & C)

NOT FOR CONSTRUCTION

No.	Date	Revised	By	Check
1.	06/24/2015		JJ	
2.	10/07/2020		JJ	

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Date: 06/30/2015
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Drawing No: **5.5-3**

Attachment J

Overall Conservation Plan

