APPENDIX K

Endangered, Threatened, and Rare Species Report
Natural Resource Assessment Report

HUDSON HERITAGE PROJECT

At the Former Hudson River Psychiatric Center (HRPC)
NYS Route 9

Town of Poughkeepsie
Dutchess County, New York

January 12, 2016
Revised August 12, 2016
Revised October 14, 2016

THE Chazen COMPANIES®
Proud to be Employee Owned
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Prepared for:

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ATTACHMENTS

Attachment 1 - USFWS Review and Coordination

Attachment 2 – NYNHP Coordination

Attachment 3 – Ecological Solutions 2009 Natural Resource Survey and Wetland Report

Attachment 4 – Breeding Bird Atlas Data

Attachment 5 – Herpetological Atlas Data

Attachment 6 – Photographs of the Project Site

Attachment 7 – Wetland Delineation Report

LIMITATIONS: This Endangered and Threatened Species Habitat Assessment Report represents the professional opinion of The Chazen Companies regarding the potential for the habitat at the Project Site to support endangered and threatened species that may exist in the area. Opinions presented in this report also apply to site conditions and regulations existing at the time of Chazen's review and may not necessarily apply to future site conditions and/or regulations, which may change over time. This opinion is not legally binding upon the US Fish and Wildlife Service, the New York State Department of Environmental Conservation and/or any SEQRA Lead Agency. Reliance on this report without consultation with those agencies is solely at the risk of the Client.

1. EXECUTIVE SUMMARY

This report reviews the potential for the 156 acre Project Site to support endangered and threatened species regulated by the US Fish and Wildlife Service (USFWS) and the NYSDEC. This report also discusses the natural resources on the subject property. This report is written in accordance with the Final Scoping Document, Vegetation and Wildlife Section. Specifically this report summarizes a Mapping Review (examining desktop mapping resources commonly reviewed for a project of this type), a Record Review (NYSDEC and USFWS records of species presence) as well as a Literature Review, summarizing the Hudsonia 2008 Report on Significant Habitats in the Town of Poughkeepsie, the Hudsonia 2008 Blanding's Turtle Report and Mapping; the Ecological Solutions LLC 2009 Natural Resources Survey and Wetland Report; the NYSDEC 2000-2005 Breeding Bird Atlas and NYSDEC 1990-1999 Herpetological Atlas as it relates to the site. This report then discusses Chazen's findings regarding habitats, aquatic resources, identified plants, and trees with bat habitat potential from field work conducted in September and October 2015. The report provides an assessment of potential impacts and any mitigation measures for ecological communities, wetlands, plant species, federal endangered species, state endangered and threatened species, state species of special concern, other bird species and other herptofauna species.

1.1 Summary of Mapping, Record and Literature Reviews

The mapping review indicates that the project is underlain by non-calcareous bedrock, and generally friable Hoosic Soils, and/or soils that have been impacted by development such as Hoosic Urban-Complex. There are also soils with a rocky component, such as Dutchess-Cardigan and Nassu-Cardigan soils. There are no NYSDEC regulated wetland or other aquatic resources mapped on the Project Site; the stream that is located along the eastern and southern property boundaries is rated Class/Standard C, and thus not regulated by the NYSDEC. The NYSDEC Endangered Species and Significant Habitat Mapping indicates that the western portion of the Project Site is within the adjacent area of a significant habitat community and endangered species that parallels the Hudson River, indicative of the shortnose and Atlantic sturgeon, a state and federally listed species present there. The NYNHP consultation confirmed that assessment, indicating that the site was in the vicinity of the shortnose and Atlantic sturgeon within the Hudson River. The USFWS review indicated the potential for dwarf wedgemussel, Indiana bat, New England Cottontail[1], and northern long-eared bat in the vicinity of the site. Within Section 5.3, Table 1, the Indiana Bat and northern long-eared bat were determined to warrant further review.

Section 6.1 of the report summarizes the Hudsonia Significant Habitat Report for the Town of Poughkeepsie. Hudsonia mapping identifies Upland Hardwood Forest, Upland Mixed Forest, Crest/Ledge/Talus, Upland Meadow, Upland Shrubland, Waste Ground, Stream, and Habitat Patches on the Project Site. As shown in Section 7.1, Chazen agreed with many of the habitat classifications although the areas and specific names used by Chazen may be somewhat different. Chazen believes that the Crest/Ledge/Talus area may be better classified as bedrock outcrop. Chazen's assessment of the quality of these habitats is different than Hudsonia's; as discussed in Section 7.1, the habitat value of the Upland Hardwood Forest is reduced by the small size of forest patches on the site; with the largest patches at 4.75 and 3.5 acres. The Upland Mixed Hardwoods are of even lower habitat value due to the presence of many planted Norway spruce and volunteer young white pine, as well as small patch size.

[1] New England Cottontail was identified as a Candidate species at the time of the IPaC record. It has since been removed from the Endangered Species listing. See Section 5.1 and 5.3.

The Upland Meadow habitat is likewise impacted by the ubiquitous presence of common wormwood, and the shrublands are also adversely impacted by a number of invasive raspberry species.

The review of the NYSDEC Breeding Bird Atlas examined species listed in the six survey blocks north and east of the site. There were 110 bird species found within one of the six breed survey blocks or observed by Ecological Solutions during their 2008 investigation. Of these 88 were found in either one or both of the survey blocks encompassing the Project Site. There were 18 species that were not found in either survey block where the Project Site is located, but were found in the survey blocks surrounding the site. Ecological Solutions identified 29 bird species on site. Four of these species were not identified as confirmed breeders in any of the survey blocks, indicating they were probably transients. There were no federally listed species identified in the survey blocks. The bald eagle, a delisted species was identified; the site does not provide habitat for this species, and the record is probably an occurrence along the Hudson River. Attachment 2, NYNHP Letter, includes an email from Natural Heritage dated August 4, 2016 indicating that the nearest NYSDEC-documented bald eagle nest is 2.7 miles from the site based on a database updated the week before. Since the nest is more than a mile from the site, the NYSDEC would not expect the project to impact the eagles. The peregrine falcon, a state listed endangered species is identified as occurring in the survey block, but not identified by NYNHP as a recorded occurrence. It is Chazen's opinion that presence on-site is unlikely but that this may be a transient fly-over. Five state-listed bird species of concern (unregulated) were identified; the osprey, sharp-shinned hawk, Cooper's hawk, red-shoulder hawk, and cerulean warbler. As discussed in Section 6.4, for various reasons, these species were not determined to be likely present on the site.

A review of site photographs does not suggest that there are any unique, special or rare habitats on the site. The site consists of overgrown lawns, driveways, and lawns with intermittent secondary and old growth mixed forest areas. Most of the forested areas are highly fragmented and too small to support true woodland breeders. The quality of breeding bird habitat for species other than habitat generalists is reduced by the large amount of edge habitat, the fact that the shrubland habitat is not extensive, and the shrub and upland meadow habitat are dominated by invasives. Most of the breeders on the site will be open wood, fringe and field birds. The list of probably and very-probable birds is long, and contains most of the common backyard birds typically found in Eastern New York. There does not appear to be any truly suitable habitat for the less common or rare breeders. The lack of significant open water or sizeable woody swampland also makes the swamp species unlikely breeders, although they still may visit the site at times. A number of the "observed" species were probably transients, as they are not typically breeders in this locale.

As discussed in Section 6.5, the review of the NYSDEC Herpetological Atlas examined the Poughkeepsie Quadrangle and the five surrounding topographic quadrangles. In this review, 41 species of herptofauna were identified occurring in those six quadrangles. Of these, the only federally-listed species is the bog turtle; both Chazen and Ecological Solutions agree that the site does not support bog turtle habitat due to the lack of calcareous bedrock or muck soils, specific calcareous-dependent plants that constitute habitat, or proper hydrology. State listed endangered and threatened species were the cricket frog and timber rattlesnake, both of which were eliminated from further review due to lack of habitat.

The Blanding's turtle is discussed in both Section 6.2 and 6.5 of the report. This turtle is not identified on the Poughkeepsie Quadrangle[2]. The NYNHP did not identify occurrence records for this species on

[2] It is identified on the Hyde Park, Salt Point, Pleasant Valley and Wappinger Falls Quadrangles.

the site[3]. Core habitat for this species is buttonbush or intermittent woodland pool, which is not present on the site. As discussed in Section 6.2 (Figure 10), Hudsonia identifies some nesting habitat in the northeast corner of the Project Site. However, Figure 10 also illustrates nesting habitat even closer to the Core Habitat (further east) than that found on the Project Site. The on-site stream does not represent a means of habitat connection for this species given its fragmentation by culvert crossings and underground conveyances, which significantly lessen the streams value for use by the species, and are a potential trap for any species that might move through the corridor. While the site is located within a Hudsonia-designated "Area of Concern" zone, there does not appear to be any biological impetus for a Blanding's turtle to continue moving westward beyond the Hudsonia-designated "Conservation Zone" area in to the "Area of Concern," where the Project Site is located, because core, associated and nesting habitat are all available within the Conservation Zone limits. For these reasons, the Chazen Companies believes it highly unlikely that the Project Site is used by the Blanding's turtle.

State herpetological species of concern (unregulated) included the marbled, Jefferson and blue-spotted salamander, the spotted turtle, the wood turtle and the box turtle. For reasons discussed in Section 6.5 of the report, Chazen rated all but the box turtle as possible, but not probable on the site. The box turtle was observed by Ecological Solutions on the site in a location north of the 25-foot deep depression and south of a secondary access road in an upland woods/shrubland area.

Ecological Solutions identified four herptofauna on the Project Site, specifically the northern red-backed salamander, the eastern American toad, the box turtle discussed above, and the eastern garter snake. The Ecological Solutions report also assessed that the soil moisture in the woods could, at times, support herptofauna. See Section 6.3. It is Chazen's assessment that the lack of vernal pools or open waterbodies (ponds, lakes) on the Project Site limits vernal pool species use of the Project Site. Wetland B and A may support stream-dependent species, or species that may use streams for movement, however its habitat potential is reduced by the fragmentation of this habitat (culverts to the off-site stream; underground conveyance between Wetland A and B), its relatively small size, and its lower water quality (Class/Standard C, rather than C(T) or better). Second, while much of the mapped upland soils are identified as friable, where those soils were developed (i.e., areas mapped as Hoosic-Urban Land Complex), the use of those soils for herptofauna may be limited by the prior development. The presence of asphalt and building materials reduce the "burrowing potential" of the soils. In addition, prior development of the Project Site in the southern and eastern sections of the Project Site, immediately adjacent to Wetland A and B, reduce the habitat potential of the Project Site, as this development increases the distance that must be traveled by herptofauna from a water source to undeveloped/undisturbed uplands. Any herptofauna found on the site will be likely be habitat generalists capable of living in disturbed habitats or in a variety of habitats.

1.2 Chazen's On-Site Review

Chazen's Figure 13 within the main text of the report illustrates the location and extent of existing habitat communities on site, and Executive Summary Table 1 identifies the area and percent cover of each habitat. This table illustrates that Human Habitat, at 76.39 acres, or 49% of Project Site coverage is the dominant plant community on site. Table 1 also identifies the breakout of Human Habitat into impervious (35.5 acre) and non-impervious (40.89 acres) coverage. Upland Meadow (28%) and Upland

[3] The NYNHP will report this species as being in the vicinity of a project, if there is an occurrence record for the species within 0.81 mile of a Project Site boundary.

Hardwood (13%) represent the next largest coverages. Aquatic resources on the site are relatively small at >1 acre or less than 1% coverage.

Executive Summary Table 1. Existing Habitat Areas on the Project Site

Habitat Name	Area (Acres)	Percent Coverage
Upland Hardwood Forest	20.94	13%
Mixed Hardwood Forest	4.88	3%
Upland Shrubland	8.69	6%
Upland Meadow	44.30	28% %
Human Habitat - Total	76.39 (35.5 Impervious) (40.89 Non-Impervious)	49%
Aquatic Resources	0.7	<1%
TOTAL	**155.90**	**100%**

- Upland Hardwood Forest: In most places, this is a relatively mature forest, but with a relatively variable composition. Generally, the dominant trees include sugar maple, Norway maple, black oak, tulip-tree, and black walnut, with other less common species mixed in. The understory tends to be composed of saplings of the canopy trees. The shrubs and herbaceous plants are sparse. Vines such as Asian bittersweet, Virginia-creeper, and river-bank grape are also abundant on the outer edge of the forest in many places. The abundance of non-native plants such as Norway maple, Asian bittersweet, and periwinkle keeps this community from appearing very natural. This community and the Upland Mixed Forest are highly fragmented and disturbed, including by the presence of escaped species from the surrounding landscape plantings. The largest forest patches are 4.75 acres in the northwest portion of the site, adjacent to Route 9, and 3.5 acres along the eastern property boundary. In addition, these forest patches are relatively long and thin, meaning that they have a large edge to core habitat ratio. This reduces the potential for these patches to be used by interior forest breeding birds.
- Upland Mixed Forest: This community is similar in composition to the Upland Hardwood Forest, but with the addition of coniferous trees, including eastern white pine, Austrian pine, eastern red cedar, eastern hemlock, Norway spruce, and European larch. Most of these trees are non-native; therefore, areas of this forest type are not like natural communities. It appears that some of these trees were planted in groups, and then seeds of hardwood trees that had dispersed among them germinated and grew into mature individuals, forming the mixed forest. In other cases, it is the conifers that appear to have dispersed into a hardwood forest. The coniferous species contributing to the "Upland Mixed Forest" are mostly transplanted Norway spruce and early successional white pine, which do not result in a unique Mixed Upland Forest community, but rather, degrade the overall quality of this habitat community.

- Upland Shrubland: There are few places where a significant area is dominated by shrubs. In some sections of the northeastern portion of the Project Site, along the edge of the "Great Lawn," there are some large clusters of semi-woody plants that grow at least several feet tall, such as black raspberry and wine raspberry. There are also some large patches where the woody vine Asian bittersweet is sprawling over the ground and other plants, which may appear as shrubby patches on aerial photographs.
- Upland Meadow: There are large areas that may have been maintained at one time as mowed meadows, but which are no longer maintained and have become successional old fields or Upland Meadows. Common wormwood has become especially abundant in these places. This plant forms dense stands approximately three to four feet high and reduces potential habitat use due to its thick growth pattern. Further, the habitat value of these areas, for example for grassland breeding birds is reduced by patch size. The two largest contiguous upland meadow patch are relatively small, both at 15 acres.
- Human Habitat: This is the largest area mapped, comprising over 50% of the total Project Site. This area has been extensively modified by the construction of buildings, roadways, parking lots, and walkways. The vegetation, which was once intensively maintained, but no longer is, consists of a mixture of native and non-native trees and shrubs, along with former lawns that now have a plant composition similar to that of the upland meadow. Typical trees and shrubs in this community are black locust, eastern white pine, black walnut, sugar maple, Norway maple, Norway spruce, black oak, cottonwood, catalpa, American sycamore, tree-of-heaven, green-stemmed forsythia, rambler rose, European privet, Japanese barberry, and European buckthorn. Some of the trees are large, with diameters greater than 16 inches.
- Habitat Patches: Hudsonia's assessment of habitat patches does not take into account fragmentation caused by NYS Route 9 to the west of the Project Site, nor does it take into consideration the fragmentation caused by the intermingling of "meadow" area with forested habitat, especially given the low quality of habitat in the "meadow" area. The identification of 100 to 250 acres of contiguous habitat along the southeast property boundary may be an overestimation. A review of aerial photography indicates this area includes landscape plantings associated with the HRPC, a mowed lawn encroachment off-site to the east, fragmentation by an existing rail line along the eastern boundary. Further, the stream in this area is conveyed underground for a portion along the site's eastern property boundary.
- Aquatic Resources: Areas that meet the federal definition of wetlands, in that they exhibit wetland hydrology, hydric soils, and hydrophytic vegetation, are confined to the outer edges of the subject property. There are four wetland areas that can be divided into two types, Stream Valley Wetlands, and Spring Seepage Wetland, as described in Section 7.2.

  Aquatic resources were delineated in accordance with Corps of Engineers methodology. The delineation identified the mapped stream and associated wetlands along the southern property boundary (Wetland A), and along the eastern property boundary (Wetland B), with another small wetland pocket (Wetland C) to the northwest of Wetland B. The stream enters the Project Site on the eastern property boundary via a culvert under the road/trail, and then continues south to a headwall. From this location, the stream is conveyed westward underground, under the old railroad line, and then underground southward, until it daylights in the eastern portion of Wetland A. From this location, the stream and wetland continue westward until it again is conveyed underground under the southern entrance road of the site as well as NYS Route 9. A small seep wetland (Wetland D) with a small perennial stream was identified in the northwest

portion of the site. These wetlands are described in greater detail in the wetland delineation report. A map illustrating the locations of these wetlands is also provided in the Wetland Delineation Report. Table 1 below summarizes these aquatic resources.

The aquatic resources are regulated by the US Army Corps of Engineers under Section 404 of the Clean Water Act, as all the resources identified had an observed hydrologic connection ("significant nexus") to the Hudson River. The Corps of Engineers does not regulate any buffer around the wetland. The Corps of Engineers regulates the discharge of dredged or fill material into waters of the United States, including wetlands under Section 404 of the Clean Water Act.

The aquatic resources delineated on-site are not regulated by the NYSDEC. The wetlands are not mapped by the NYSDEC, and the stream within Wetlands A and B is a Class/Standards C, indicating it is not regulated.

The Town of Poughkeepsie has adopted a local Aquatic Resource Protection Law under Chapter 116 of the Town Code. Under Section 116-4, Definitions, the Town of Poughkeepsie defines "Buffer Area." The "buffer for all streams other than Wappinger Creek shall be 25 feet from the stream bank." A "stream" is defined as "any watercourse which appears as a solid blue line on the 2003 Aquatic Resources Map for the Town." Based on this definition, it would appear that Wetlands A and B, both of which contain the perennial stream that flows along the southern and eastern boundaries of the site, would be subject to this buffer. Since Wetland C is located adjacent to Wetland B, a 25 foot buffer has also been placed around Wetland C. Wetland D is 0.101 acre in size, and flow from this wetland appears to be carried by a perennial watercourse. A 25 foot buffer has been placed around Wetland D.

Given the dry summer, the scoping document requested that methodology be provided regarding the delineation of wetlands in the summer, especially in dry conditions. This discussion is contained within the Wetland Delineation Report. Specific descriptions of Wetland A, B, C, and D are also provided in Section 7.2 and the Wetland Delineation Report.

Executive Summary Table 2. Aquatic Resources on the Project Site

Wetland or Stream	**Delineated area (acre) (0.70 acre on-site)**	**Centroid (on or adjacent to Project Site)**		**Cowardin Class**	**Stream Type/ Length**
		Latitude	**Longitude**		
Wetland A	0.680 acre	41° 34.644	73° 55.796	PEM1/SS1	Perennial 463 LF
Wetland B	0.242 acre	41° 43.779	73° 55.575	PEM1/SS1	Perennial 121 LF
Wetland C	0.054 acre	41° 43.859	73° 55.549	PEM1/SS1	None Adjacent to Wetland B
Wetland D	0.101 acre	41° 44.061	73° 55.995	PF01B	Perennial 55 LF

During the course of the field inspections, observed plants were noted, and identified by habitat. In addition, as discussed in Section 5.3, the Ecological Solutions Report of 2009 also listed plants commonly

observed in various habitats during that site inspection. A table, listing plant species identified in the course of field work by Chazen as well as by Ecological Associates is provided in this report. Approximately 46 species of trees, 14 species of shrubs, seven species of woody vines, and approximately 100 species of herbaceous plants were identified. The list of plant species identified on the site by Chazen and Ecological Resources are generally common plants ubiquitous to disturbed or managed landscapes and habitats. No state-listed endangered or threatened plant species, or unusual species were identified on the site.

1.3 Analysis of Potential Impacts and Mitigation

In order to assess potential impacts on ecological communities, the proposed development limits were overlain on Figure 13, Habitat Communities, to develop Figure 14, Habitat Communities Impacted Conditions Map. Table 2, Exiting Habitat Areas on the Project Site, identifies the areas and percent coverage of these different habitats.

Executive Summary Table 3. Impacts to Community Habitats

Habitat Name	Area (Acres)	Percent Coverage	Impacted Area (Acre)	Retained Community Area (Acre)	Percent Community Retained
Upland Hardwood Forest	20.94	13%	-7.56	13.38	64%
Mixed Hardwood Forest	4.88	3%	-4.52	0.36	7%
Upland Shrubland	8.69	6%	-2.34	6.35	73%
Upland Meadow	44.30	28%	-15.66	28.64	65%
Human Habitat - Total	76.39	49%	+30.08	106.47	139%
(Impervious)	(35.50)	(23%)	(+28.01)	(63.51)	(179%)
(Non-Impervious)	(40.89)	(26%)	(+2.07)	(42.96)	(105%)
Aquatic Resources	0.7	<1%	0	0.7	100%
TOTAL	**155.90**	**100%**	**30.08 (Changed)**	**155.9**	

This analysis demonstrates that approximately 68% of the Project Site will be impacted by the development, with 32 % of the Project Site retained in its natural condition. Of these impacts, the majority of impacts (76.39% acres of the 106.47 acres impacted or 72% of impacts) are located within the already disturbed and poor habitat quality Human Habitat, with all of this community being reused for the development. Of this area, impervious versus non-impervious changes from an existing condition of 35.5 acres impervious and 40.89 acres non-impervious to the proposed condition of 63.51 acres impervious and 42.96 acres non-impervious in the proposed condition. Approximately 93% of the low quality mixed hardwood forest is also being impacted. In contrast, more important ecological resources

are being retained on site. There are no impacts to the aquatic resources on the site. Approximately 64% of the upland hardwood forest, 65% of the upland meadow and 73% of the upland shrubland habitats are being retained. There is also no impacts proposed to the bedrock outcrop found within the Upland Hardwood Forest in the northwestern portion of the site near Wetland D. Given that the project focuses redevelopment within areas already impacted by development and the lower quality mixed hardwood forest, no additional mitigation is anticipated to be required for ecological communities.

There are no impacts to aquatic resources on the Project Site or the Town's regulated 25 foot buffer, as stated in Section 8.2, Table 5, and as illustrated in Figure 14. No permits are required from the Corps of Engineers or the Town of Poughkeepsie to implement the proposed project. Given that there are no significant impacts, no additional mitigation is anticipated to be required for aquatic resources.

The list of plant species identified on the site by Chazen and Ecological Resources are generally common plants ubiquitous to disturbed or managed landscapes and habitats. No state-listed endangered or threatened or rare plant species were found on the site. One rare species was identified on the site by Ecological Solutions, and five exploitably vulnerable species were noted on the site. This designation is a protection for the land owners against illegal collection of plant species. The proposed project focuses impacts on already disturbed and landscaped areas. The project will not result in a significant adverse impact to plant species. Given that there are no significant impacts, no additional mitigation is anticipated to be required for plant resources.

Two federally and state listed species, the Indiana bat and the northern long-eared bat were identified as being in the range of the Project Site by the USFWS and as having supporting habitat (wooded habitat) on-site, such that additional review was warranted (see Sections 5.1 and 5.3 of this report). Since the NYSDEC has no record of this species present on the site, no additional review by the NYSDEC is required per their regulations at 6 NYCRR 182[4]. In July 2015, in written communications, the USFWS agreed that no presence/absence surveys for these species were required. As shown in Table 5 above, the project impacts 7.56 acres (36%) of the upland hardwood forest, leaving 64% of this plant community in place. The project impacts approximately 4.52 acres (93%) of the lower quality mixed hard wood forest. Clearing wooded vegetation, during the winter months, when bats would not be present on the site, will reduce potential direct impacts to the species. Given that there are no impacts to wetlands associated with this project, and no federal funding, the federal Endangered Species review would be under Section 10. Under the guidelines, the landowner will provide a letter to the USFWS finalizing the assessment of impacts, and asking for concurrence that the project will not result in Take

[4] NYSDEC. 2016. Frequently Asked Questions about New York's Endangered Species Regulations. "Q. Does the adverse modification of any habitat that may have been used by an endangered or threatened species trigger the requirement of an incidental take permit? No. In order to trigger the permit requirement, a proposed activity must involve an adverse modification of **occupied** habitat (emphasis added), which is defined in the regulations as the geographic area in which a protected species has been determined by the department to exhibit one or more essential behaviors… Q, How will the Department determine whether habitat is occupied habitat for the purpose of determining jurisdiction under these regulations? The Department will determine whether habitat is occupied habitat for jurisdictional purposes based on whether there exists a verified report of a protected species engaging in one or more essential behaviors in the geographic area in question…" http://www.dec.ny.gov/animals/68645.html. The fact that the NYNHP does not identify this site as having an occurrence record for bat species means that the NYSDEC does not have jurisdiction under the state Endangered Species Act.

of the species, given the conservation measures that will be implemented to avoid take. State Endangered and Threatened Species.

The shortnose sturgeon and the Atlantic sturgeon, two state and federally listed species were identified by the NYNHP as occurring in the vicinity of the Project Site. Both species occur specifically in the Hudson River. The project will have no impacts on the Hudson River, and so no additional review is required.

The bald eagle, peregrine falcon, bog turtle (also federally listed), cricket frog, Blanding's turtle, and timber rattlesnake were determined to be highly unlikely to be present on the site. Attachment 2, NYNHP Letter, includes an email from Natural Heritage dated August 4, 2016 indicating that the nearest NYSDEC-documented bald eagle nest is 2.7 miles from the site based on a database updated the week before. Since the nest is more than a mile from the site, the NYSDEC would not expect the project to impact the eagles. Therefore, no impacts are anticipated and no additional mitigation is anticipated to be required.

State species of special concern are not regulated by the NYSDEC. The five bird species of special concern identified in the Breeding Bird Atlas Literature Review are unlikely to utilize the site for breeding due to the small forest patch sizes or lack of other suitable habitat characteristics. Since these species are unlikely to be present, no impacts are anticipated and no additional mitigation is anticipated to be required. With regard to herptofauna, the discussions in Section 6.5 identified that presence was possible but not likely for the spotted turtle, marbled salamander, Jefferson salamander, blue spotted salamander and wood turtle. Even if these species are present on the site, the habitat in Wetland B and C and areas of adjacent upland woods will not be impacted by the proposed project. Therefore, no impacts are anticipated, and no additional mitigation is anticipated to be required. The Box Turtle was observed on site in uplands by Ecological Solutions, in a location north of the 25-foot deep depression and south of a secondary access road in an upland woods/shrubland area. The development avoids impacts to the upland hardwood forests and upland shrublands and upland meadows where this species is most likely to be found. A box turtle typically occupies a little over a one-acre range (an area approximately the size of a football field). The habitat in the location where the turtle was found is not being modified. The area south and west of the location where the turtle was found, extending south to the main access road, and west to NYS Route 9, which contains shrubland, woodland and meadow habitat, is not proposed to be changed, except that western portion of the main access road is being realigned and the 25-foot deep depression is being used for stormwater infiltration. The realignment of the western access road is likely out of the range of the turtle, and the use of the depression for infiltration may improve the turtle habitat by providing an intermittent source of water for the species. The area to the east of the location where the turtle was found is previously developed; those limits are not changing. To the north is an approximately 350-foot by 350-foot area, separated from this location by the existing secondary gravel/paved access road. This area currently contains buildings and other developed and landscaped areas under a planted evergreen canopy. The area is being modified for development of residential homes. To the north of this area, the existing meadow and shrub community is being maintained. No additional mitigation is anticipated to be required.

With regard to other bird species, the site does not contain any unique, special or rare habitats. The forested areas on site are highly fragmented and too small to support true woodland breeders. Similarly, the meadow areas are fragmented, with the two largest patches of 15 acres, much of which is impacted by the invasive common wormwood species. Therefore, most breeders on the site will be open wood, fringe and field birds, including most of the common backyard birds typically found in Eastern New York.

The project focuses impacts on to the already developed areas of the site, with 72% of the project area occurring in already developed areas. The project will impact approximately 7.56 acres (36%) of the upland hardwood forest, 4.52 acres (93%) of the lower quality mixed hard wood forest, and 15.66 acres (35%) of the upland meadow. Removing these habitat areas is unlikely to reduce the number of species that nest on the site; it may reduce the numbers of individuals nesting on the site (at least until they adjust to the disturbances). Avoiding the removal of vegetation during breeding and fledgling periods (i.e., avoid cutting from April 1 to August 1) will reduce impacts on bird species as this will be outside of nesting and fledgling seasons. No additional mitigation is anticipated to be required.

With regard to other herptofauna, it is Chazen's assessment that use will be limited to habitat generalists capable of living in disturbed habitats or a variety of habitats. This is due to the lack of vernal pools or other open water bodies on the site; the lack of significant wetland habitats on site; the fragmentation of the stream corridor in the eastern and southern portion of the site, and the fact that the remaining upland habitat has been adversely impacted by the presence of common wormwood and other invasives. Finally, while much of the mapped upland soils on the site are identified as friable, where those soils were developed (i.e., areas mapped as Hoosic-Urban Land Complex), the use of those soils for herptofauna may be limited by the prior development. The presence of asphalt and building materials reduce the "burrowing potential" of the soils. In addition, prior development of the Project Site in the southern and eastern sections of the Project Site, immediately adjacent to Wetland A and B, reduce the habitat potential of the Project Site, as this development increases the distance that must be traveled by herptofauna from a water source to undeveloped/undisturbed uplands. As discussed previously, there are no impacts to aquatic resources or their Town-regulated buffer area. Development is mainly focused within previously developed areas. This reduces potential impacts to the generalist herptofauna species present on the site. No additional mitigation is anticipated to be required.

2. CONTEXT OF SITE

The Project Site is located at the prior Hudson River Psychiatric Center (HRPC), located in the Town of Poughkeepsie, on the east side of NYS Route 9, with the southwest corner at Winslow Gate Road, extending northward to a location approximately 790 feet south of Big Meadow Lane. The proposed project involves the construction of residential and commercial components. The residential component will include multi-family apartments, townhouses and single-family homes. The commercial component will include retail stores and a large box store that will serve as the commercial anchor tenant to the commercial development. In general, this construction is proposed within areas previously disturbed for the HRPC.

Figure 1, USGS Location Map shows the location of the Project Site on the Poughkeepsie and Hyde Park, NY USGS topographic quadrangles. The Project Site covers approximately 156 acres, which is a mix of previously developed land containing buildings, paved and landscaped areas associated with the former and abandoned HRPC, meadow areas mainly dominated by the invasive wormwood (*Artemisia vulgaris*), forested areas, which in many locations contain landscaping trees either planted or escaped, and a stream/riparian area located along a portion of the southern and southeastern property boundaries.

3. PURPOSE OF THIS REPORT AND METHODOLOGY

This report reviews the potential for the Project Site to support endangered and threatened species regulated by the US Fish and Wildlife Service (USFWS) and the NYSDEC. This report also discusses the natural resources on the subject property. This report is written in accordance with the Final Scoping Document, Vegetation and Wildlife Section. The following are the requirements for the Existing Conditions Assessment for Vegetation and Wildlife per the Final Scoping Document, adopted on September 16, 2015. These requirements incorporate the methodology to be used in this review. Impacts and potential mitigation measures are discussed in Section 8.0 of the report.

- Review NYS Breeding Bird Atlas data and Herpetological Atlas data for the Project Site quadrangle and adjacent quadrangle to identify the species found in the survey block(s) covered by the site. Develop a table that lists potential species, whether they are endangered, threatened or special concern species, their habitat requirements, and whether required habitat is found on the site.

- Obtain data from the New York Natural Heritage Program (NYNHP) and USFWS regarding potential Endangered and Threatened species in the vicinity of the Project Site.

- Review the Hudsonia Significant Habitats Report (2008), and Turtle Habitats Report (2009) for the Town of Poughkeepsie to determine the habitats identified for the site, and whether they are common or unusual.

- Complete a site-specific vegetation and wildlife assessment. Review habitats on the site to determine: 1) their general extent and limits; ii) whether they are common or unusual; iii) whether they have the potential to support specific endangered, threatened or rare species; and iv) whether they are consistent with the identification by Hudsonia. Complete a survey of dominant and other plant species observed on-site linked to habitats. Using aerial photographs and field observations, develop a map that identifies the various habitats on site.

- Based on information requests to the USFWS, Indiana Bat, New England Cottontail and Northern Long-eared Bat have been identified as occurring in the vicinity of the Project Site (i.e., Dutchess County). The NYNHP does not report any occurrence records for bats in the vicinity of this site. The Applicant will coordinate with the USFWS and NYSDEC to determine whether there is need for any site-specific surveys for Indiana or Northern Long-eared bats, whether presence should be assumed, and whether mitigation measures should be developed.

- Conduct species-specific T&E surveys as necessary based on results of a formal NYNHP request for records of past occurrence of federal/state-listed species and federal species as listed for the Project Site or vicinity in the IPaC system.

- Prepare an Existing Conditions Map.

4. MAPPING REVIEW

Chazen examined the following mapping. The purpose of this review was to identify the location of various habitat features (e.g., woods, wetlands, steep slopes, soil types, etc.) present at the Project Site and the surrounding area. Soil survey data was also reviewed, as discussed in Section 3.3.

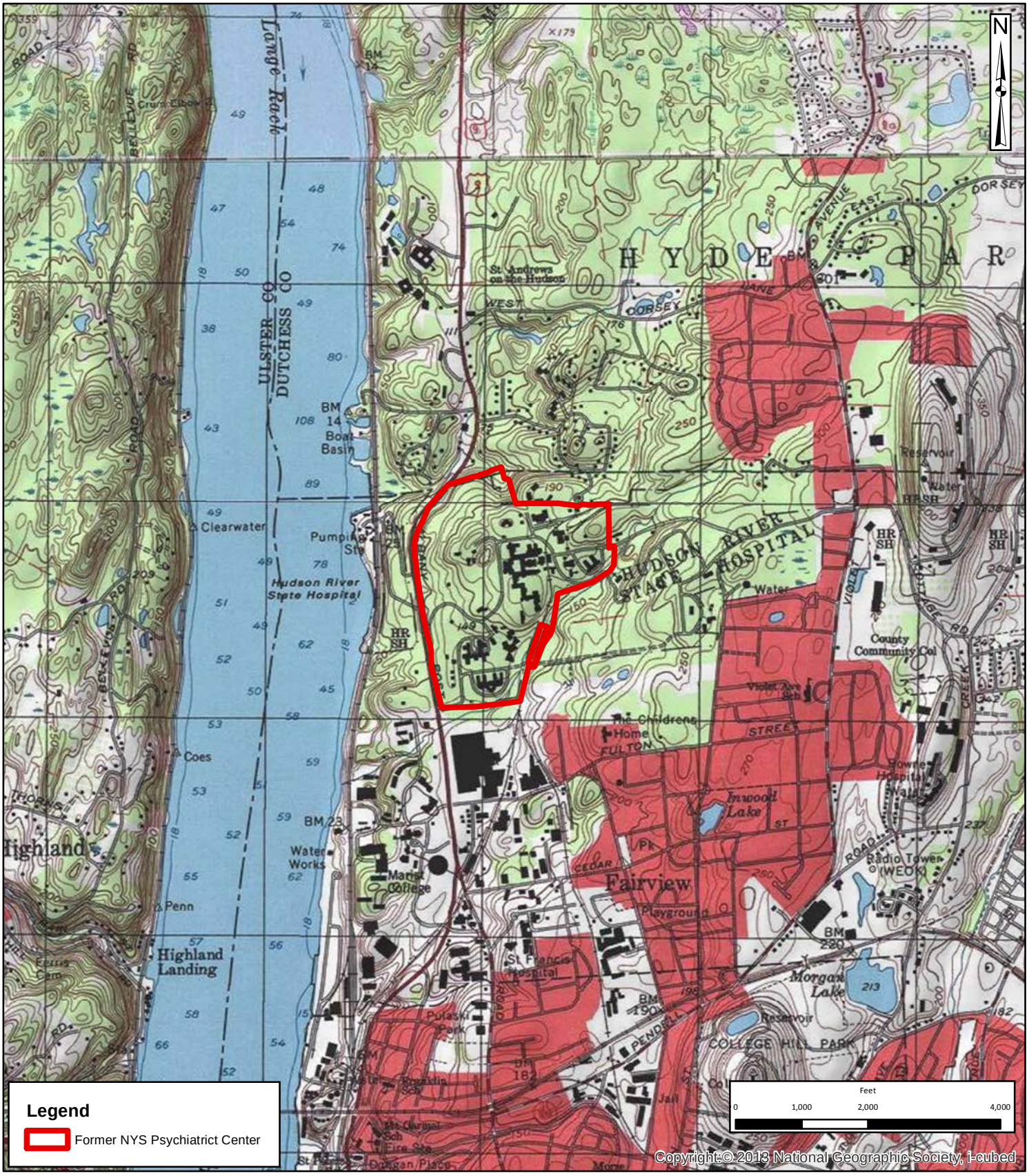
- Figure 1, (USGS) Location Map[5]
- Figure 2, Orthophoto
- Figure 3, Hydric Soil Map HRPC
- Figure 4, Soils Map
- Figure 5, Wetlands and Streams Map
- Figure 6, NYSDEC Endangered and Threatened and Significant Communities Mapping

4.1 Topography

Figure 1 is a topographic map of the section of the Town of Poughkeepsie where the HRPC site is located. The site is located west of NYS Route 9, and ranges in elevation from approximately 100 feet above sea level to 200 feet above sea level. The site slopes from the center northwest and southwest towards the Hudson River, and then southeast towards a ravine that runs along the southeastern property boundary. The site is rolling and more level in the eastern and southern portions, which have been developed with buildings associated with the prior Hudson River State Hospital. There are numerous roads and buildings shown on the USGS Topographic Quadrangle in the southern and eastern portions of the Project Site.

The surrounding area is generally hilly. The Hudson River lies approximately 900 feet to the west; the site is separated from the Hudson River by the Amtrak rail line and NYS Route 9. To the south of the Project Site is a shopping development and Marist College, and south of that is the City of Poughkeepsie. Additional lands associated with the prior HRPC lie to the east. To the north is residential development located within the Town of Hyde Park.

[5] USGS is United States Geological Survey



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Hudson Revitalization Development District (HRDD) Amendments

USGS Location Map

Town of Poughkeepsie - Dutchess County, New York

Drawn:	GHM
Date:	10/23/2014
Scale:	1:24,000
Project:	81402.00
Figure:	1

Document Path: S:\8\81400-81499\81402.00\GIS\Maps\81402_00_USGS_8x11.mxd

4.2 Orthophotograph

Figure 2 is an orthophotograph of the Project Site. The orthophotograph illustrates the developed nature of the Project Site, with the HRPC buildings located in the southern and eastern portions of the Project Site surrounded by landscaping trees and lawn. Wooded areas are scattered throughout as shown by the darker areas on the orthophotograph, which are a mix of deciduous and coniferous trees. The orthophograph also shows, in light brown, large open areas, which are herbaceous lawn or upland meadow areas. As discussed before, many of these areas are dominated by the invasive wormwood plant (*Artemisia vulgaris*). The open areas significantly fragment the wooded areas on the site.

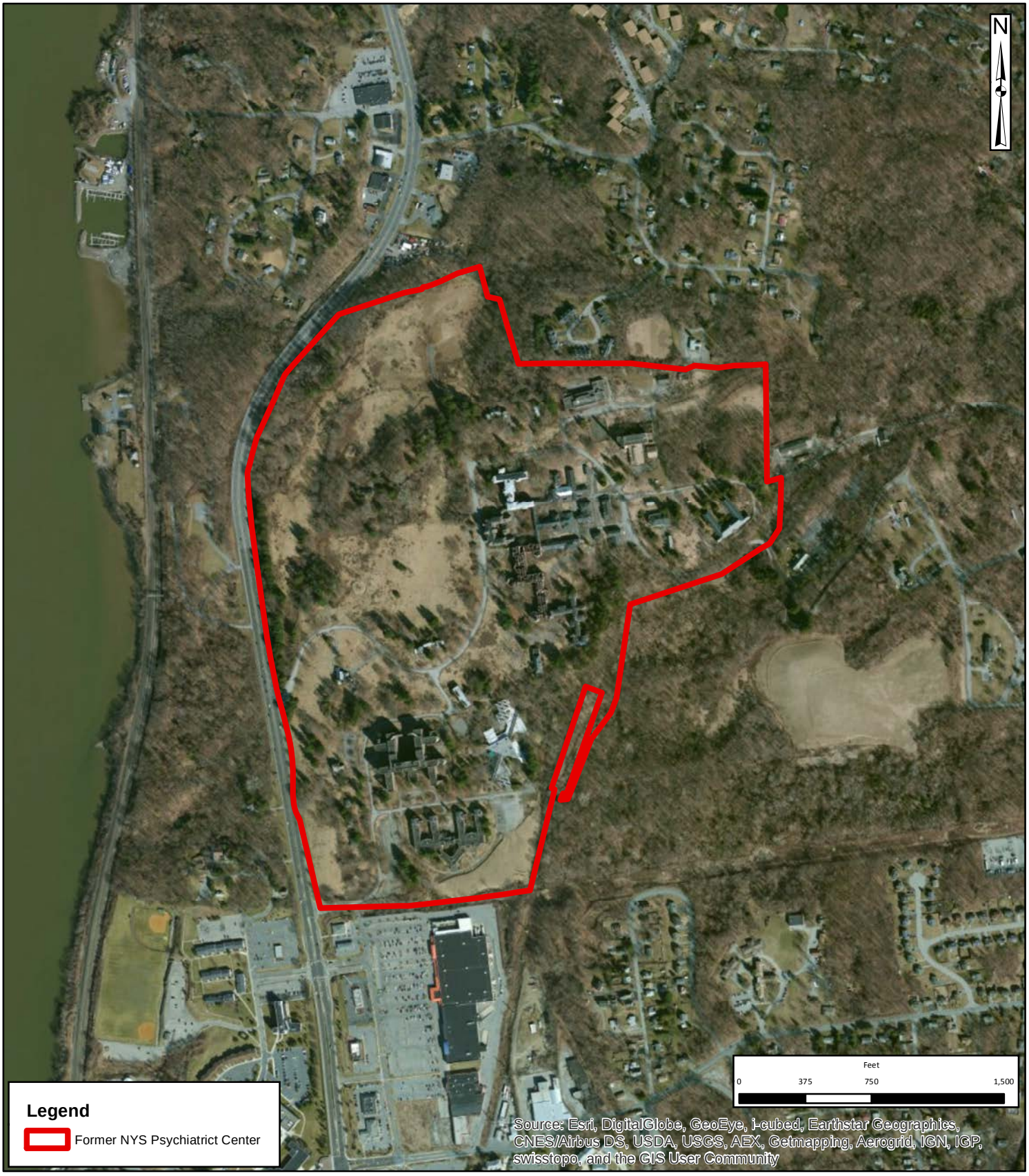
The orthophotograph also shows the shopping plaza east of NYS Route 9 and the Marist Campus west of NYS Route 9. East of the Project Site is a wooded area and an open lawn/meadow that has been extended into the woods, with residential lands further to the east. North of the Project Site is a mix of wooded and residential areas. West of NYS Route 9 are residential areas, woods and a County Park (Quiet Cove) adjacent to the Hudson River.

4.3 Soils and Bedrock Geology

Figure 3 is the USDA Natural Resources Conservation Service Hydric Soil Map for the Project Site, and hydric soil ratings, and Figure 4 is the Soil Map[6]. The following soils are mapped within the Project Site, and are described below (per the Dutchess County Soil Survey).

- Dutchess-Cardigan complex, undulating, rocky (DwB)
- Dutchess-Cardigan complex, rolling, rocky (DwC)
- Hoosic gravelly loam, nearly level (HsA)
- Hoosic gravelly loam, undulating (HsB)
- Hoosic gravelly loam, 25 to 45 percent slopes (HsE)
- Hoosic-Urban land complex, nearly level (HuA)
- Hoosic-Urban land complex, undulating (HuB)
- Nassau-Cardigan complex, undulating, very rocky (NwB)
- Nassau-Cardigan complex, rolling, very rocky (NwC)
- Nassau-Cardigan complex, hilly, very rocky (NwD)
- Nassau-Rock Outcrop complex, steep (NxE)
- Wayland silt loam (Wy)

[6] Faber, Marjorie. 1992. Soil Survey of Dutchess County, New York. United States Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_york/NY027/0/Dutchess.pdf.



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Hudson Revitalization Development District (HRDD) Amendments

Orthophoto

Town of Poughkeepsie - Dutchess County, New York

Drawn:	GHM
Date:	10/23/2014
Scale:	1 inch=750 feet
Project:	81402.00
Figure:	2

Document Path: S:\8\81400-81499\81402.00\GIS\Maps\81402_00_Orthophoto_8x11.mxd

Hydric Rating by Map Unit—Dutchess County, New York
(Figure 3 Hydric Soils Map HRPC)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Lines

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Points

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

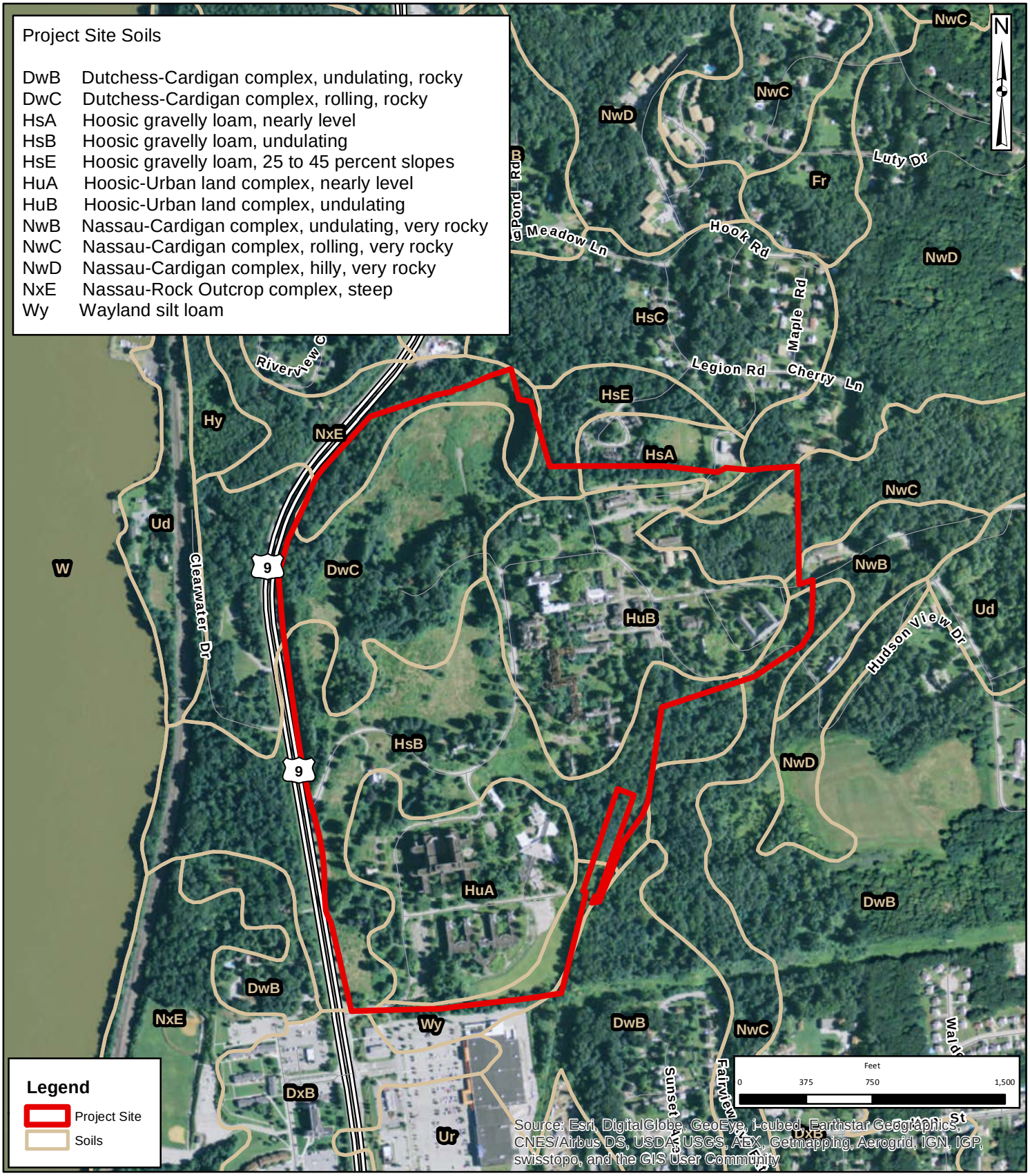
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 12, Sep 23, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Apr 16, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



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Hudson Heritage Park

Soils Map

Town of Poughkeepsie - Dutchess County, New York

Drawn:	GHM
Date:	05/13/2015
Scale:	1 inch=750 feet
Project:	81402.00
Figure:	4

Document Path: S:\8\81400-81499\81402.00 - Hudson Heritage\GIS\Maps\81402_00_Soils_8x11.mxd

- Dutchess-Cardigan complex, undulating, rocky (DwB) and rolling (DwC): This unit consists of very deep, well drained Dutchess soils and moderately deep, well drained Cardigan soils that formed in glacial till deposits. It is on hilltops and undulating till plains that are underlain by folded shale or bedrock. Dutchess soils are commonly on lower concave slopes and Cardigan soils are commonly on upper slopes, hilltops, and near areas of rock outcrop. This unit consists of about 40 percent Dutchess soils, 30 percent cardigan soils and 30 percent other soils and rock outcrop. Rock outcrop covers less than one to two percent of the surface. The Dutchess and Cardigan soils are in such an intricate pattern that they were not mapped separately. Both Dutchess and Cardigan soils are friable. The depth to the seasonal high water table is more than six feet and the depth to bedrock is more than 60 inches. These soils have approximately one percent of their coverage as hydric soils and so are identified as predominately non-hydric. Both Dutchess and Cardigan soils are friable soils in their upper part. A large expanse of DwC soil is mapped in the northwestern portion of the Project Site. Smaller areas of DwB soil is mapped along the southern property boundary.

- Hoosic gravelly loam nearly level (HsA), undulating (HsB), and 25 to 45 percent slopes (HsE): The Hoosic map unit consists of very deep, somewhat excessively drained soils that formed in glacial outwash deposits. It is on valley floors and outwash plains. Areas are irregularly shaped. Slopes are complex and are dependent upon the slope ratings identified above. Hoosic soils are friable. The depth to the seasonal high water table is more than six feet and the depth to bedrock is more than 60 inches. They have approximately five percent of their coverage as hydric soils, and so are identified as predominately non-hydric. On the Project Site, this soil is mapped along the northcentral property boundary and in the western center of the Project Site north and south of the center drive into the site.

- Hoosic-Urban land complex, nearly level (HuA) and undulating (HuB): These units are deep and somewhat excessively drained. It is on valley floors and outwash plains. This unit consists of about 40 percent Hoosic soils, 35 percent urban land, and 25 percent other soils. The Hoosic soils and urban lands are in such an intricate pattern that they were not mapped separately. Areas are irregularly shaped or rectangular. The urban land area consists of lands covered by buildings, streets, parking lots and other impervious surfaces that obscure soil identification. The natural soil layers have been altered or mixed with non-soil material such as bricks, broken concrete or cinders. The Hoosic soils are friable; the urban fill may not be friable. The depth to the seasonal high water table is more than six feet and the depth to bedrock is more than 60 inches. These units have approximately five percent of its coverage as hydric soils, and so are identified as predominately non-hydric. On the Project Site, these soils are associated with the previously developed areas in the southern and eastern portions.

- Nassau-Cardigan Complex, undulating very rocky (NwB), rolling very rocky (NwC), hilly very rocky (NwD). These units consist of shallow, somewhat excessively drained Nassau soils and moderately deep, well drained Cardigan soils that formed in glacial till deposits. It is on hilltops and undulating hill plains, upper slopes, and lower concave slopes that are underlain by folded shale bedrock. The unit consists of approximately 40 percent Nassau soils, 40 percent Cardigan soils and 20 percent other soils and rock outcrop. Rock outcrop covers two to ten percent of the soil surface. The Nassau and Cardigan soils and rock outcrop are in such an intricate pattern that they were not separated in mapping. Nassau soils are friable in the upper 16 inches. Cardigan soils are friable. The depth to the seasonal high water table is more than six feet and the depth to bedrock is between 20 and 40 inches for NwB and NwC, with depth to bedrock of ten to 20 inches in NwB. The NwB and

NwC soils have approximately one percent hydric soil coverage, while the NwD soil has approximately ten percent hydric soil coverage, making all three soils predominately non-hydric. These soils are found in the northeast corner of the Project Site.

- Nassau-Rock Outcrop complex, steep (NxE): This soil consists of shallow somewhat excessively drained Nassau soils and areas of rock outcrop. It is on hills and sideslopes that are underlain by folded shale bedrock. This unit consists of approximately 45 percent Nassau soils, 30 percent rock outcrop and 25 percent other soils. The Nassau soils and areas of rock outcrop are in such an intricate pattern that they were not separated in mapping. Areas are elongated or irregularly shaped. Nassau soils are friable in the upper 16 inches. The depth to the seasonal high water table is more than six feet and the depth to bedrock is between ten to 20 inches. This soil has a five percent coverage by hydric soils, and so is identified as predominately non-hydric. The soil is mapped in the northwest corner of the Project Site.

- Wayland silt loam (Wy): This unit consists of very deep, nearly level and poorly drained and very poorly drained Wayland soils that formed in alluvium deposits. It is on flood plains. Areas are elongated or irregularly shaped. Slopes range from zero to three percent. This soil has s depth to bedrock of more than 60 inches, and a depth to the seasonal high water table of +0.5 feet to 1 foot November through June. This soil has 88 percent coverage by hydric soils, and so is identified as predominately hydric. The soil is mapped along the southern and southeast property boundaries.

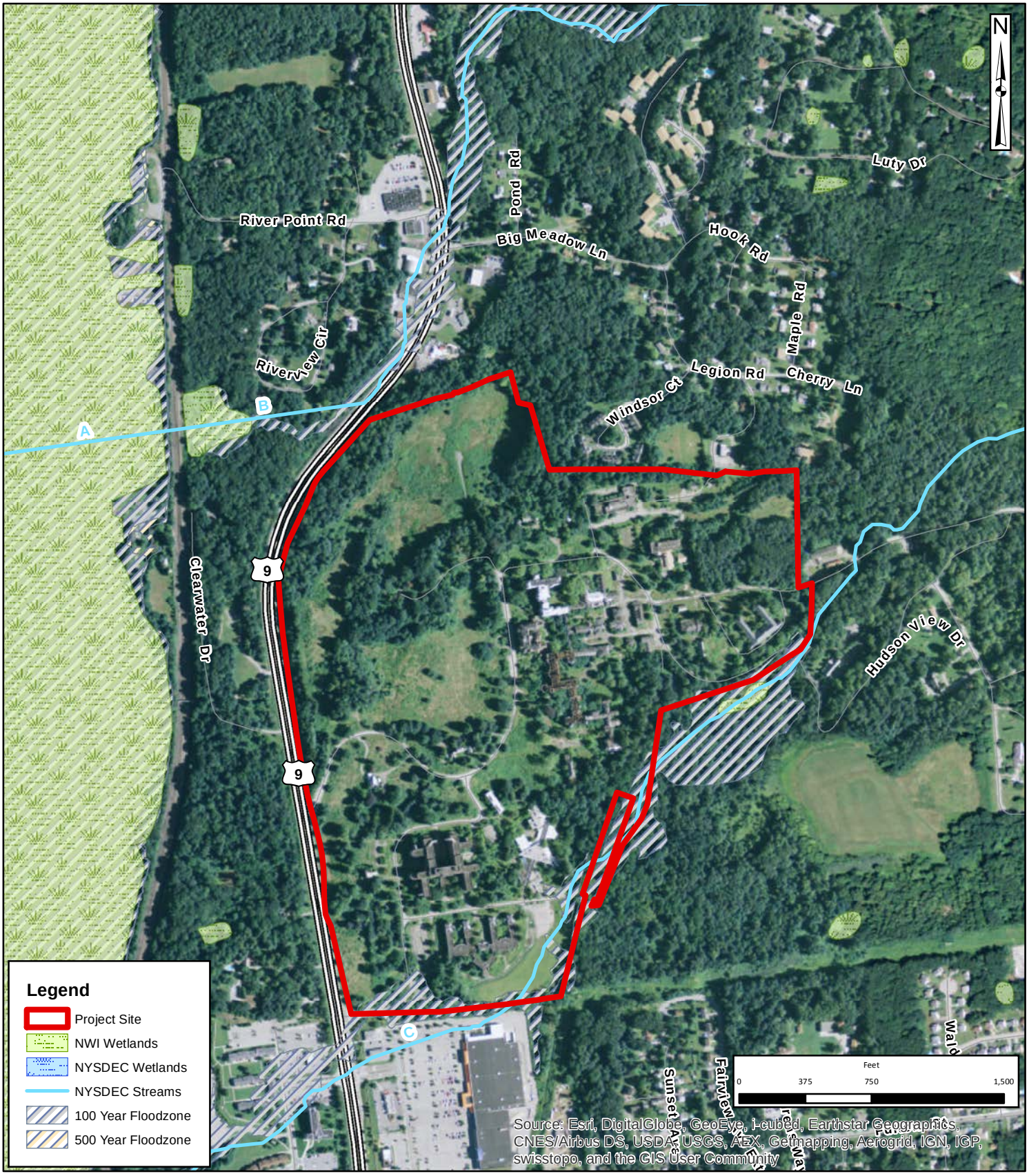
4.4 Wetlands and Streams

Figure 5, Wetlands and Streams Map, illustrates the location of wetlands mapped by the US Fish and Wildlife Service under the National Wetlands Inventory (NWI), the NYSDEC under Environmental Conservation Law Article 24, Freshwater Wetlands Act and streams mapped under Environmental Conservation Law Article 15, Use and Protection of Waters.

There are no NYSDEC wetlands mapped within the Project Area. There are no National Wetland Inventory wetlands mapped within the project area. The NYSDEC maps a stream along the southern and eastern property boundaries. This stream is identified as having Classifications and Standards of Class C, meaning it is not regulated by the NYSDEC. This stream, and its associated wetlands would be regulated by the Corps of Engineers. The Town of Poughkeepsie has also adopted an Aquatic Resource Protection law at Chapter 116 of the Town Code. Under this regulation, the Town of Poughkeepsie places a 25-foot buffer around any stream (except Wappinger Creek) and a 25-foot buffer around any wetland between 1 and 2 acres in size.

It is noted that the stream shown in Figure 5 is based on historic NYSDEC Stream Mapping that is now provided by the NYSDEC in a Geographic Information System (GIS) data layer. The actual location of the stream has been modified as a result of development in the Project Area and the surrounding lands. The current (and accurate) location of the stream within the Project Area is shown in Attachment 7, Wetland Delineation Report, Attachment A, Wetland and Stream Delineation Map. Off-site, it is Chazen's understanding that the stream flows westerly under US Route 9 on to the Marist property, and from there continues to the Hudson River. In addition, the actual location of wetlands on the site were delineated, as discussed in Section 7.2 below. This includes the wetland between the Project Site and the Home Depot.

Figure 5 also illustrates the 100-year flood zone based on GIS FEMA Floodplain Mapping. According to the National Flood Insurance Program Insurance Rate Map (FIRM), Town of Poughkeepsie, Community Panel Number 356 of 602, the majority of the site lies within Flood Zone X, an area determined to be outside of the 0.2% annual chance floodplain. A very small portion of the site located directly adjacent to stream 862-403, lies within Flood Zone A, an area with no base flood elevations determined, but considered to be a special flood hazard area subject to inundation by the 1% annual chance flood. There is no designated floodway on the site or associated with this stream. See also Figure 5A.



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Hudson Heritage Park

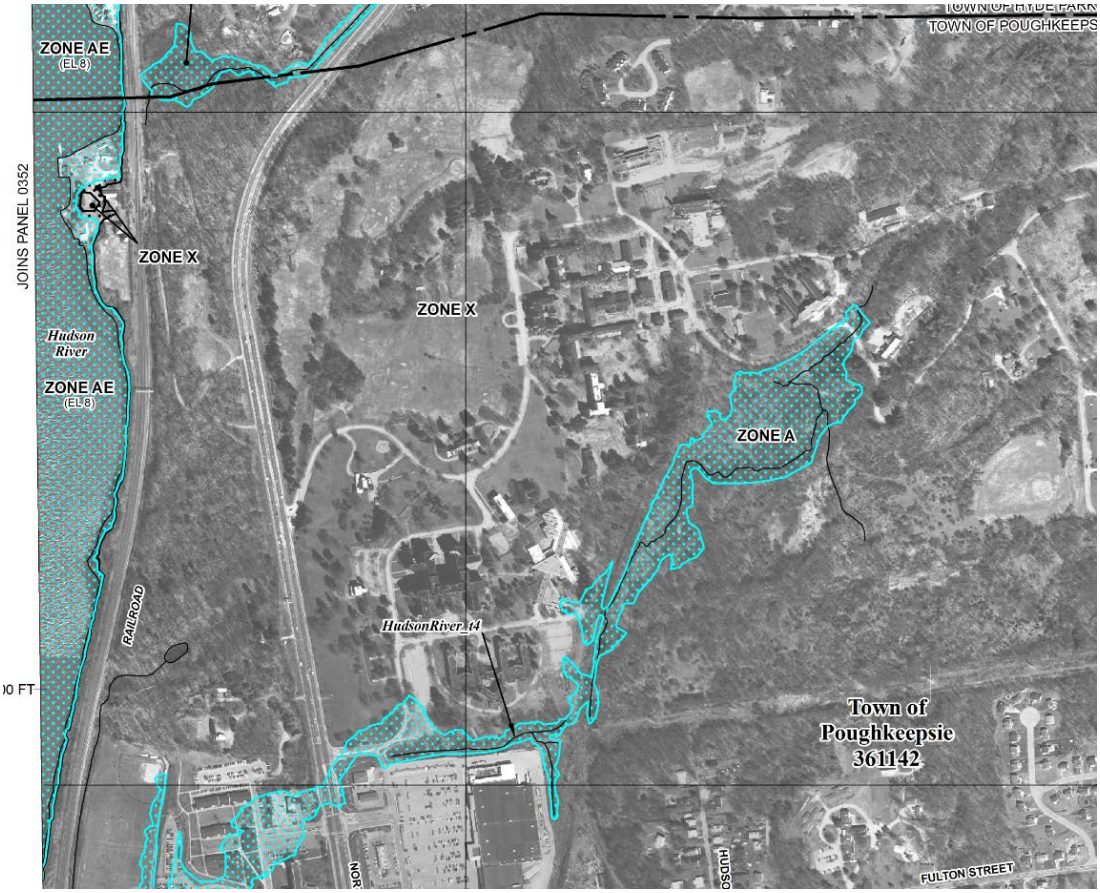
Wetlands and Streams Map

Town of Poughkeepsie - Dutchess County, New York

Drawn:	GHM
Date:	05/13/2015
Scale:	1 inch=750 feet
Project:	81402.00
Figure:	5

Document Path: S:\8\81400-81499\81402.00 - Hudson Heritage\GIS\Maps\81402_00_WetlandStream_8x11.mxd

Figure 5A: FEMA FIRM – Community Panel 356 of 602



4.5 NYSDEC Endangered Species and Significant Habitat Mapping

Figure 6, NYSDEC Endangered, Threatened Species and Significant Communities Map illustrates NYSDEC mapped resources[7] in the vicinity of the Project Site. As shown by the pink cross-hatch that runs north/south parallel with the east side of the Hudson River, the Project Site is within a check zone for rare plants or animals associated with the Hudson River. This mapping is indicative of records for the shortnose sturgeon and the Hudson River, a tidal river, of which a portion is shown in purple as a Significant Natural Community. Figure 6A below, from the NYS Department of State Coastal Boundary Map, illustrates that the Significant Natural Community (shown green in Figure 6A) is the Kingston-Poughkeepsie Deepwater Habitat Significant Natural Community, a NYSDEC identified community. The boundaries relate to the purple area shown in Figure 6. The pink circle to the east of the Project Site, associated with a rare plant or animal, does not encroach upon the subject property.

[7] NYSDEC. 2015. NYSDEC Environmental Resource Mapper. http://www.dec.ny.gov/imsmaps/ERM/viewer.htm. Accessed November 12, 2015.

Figure 6: NYSDEC Endangered, Threatened Species and Significant Community Map

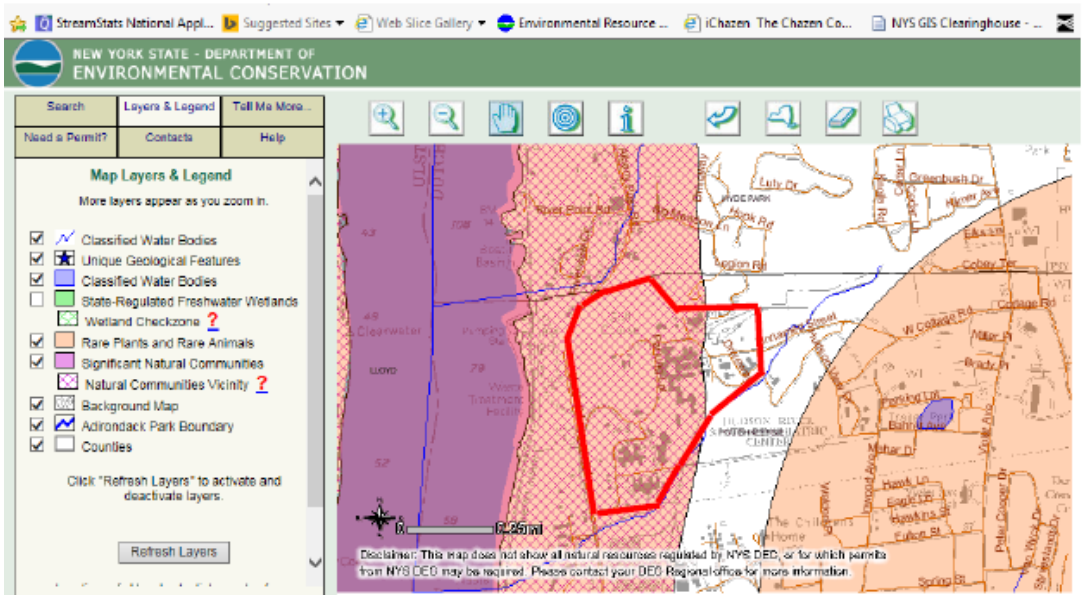
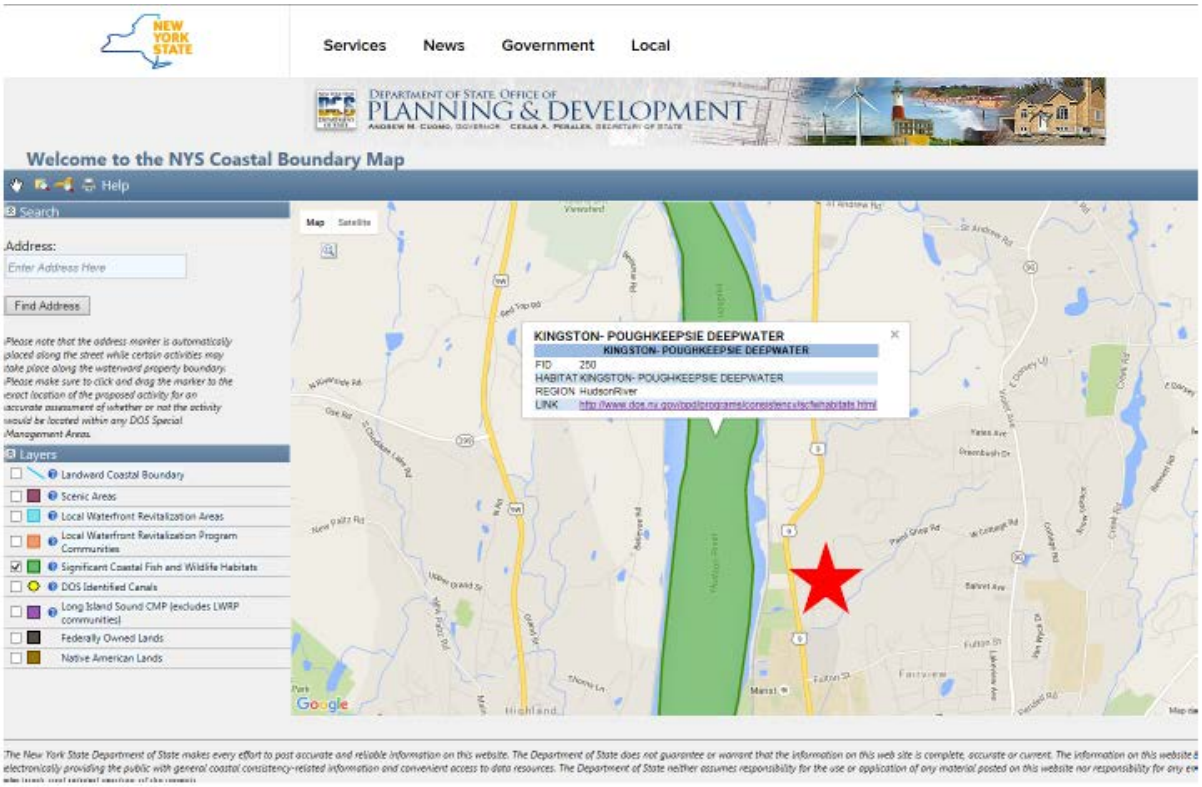


Figure 6A: NYS Coastal Boundary Map[8]



[8] NYSDOS, 2016. NYS Coastal Boundary Map. https://appext20.dos.ny.gov/coastal_map_public/map.aspx.

5. RECORD REVIEW – FEDERAL AND STATE ENDANGERED ANDTHREATENED SPECIES

5.1 Federal Record Review and Coordination with USFWS

To determine potential ETR species that may occur in the vicinity of the Project Site, Chazen obtained an official list of species from the United States Fish and Wildlife Service (USFWS) Information Planning and Conservation System (IPaC) website[9]. See Attachment 1, US Fish & Wildlife Service Review and Coordination, which contains the USFWS Official Species List, dated May 18, 2015. The following species are identified by the USFWS as having the potential to occur in the vicinity of the Project Site:

- Dwarf wedgemussel (*Alasmidonta heterodon*) (Federal Endangered)
- Indiana bat (*Myotis sodalis*) (Federal Endangered)
- Northern long-eared Bat (*Myotis septentrionalis*) (Federal Threatened)
- New England Cottontail (*Sylvilagus transitionalis*)[10]

No "critical habitat" for any of the other above-mentioned species or any other species has been designated by the USFWS within the Project Site. As discussed in the footnote, the New England Cottontail was removed as a candidate species for listing by the USFWS on September 11, 2015. Habitat requirements for each of these species is reviewed in Table 1, Section 5.3.

5.2 State Record Review

Chazen submitted an inquiry to the NYNHP dated May 18, 2015 requesting information regarding known occurrences of endangered and threatened species at, and in the vicinity of, the Project Site. See Attachment 2, NYNHP Coordination. A response from the NYNHP was obtained dated June 17, 2015, and is included in Attachment 2. The NYNHP identified the shortnose sturgeon (*Acipenser brevirostrum*), and the Atlantic sturgeon (*Acipenser oxyrinchus*) as occurring within 0.5 miles of the Project Site.

5.3 Habitat Requirements

Habitat requirements for the Endangered and Threatened species identified above are provided below in Table 1.

Table 1. Suitable Habitat Requirements for Potential ETR Species

Species Name	Regulatory Status[bc]	Preferred Habitat	Potential Habitat Present? Documentation Summary
Dwarf wedgemussel (*Alasmidonta heterodon*)	Federally and State-listed Endangered	In New York, the dwarf wedgemussel lives embedded in fine sediments that have accumulated between cobbles in slow to moderate current and relatively shallow water (40 cm) in small cool water rivers and similar habitat in larger rivers (Stayer and	Unlikely to be present. Stream is silt with few, if any, cobbles or rocks. Stream is Class C, with algae growing in it, and is small. Not a widely distributed species. Found in one location east of Hudson

[9] USFWS. 2015. IPAC system. http://ecos.fws.gov/ipac/. Accessed May 18, 2015.
[10] On September 11, 2015, the US Secretary of the Interior announced that the New England Cottontail will not be listed on the federal Endangered Species List due to landowner collaboration towards a conservation plan. See https://www.doi.gov/pressreleases/secretary-jewell-announces-new-england-cottontail-be-excluded-endangered-species-list. September 11, 2015.

Species Name	Regulatory Status[bc]	Preferred Habitat	Potential Habitat Present? Documentation Summary
		Jirka 1997). Generally these are identified as "confined river," which is defined as the aquatic community of relatively large, fast flowing sections of streams with a moderate to gentle gradient. The only two known populations in New York State occur in the upper Delaware River in Sullivan and Delaware Counties and one of its downstream tributaries, the lower Neversink River in Orange County.	River, along New York State's eastern boundary. No additional review warranted.
Indiana bat[a] (*Myotis sodalis*)	Federally and State-listed Endangered	Suitable summertime roosting habitat is characterized by wooded areas with trees that have sun exposure for at least half of the day, are ≥ 5 in. diameter at breast height (dbh), and exhibit specific physical traits (e.g., exfoliating bark, crevices, dead limbs, snags). Hibernation sites include caves and mines with stable temperatures and relatively high humidity (usually above 74%) for overwintering. Suitable foraging habitat includes riparian/floodplain forests, upland forests, as well as open fields and pastures with scattered trees.	While no NYNHP records for this species in vicinity of site, the site contains wooded areas and is in the documented range of species. Additional review warranted.
Northern long-eared bat[a] (*Myotis septentrionalis*)	Federally listed Threatened (State - not on list at 6 NYCRR 182.5 but are federally listed)	The reproductive habits of this bat are not well known. It is believed that they behave similarly to the Indiana bat, with the females congregating in maternity colonies in the spring, often using trees with cavities, crevices, and loose bark for daytime roosts. They may also roost in buildings and behind shutters. They are associated with mature interior forest and may prefer foraging on forested ridges and hillsides.	While no NYNHP records for this species in vicinity of site, site contains wooded habitats and buildings, and is in the documented range of species. Additional review warranted.
New England Cottontail[a] (*Sylvilagus transitionalis*)	Removed from Federal Candidate Species list. State-listed Special Concern	In southeastern New York, ideal habitat is disturbed patchy and isolated areas reverting to a successional vegetative community; this includes abandoned agricultural fields, margins and hedgerows of existing fields. Early successional vegetation with "masses and tangles of saplings, weeds, vines, and shrubs," including shrubby swamps. Close proximity to water is preferred.	The previously managed nature of this site results in a lack of habitat on the site. Generally found in the eastern half of Dutchess County north of Poughkeepsie. No NYNHP records for this site. No additional review warranted.

Species Name	Regulatory Status[bc]	Preferred Habitat	Potential Habitat Present? Documentation Summary
Shortnose Sturgeon[d] (*Acipenser brevirostrum*)	Federally and State Endangered	The shortnose sturgeon is found in the Hudson River, and it is anadromous, migrating from salt water to span in freshwater. Adult sturgeon migrate upriver from the Mid-Hudson area, overwintering in freshwater spawning sites north of Coxsackie, and spawn from April to May.	Habitat (Hudson River) not present on-site. No impacts proposed to Hudson River. No additional review warranted.
Atlantic Sturgeon[e] (*Acipenser oxyrinchus*)	Federally Endangered State No Open Season	Atlantic sturgeon occurs in deeper portions of the Hudson River. Adults spawn in freshwater in spring and early summer and migrate into estuarine and marine waters where they spend most of their lives. Males may be present in freshwater areas from between April and November, whereas females may be present only during spawning times from May to July. They spawn in moderately flowing waters in deep parts of large rivers. Eggs are deposited on bottom sediments on hard surfaces. Juveniles reside in estuarine waters for months to years. Subadults and adults live are in coastal waters when not spawning.	Habitat (Hudson River) not present on-site. No impacts proposed to Hudson River. No additional review warranted.

[a]Sources: NYNHP. 2014. Online Conservation Guides. Available from: http://www.acris.nynhp.org.
[b]Sources: http://ecos.fws.gov/ipac (accessed May 18, 2015); New England Cottontail see https://www.doi.gov/pressreleases/secretary-jewell-announces-new-england-cottontail-be-excluded-endangered-species-list. September 11, 2015.
[c]Sources: https://govt.westlaw.com/nycrr/ 6 NYCRR 182.5. Last updated August 31, 2015. Accessed October 22, 2015. Note that the Northern Long-Eared Bat is not listed on the state list as threatened 6 NYCRR 182.5, but this section makes reference of federal listing. Similarly, Atlantic sturgeon not on the State List, but is identified as "No Open Season" in the June 17, 2015 NYNHP Response letter.
[d] Sources: NYSDEC Shortnose sturgeon Fact Sheet: http://www.dec.ny.gov/animals/26012.html
[e] Sources: http://www.nmfs.noaa.gov/pr/species/fish/atlanticsturgeon.htm#habitat.

6. LITERATURE REVIEW

6.1 Hudsonia 2008 Significant Habitats in Town of Poughkeepsie

In 2008, Hudsonia Ltd. published a study titled "Significant Habitats in the Town of Poughkeepsie,[11]" based on a review of conditions in the Town from January to November 2007. Figure 7, is an excerpt of Figure 2 from that report illustrating the Project Site and the ecologically communities Hudsonia Ltd. identified. The Hudsonia report acknowledges that "all [habitats in the town] have been altered by past and present human activities. Most or all of the upland forests, for example, have been logged repeatedly in the past 300 years, and many forested areas lack the structural complexity of mature

[11] Tabak, Nava and Stevens, Gretchen. 2008. Significant Habitats in the Town of Poughkeepsie, Dutchess County, New York. Report to the Town of Poughkeepsie. Hudsonia Ltd. Annandale, NY. Figure 2, page 17. http://townofpoughkeepsie.com/planning/hudsonia/Significant_habitats_in_the_Town_of_Poughkeepsie.pdf

forests. Many of the wetlands in the town have been extensively altered by human activity such as damming, filling, draining, and railroad and road construction.[12]"

Figure 7: Hudsonia Ecological Communities

HUDSONIA ECOLOGICAL COMMUNITIES VISUAL ESTIMATES OF COVER

- Developed (white)
- Upland Meadow (yellow)
- Upland Hardwood Forest (green)
- Upland Mixed Forest (dark green)
- Stream (blue)(±3%)
- Upland Shrubland (goldenrod)
- Upland Wasteland (purple)

The following are Hudsonia's generalized descriptions of mapped habitat types for the Town of Poughkeepsie.

"Upland Hardwood Forest: Upland hardwood forest is the most common habitat type in the region, and includes many different types of deciduous forest communities at all elevations. Upland hardwood forests are used by a wide variety of common and rare species of plants and animals. Common trees of upland hardwood forests in Poughkeepsie include maples (sugar, red, Norway), oaks (black, red, white), hickories (shagbark, pignut), white ash, and black locust. Common understory species include introduced honeysuckle shrubs, spicebush, hop hornbeam, and a variety of wildflowers, sedges, ferns, lichens and mosses. Eastern box turtle spends most of its time in upland forests and meadows, finding shelter under logs and organic litter. Many snake species forage widely in upland forests and other habitats. Upland hardwood forests provide nesting habitats for raptors, including red-shoulder hawk, Cooper's hawk, sharp-shinned hawk, broad-winged hawk, and barred owl, and many species of songbirds including warblers, vireos, thrushes, woodpeckers, and flycatchers. American woodcock forages and nests in young hardwood forests. Pileated woodpecker uses large trees (live or standing dead for foraging, roosting, and nesting. Acadian flycatcher, wood thrush, cerulean warbler, Kentucky

[12] Ibid. Page 15.

warbler, and scarlet tanager are some of the birds that may require large forest-interior areas to maintain viable populations. Large mammals such as black bear, bobcat, and fisher also require large expanses of forest. Many small mammals are associated with upland hardwood forest, including eastern chipmunk, southern flying squirrel, and white-footed mouse. Hardwood trees greater than 5 inches in diameter (especially those with loose platy bark such as shagbark hickory or deeply furrowed bark such as black locust) can be used by Indiana Bat and other bat species for summer roosting and nursery colonies. Upland hardwood forests are extremely variable in their species composition, size and age of trees, vegetation structure, soil drainage and texture, and other habitat factors. Many smaller habitats, such as intermittent woodland pools and crest, ledge, and talus are often embedded within areas of hardwood forest.[13]"

"Upland Mixed Forest: This refers to non-wetland forested areas with both hardwood and conifer species, where conifer cover is 25-75% of the canopy. In most cases, the distinction between conifer and mixed forest was made by aerial photograph interpretation. These areas are less densely shaded at ground level and support a higher diversity and greater abundance of understory species than pure conifer stands.[14]"

The Hudsonia Report goes on to list the largest contiguous forest areas in the Town, of which the subject parcel is not listed[15]. The Hudsonia Report states "The forested areas in the Town are probably not large enough to support all of the forest dwelling animals listed in the habitat descriptions above, but are still likely to host many species adapted to smaller forest areas (including some forest interior species) and forest edge habitats.[16]" Upland hardwood forest was the most widespread habitat type in the town, accounting for approximately 24% of the total land area[17].

Crest/ledge/talus: The Hudsonia report identifies an area of crest/ledge/talus in the wooded northwest corner of the Project Site, immediately east and abutting NYS Route 9[18]. The Hudsonia Report, Figure 1,[19] indicates that the underlying bedrock in this area is Graywacke, shale. Graywacke shale is a non-carbonate bedrock. According to the Hudsonia Report, non-calcareous crests often have "trees such as red oak, chestnut oak, eastern hemlock, and occasionally pitch pine; shrubs such as low bush blueberry, chokeberries, and scrub oak; and herbs such as Pennsylvania sedge, little bluestem, hairgrass, and common polypody. Rare plants of non-calcareous crests include clustered sedge and slender knotweed… Rocky habitats with larger fissures, cavities, and exposed ledges may provide shelter, den and basking habitat for eastern hognose snake, eastern racer, eastern ratsnake and northern copperhead. Northern slimy salamander occurs in non-calcareous wooded talus areas. Breeding birds of crest habitats include blackburnian warbler, worm-eating warbler, and cerulean warbler. Bobcat and fisher use crests and ledges for travel, hunting and cover. Bobcat also uses ledge and talus habitats for denning. Southern redback vole is found in some rocky areas…[20]"

[13] Ibid. Page 19-20.
[14] Ibid. Page21.
[15] Ibid. Page 21.
[16] Ibid. Page 21.
[17] Ibid. Page 21.
[18] Ibid. Page 30, Figure 4.
[19] Ibid. Page 8.
[20] Ibid, page 28.

Upland Meadow: Hudsonia states "this broad category includes active croplands, hayfields, pastures, equestrian fields, abandoned fields, and other upland areas dominated by herbaceous vegetation. Upland meadows are typically dominated by grasses and forbs, and have less than 20% shrub cover. The ecological values of these habitats can differ widely according to the types of vegetation present and the varied disturbance histories (e.g., tilling, mowing, grazing, pesticide applications). Extensive hayfields or pastures, for example, may support grassland-breeding birds (depending on the mowing schedule or intensity of grazing), while other intensively cultivated crop fields may have comparatively little wildlife habitat value. We mapped these distinct types of meadows as a single habitat for practical reasons, but also because after abandonment these open areas tend to develop similar general habitat characteristics and values. Undisturbed meadows develop diverse plant communities of grasses, forbs, and shrubs and support an array of wildlife, including invertebrates, reptiles, mammals, and birds. It is for both present and potential future ecological values that we consider all types of meadow habitat to be ecological significant. Special species of rare butterflies…use upland meadows that support their particular host plants (violets for the fritillary and native grasses, such as little bluestem, for the skippers). Upland meadows can be used for nesting by wood turtle, spotted turtle, eastern box turtle, painted turtle and snapping turtle. Grassland-breeding birds such as northern harrier, upland sandpiper, grasshopper sparrow, vesper sparrow, savannah sparrow, eastern meadowlark, and bobolink use extensive meadow habitats for nesting and foraging. Upland meadows often have large populations of small mammals (e.g., meadow vole) and can be important hunting grounds for raptors, foxes and coyote.[21]" The Hudsonia Report identifies that this habitat type, once common, now accounted for only 4% of the total land area in the Town of Poughkeepsie. Upland meadows are identified as being relatively small in the Town, from 0.1 acre to 31 acres. Hudsonia's report mentions that the largest upland meadows are in the northern part of the town, consisting as mowed fields rather than crop fields or pastures including two capped landfills.

Upland Shrubland: Hudsonia describes this community as "lands in transition between meadow and young forest, but they also occur in recently cleared areas, and are sometimes maintained as shrubland along utility corridors… Recently cleared or disturbed sites often contain dense thickets of shrubs and vines, including the non-native Japanese barberry, Bell's honeysuckle, oriental bittersweet, and multiflora rose. Abandoned agricultural fields and pastures often support more diverse plant communities, including a variety of meadow grasses and forbs, shrubs such as meadowsweet, gray dogwood, northern blackberry, raspberries, and multiflora rose, and scattered seedlings-and sapling-sized-eastern red cedar, hawthorns, white pine, gray birch, red maple, white ash, black cherry, quaking aspen, and oaks. Occasional large, open-grown trees (e.g., sugar maple, white oak, sycamore) left as shade for livestock may be present.[22]" The report discusses the importance of calcareous shrublands[23]. The report states that some upland shrubland can contain violets or native grasses such as little bluestem. The report further states that upland shrublands and other non-forested habitats may be used by turtles (e.g., painted, wood, spotted and eastern box) for nesting. The report lists a number of birds of conservation concern that nest in upland shrublands and adjacent upland meadow habitats, and states that "[e]xtensive shrublands and those that form large complexes with meadow habitats may be particularly important for these breeding birds.[24]"

[21] Ibid. Page 33.
[22] Ibid. Page 31.
[23] This is not an issue at this site, given the lack of calcareous bedrock on the site.
[24] Ibid. Page 31.

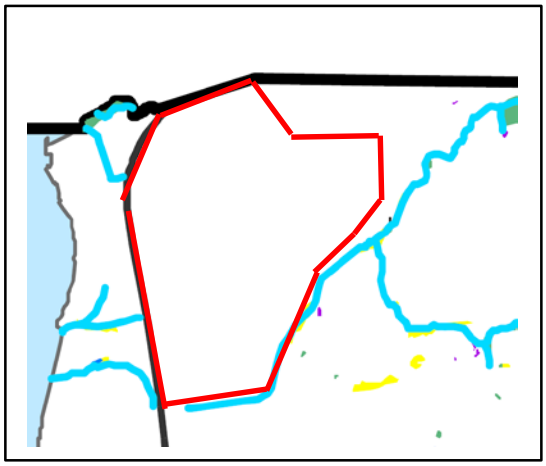
Waste Ground: Hudsonia identifies waste ground as land that has been "severely altered by previous or current human activity, but lacks pavement or structures. It remains substantially unvegetated… Although waste ground often has low habitat value, there are notable exceptions.[25]" The report then describes some rare plant species that can inhabit waste ground, and potential use by specific snakes and turtles. "However, on sites where species of conservation concern are absent or unlikely, waste ground probably has a low habitat value compared to other relatively undisturbed habitats.[26]"

Stream: As shown in Figure 8, Hudsonia Wetland Habitats[27], the main aquatic resource identified on the Project Site is the (perennial) stream along a portion of the eastern and southern property boundary. A close review of the map also illustrates that Hudsonia has identified some small areas of potential marsh (in yellow) along the stream. Hudsonia defines perennial streams as those that "flow continuously throughout the years with normal precipitation, but some may dry up during droughts. They provide an essential water source for wildlife throughout the year, and are critical habitat for many plant, vertebrate, and invertebrate species. We loosely define the riparian corridor as the zone along a perennial stream that includes the stream banks, the floodplain, and adjacent steep slopes.[28]"

The Hudsonia Report describes the potential habitat values for this community stating perennial streams may support "…rare plants of streams and floodplains in the region, such as cattail sedge, Davis sedge, goldenseal, and false-mermaid. The fish and aquatic invertebrate species of perennial streams may be diverse, especially in clean-water streams with unsilted bottoms.[29]" The report then goes on to describe fish species, and then states… "Wood turtle uses perennial streams with pools and recumbent logs, undercut banks, or muskrat or beaver burrows. Perennial streams and their riparian zones, including gravel bars, provide nesting or foraging habitat for many species of birds.[30]" "Bats, including Indiana Bats, use perennial streams corridors for foraging…Muskrat, beaver, mink, and river otter are some of the mammals that use riparian corridor regularly. Riparian forests are particularly effective at removing dissolved nutrients from stream water, and produce high quality detritus (dead plant matter) important to the aquatic food web.[31]"

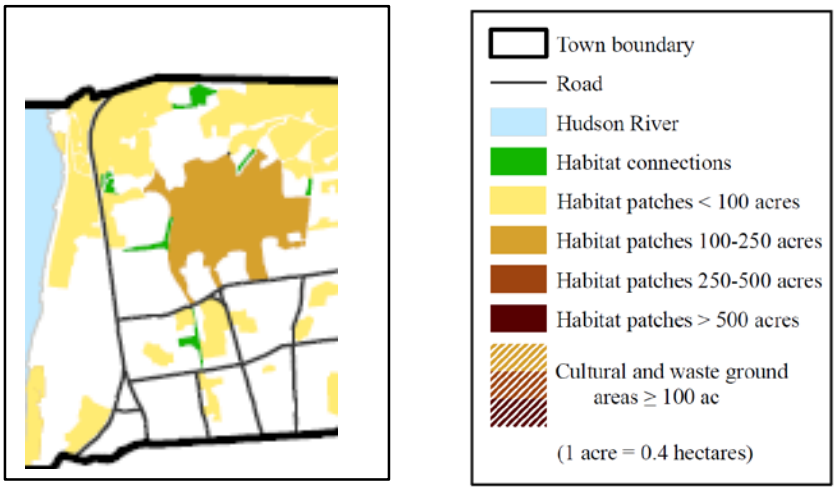
[25] Ibid. Page 37.
[26] Ibid. Page 37.
[27] Ibid. Page 38. This is Figure 5 in the Hudsonia Report.
[28] Ibid. Page 55.
[29] Ibid. Page 56.
[30] Ibid. Page 56.
[31] Ibid. Page 56.

Figure 8: Hudsonia Wetland Habitats



Habitat Patches: As shown in Figure 9, Hudsonia Habitat Patches[32], Hudsonia identifies >100 acre habitat patches (combination of forest and meadow) in the northwestern and northeastern portions of the Project Site.

Figure 9: Hudsonia Habitat Patches



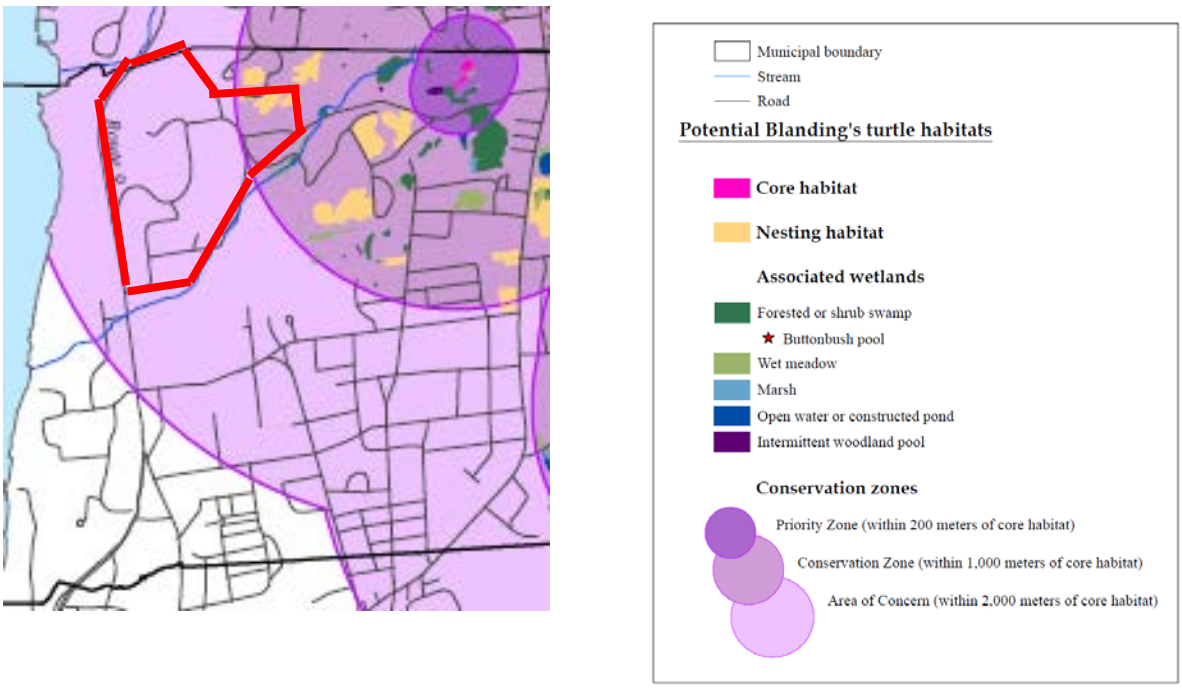
6.2 Hudsonia 2009 Blanding's Turtle Report and Mapping

Before discussing the Hudsonia 2009 Blanding's turtle report for the Town of Poughkeepsie, it is worthy to note that in their June 17, 2015 letter, the NYSDEC NYNHP did not identify records of Blanding's turtle occurring in the vicinity of the Project Site (see Attachment 2). The NYNHP provides information on occurrences for Blanding's turtle when those occurrence records are within 0.81 miles (4,277 feet) of a Project Site[33].

[32] Ibid. Page 83. Figure 6 in the Hudsonia Report.
[33] NYSNHP. 2015. Communication with Andrea Chaloux of NHNHP and Chazen dated November 10, 2015.

In 2009, Hudsonia prepared a report titled "Blanding's Turtle Habitats in Southern Dutchess County[34]." Associated mapping was also prepared with this report for the Town of Poughkeepsie[35]. Figure 10, Hudsonia Potential Blanding's Turtle Habitats, is an excerpt from that mapping, along with the legend for that map.

Figure 10: Hudsonia Potential Blanding's Turtle Habitats



The Hudsonia Mapping indicates that the site does not contain any core wetland habitat for Blanding's turtle. The closest identified core habitat in the Town of Poughkeepsie is approximately 3,000 feet to the east of the Project Site. The Hudsonia report identifies "core habitat" or "core wetland" as "the regularly used wetlands typically occupied during the winter, spring, early summer, and fall. They are deep enough to normally remain unfrozen at their bottoms and contain abundant aquatic vegetation. Core wetlands function as overwintering, foraging, and termoregulation habitats. In Dutchess County, core wetlands are typically, but not always, kettle shrub pools. A kettle shrub pool is a seasonally or permanently flooded shrub-dominated pool located in a glacial kettle, a depression formed by the melting of a stranded block of glacial ice within glacial outwash materials. Soils such as Hoosic gravelly loam, derived from glacial outwash, are usually adjacent to or near the pools. Buttonbush, an aquatic shrub, is often the dominant plant, but other shrubs such as highbush blueberry and swamp azalea may also be abundant and buttonbush may be absent. Often, a shrub thicket is entirely or partially surrounded by an open water moat. The kettle shrub pool is usually ringed with mature hardwood trees and may have some small trees such as red maple or green ash in the pool interior, but typically lacks a

[34] Hartwig, Tanessa, Stevens, Gretchen, Sullivan, John and Kiviat, Erik. 2009. "Blanding's Turtle Habitats in Southern Dutchess County." Hudsonia, Ltd, Annadale, NY. March 2009. http://townofpoughkeepsie.com/planning/blandings_turtle/Blandings_turtle_mapping_report_final.pdf
[35] Hudsonia, Ltd. 2009. Potential Blanding's Turtle Habitats in the Town and City of Poughkeepsie, Dutchess County, NY. Hudsonia Ltd., Annadale, NY. http://townofpoughkeepsie.com/planning/blandings_turtle/Poughkeepsie%20map.pdf

forest canopy.[36]" In addition to core habitat not being mapped by Hudsonia on the Project Site, Chazen did not observe this type of core wetland habitat on the Project Site.

Nesting sites are identified in the Hudsonia Report as "usually in open, well-drained areas such as agricultural fields, lawns, and gravelly road shoulders… Nests may also be in small pockets of soil on rock outcrops, in ornamental plantings in house yards, in powerline rights-of-way, and in cut-and-fill soils of construction sites.[37]" "[S]oils formed in outwash material provide prime nesting areas for the turtles.[38]" Hoosic soils are often identified with Blanding's turtle nest areas. The Hudsonia mapping identifies some potential nesting habitat in the northeast corner of the Project Site within a "Conservation Zone" circle. The soils in this area are a combination of Hoosic gravelly loam nearly level (HsA), Hoosic-Urban land complex (HuB), and Nassau-Cardigan Complex, rolling very rocky and hilly very steep (NwC and NwB, respectively). It is noted that the Hudsonia mapping identifies other potential nesting areas closer to the core habitat than those mapped on the Project Site. A review of aerial photographs also indicate other open lawn or meadow areas otherwise unmapped that are also in closer proximity to the core habitat than the Project Site.

The Hudsonia mapping did not identify or map any associated wetlands on the Project Site. Those associated wetlands are shown on Hudsonia mapping as "forested or shrub swamp including "buttonbush pool," "wet meadow," "marsh," "open water or constructed pond," and "intermittent woodland pool.[39]" The Hudsonia report describes "associated wetland" as "other wetland habitats that are used by Blanding's turtles from late winter through late summer. Associated wetlands contain some standing water for at least part of the growing season and include deep ponds or lakes, acidic bogs, marshes, forested wetlands, slow-moving streams and riparian wetlands, ditches, and woodland pools.[40]"

6.3 Ecological Solutions 2009 Natural Resources Survey and Wetland Report

In 2008, Ecological Solutions, LLC completed a Natural Resources Survey and Wetland Report.[41] See Attachment 3, Ecological Solutions 2009 Natural Resource Survey and Wetland Report. The report is dated June 29, 2008, and has a noted revision date of November, 19, 2009. The Report was prepared in support of a proposed mixed use development on the 156 acre site. The introduction to the report indicates that field work was completed on March 24, 28, April 15, 17, 30, May 7, 14, 21, and 28 and June 5, 10 and 18, 2008.[42]

The report identified a single wetland, Wetland A, with a perennial watercourse, located along the southern property boundary.[43] The report states that midges, a microinvertebrate that is moderately tolerant of pollution, were located throughout the wetland/stream area.[44]

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[36] Hartwig, T. et al. 2009. Page 5.
[37] Ibid. Page 9.
[38] Ibid. Page 14.
[39] As is discussed in Section 7.4, Chazen also did not observe these habitat types on the Project Site.
[40] Ibid. Page 6.
[41] Ecological Solutions LLC. 2009. Natural Resource Survey and Wetland Report, Hudson Heritage Property. Ecological Solutions LLC, Southbury CT. Dated June 29, 2008, revised 11/19/2009.
[42] Ibid. Page 4.
[43] Ibid. Page 11.
[44] Ibid. Page 12.

The report identified this wetland as a PF01, or Palustrine Forested Wetland. Of this wetland, the report states "Wetland A totals 0.125 acres. This wetland receives water primarily from overland sheet flow and is associated with an intermittent watercourse[45]. Hydrological indicators identified within the wetland included soil saturation, watermarks, drift lines, drainage patterns, and water stained leaves. Wetland "A" is a broad-leafed deciduous forested wetland (PF01E) located along the southern property boundary. It is a red maple dominated swamp with an understory of skunk cabbage (*Symplocarpus foetidus*) and false hellebore (*Veratrum veride*) that is seasonally inundated. This wetland is surrounded by development. Functions and values provided by Wetland A include floodflow attenuation, sediment trapping, nutrient removal, production export, wildlife habitat, and visual quality. Of these, the most significant functions of this wetland, based on extent of rationale in identifying functions and values, are floodflow attenuation and sediment trapping. No impact is planned for this wetland, and no further involvement is required by the USACE or NYSDEC. The wetland is also regulated by the Town of Poughkeepsie and contains a 25-foot buffer area as per Chapter 116 – Aquatic Resources Protection Law.[46]" On page 20 of the report, it is stated that the wetland contains a perennial watercourse that drains southwest off the property.

Page 21 of the report states "No threatened or endangered species or supporting habitat was observed at the Hudson Heritage site.[47]"

The report identified three natural covertypes on the property; Forested Wetland (red maple hardwood swamp), Mixed Upland Forest (Rich Mesophytic Forest), and Successional Old Field.[48] The report described these habitat communities as follows:

"<u>Mixed Upland Forest Community[49]:</u> The Hudson Heritage property contains several large landscaped areas or cultural cover types as well as a distinct mixed upland forest cover type occupying the well-drained areas on the property and supporting a particular array of species. This habitat type covers most of the Project Site except for the 0.125 acre of wetland previously described in this report.[50] The canopy layer ranges from dense to sparse depending on the age class of the canopy layer on any given point on the site. The understory also ranges from very dense thicket to a more easily traveled zone where the trees are larger diameter. The forest community is young to medium aged and generally consists of trees ranging in size from 4 to 8 inches diameter at breast height (dbh), with larger specimen trees in the 12 to 24 inch dbh range in select locations. Soil moisture was evident in portions of the upland forest areas and was enough in some areas for some herpetiles to use as habitat.

Species observed in the upland forest canopy layer of the Hudson Heritage property includes white oak (*Quercus alba*), white ash (*Fraxinus americana*), eastern hemlock (*Tsuga canadensis*), eastern hop hornbeam (*Ostrya virginiana*), red oak (*Quercus rubra*), eastern red cedar (*Juniperus virginiana*), tamarack (*Larix laricina*), black oak (*Quercus velutina*), red maple (*Acer rubrum*), sugar maple (*Acer*

[45] As discussed in Section 7.2, it is Chazen's opinion that this watercourse is perennial, and that Wetland A would be better defined as a stream valley wetlands and/or a Palustrine Emergent/scrub-shrub wetland. Chazen did not identify red maple on the site. The dominant tree observed by Chazen within the wetland area (specifically Wetland B) was sycamore.
[46] Ibid. Page 19.
[47] Ibid. Page 21.
[48] Ibid. Page 23.
[49] For purposes of this report, it will also be referred to as Mixed Hardwood Forest.
[50] It is noted that on page 22 report, it is stated that the project proposes to preserve the approximately 18 acre "Great Lawn" as a centerpiece for the overall development."

saccharum), white pine (*Pinus strobus*), tulip tree (*Liriodendron tulipifera*), red pine (*Pinus resinosa*), Norway spruce (*Picea abies*), and black cherry (*Prunus serotina*). The shrub layer contains multiflora rose (*Rosa multiflora*), honeysuckle *(Lonicera* sp.), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), black raspberry (*Rubus occidentalis*), fox grape (*Vitis labrusca*), grey dogwood (*Cornus racemosa*) and witch hazel (*Hamamelis virginiana*). The herbaceous layer contains spinulose wood-fern (*Dryopteris spinulosa*), garlic mustard (*Allaria officinalis*), violet (*Viola* spp), carrion flower (*Smilax herbacea*), wood geranium (*Geranium maculatum*), wild strawberry (*Fragaria virginiana*), clover (*Trifolium* spp.), false Solomon's seal (*Smilacina racemosa*), trout lily (*Erythronium americanum*), club moss (*Lycopodium* spp.), and Christmas fern (*Polystichum acrostichoides*).

Bird species observed in the ground layer included brown thrasher (*Orpheus rufus*), veery (*Catharus fuscescens*), ovenbird (*Seiurus aurocapillus*), and turkey (*Melagris gallopavo*). Additional species located on the site includes: Baltimore oriole (*Icterus galbula*), scarlet tanager (*Piranga olivacea*), eastern phoebe (*Sayornis phoebe*), black-capped chickadee (*Poecile atricapillus*), red-breasted nuthatch (*Sitta canadensis*), white-breasted nuthatch (*Sitta carolinensis*), tufted titmouse (*Parus bicolor*), wood thrush (*Hylocichla mustelina*), red-tailed hawk (*Buteo jamaicensis*), white throated sparrow (*Zonotrichia albicollis*), broad-winged hawk (*Buteo platypterus*), barn swallow (*Hirundo rustica*), Carolina wren (*Thryothorus ludovicianus*), common grackle (*Quiscalus quiscula*), turkey vulture (*Cathartes aura*), American redstart (*Setophaga ruticilla*), American robin (*Turdus migratorius*), cardinal (*Cardinalis cardinalis*), red-eyed vireo (*Vireo olivaceous*), pileated woodpecker (*Dryocopus pileatus*), yellow warbler (*Dendroica petechia*), blackburnian warbler (*Dendroica fusca*), northern flicker (*Colaptes auratus*), mourning dove (*Zenaida macroura*), and downy woodpecker (*Picoides pubscens*).

Herpetiles observed in the upland forest community included red-backed salamander (*Plethodon cinereus*), American toad (*Bufo americanus*), and garter snake (*Thamnophis sirtalis*).

Mammals located in the upland forest and wetland portion of the Project Site included opossum (*Didelphis virginiana*), little brown bat (*Myotis lucifugus*), long-eared bat (*Myotis septentrionalis*)[51], deer mouse (*Peromyscus maniculatus*), gray squirrel (*Sciurus carolinensis*), red squirrel (*Tamiasciurus hudsonicus*), eastern chipmunk (*Tamias striatus*), wood chuck (*Marmota monax*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephiti*s), star-nosed mole (*Condylura cristata*), eastern cottontail (*Sylvilagus floridanus*), red fox (*Urocyon cineroargenteus*), white-tailed deer (*Odocoileus virginiana*) and coyote (*Canis latrans*).[52]"

"<u>Successional Old Field Community[53]:</u> A portion of the property consist of a post development meadow plant community that has been allowed to revert back to more native conditions. The successional field/meadow are representative of several early successional serial stages ranging from fields regularly mowed and dominated principally by grasses and forbs, to fields dominated by dense shrub-scrub thickets, to areas with younger trees becoming established. Grasses and forbs dominate vegetation within the fields/meadow area. Representative species of grasses and flowering plants include several varieties of goldenrods (*Solidago* spp.), broom sedge (*Andropogon virginicus*), pokeweed (*Phytolacca americana*), smartweed (*Polygonum* spp.), thistle (*Cirsium* spp.), wild aster (*Aster* spp.), milkweed (*Asclepias syriaca*), spotted knapweed (*Centaurea maculosa*), black-eyed Susan (*Rudbeckia hirta*),

[51] It is not clear how the bat species were identified, as there is no record of a bat presence/absence survey being completed at the site, nor is an emergence survey discussed in this report.
[52] Ecological Solutions LLC. 2009. Pages 24-25.
[53] For purposes of this report, it will also be referred to as Upland Meadow.

Queen's Anne's lace (*Daucus carota*), daisy fleabane (*Erigeron annuus*), showy goldenrod (*Solidago speciosa*), rough-stemmed goldenrod (*Solidago rugosa*), Canada goldenrod (*Solidago canadensis*), reed canary grass (*Phalaris arundinacea*), ox-eye daisy (*Chrysanthemum leucanthemum*), Kentucky bluegrass (*Poa pratensis*), bindweed (*Convolvulus* spp.), common yarrow (*Achillea nudifolium*), bedstraw (*Galium* spp.), little bluestem (*Andropogon scoparius*), timothy (*Phlem pretense*), wild strawberry (*Fragaria virginiana*), whorled milkweed (*Asclepias verticillata*), maiden pink (*Dianthus deltoids*), deer-tongue grass (*Panicum clandestinum*), crab grass (*Digitaria sanguinalis*), smooth brome (*Bromus inermis*), and meadow fescue (*Festuca elatior*). Several shrub species with varying degrees of density have become successfully established within the fields/meadows. Species observed include staghorn sumac (*Rhus typhina*), brambles (*Rubus* spp.), honeysuckle (*Lonicera* spp.), and multiflora rose (*Rosa multiflora*). Scattered tree species consist of red cedar (*Juniperus virginiana*), gray birch (*Betula populifolia*), silver maple (*Acer saccharinum*), and white pine (*Pinus strobus*). Some of the fields are shifting to a more scrub-shrub habitat with open pockets of field/meadow. The shrub layer ranges from 6 feet in height to over 15 feet in height. Other field areas have been mowed in the past, and other are representative of a younger plant succession stage that is predominantly grasses and forbs, with minimal shrub thickets, and occasional clumps of tree species.[54]"

The Ecological Solutions Report indicated that one NYSDEC species of special concern, the eastern box turtle, was observed in the northern portion of the Project Site[55]. With regard to Indiana bats, the report stated "[a] large percentage of the property is already developed and remaining undeveloped areas are lightly wooded and contain distinct habitat types that can be broadly categorized as mixed upland forest, old field, and forested wetland/tributary. The property has gentle to moderately steep slopes in the mixed upland forest areas. The forested portion of the property contains some trees over 9" dbh that contain tight smooth bark and lack crevices, cavities, or holes that are potential Indiana Bat roosting trees. No Indiana Bat roosting or maternal colony trees/habitat were observed on the property and no hibernacula are suspected on the property.[56]"

With regard to bog turtles, the report discusses habitat requirements relative to hydrology, soils, vegetation for this species. The report concludes: "The 'waters of the United States,' including wetland area and tributary on the property does not contain suitable hydrology, mucky soils substrate, or vegetative structure often associated with bog turtle habitat such as open, early successional habitat wet meadows or open calcareous boggy areas generally dominated by sedges (*Carex* spp.) or sphagnum moss. Like other cold-blooded or ectothermic species, it requires habitats with a good deal of solar penetration for basking and nesting. Hydrology supporting the wetlands on the site is primarily intermittent surface and overland flow that appears to fluctuate during storm events. The fluctuating hydrology and lack of suitable mucky soils negates the potential for bog turtle habitat on the property.[57]"

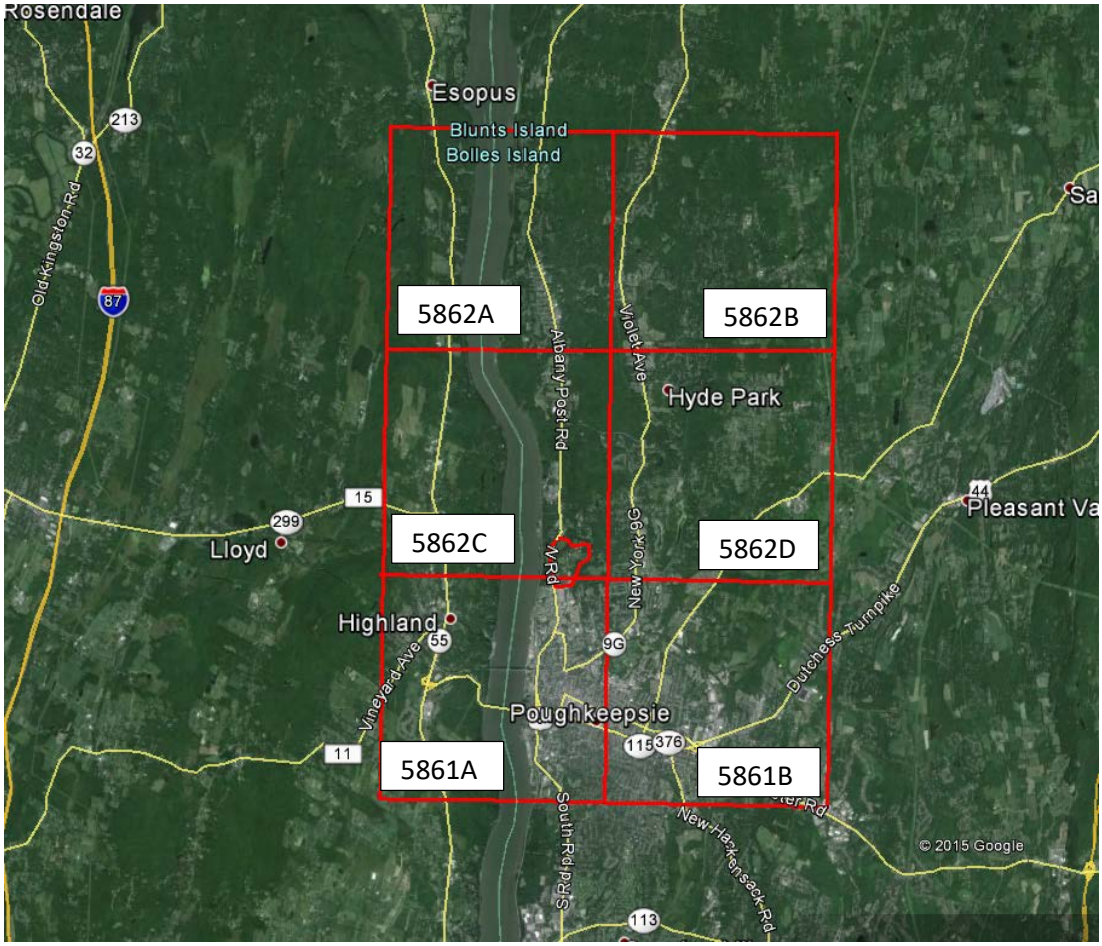
6.4 New York State 2000-2005 Breeding Bird Atlas

The New York State Breeding Bird Atlas was reviewed for possible breeding birds within the survey blocks that the Project Site occupies, and the four survey blocks to the north, northeast, east and southeast of the Project Site. Figure 11 below illustrates the Project Site relative to the breeding bird

[54] Ibid. Page 26.
[55] Ibid. Page 27.
[56] Ibid. Page 31.
[57] Ibid. Page 32.

atlas blocks. A list of breeding birds found in these six survey blocks from the 2000-2005 survey (the most current survey)[58] was then complied.

Figure 11: Breed Bird Atlas Blocks Relative to Site



Breeding habitat requirements for the various birds were reviewed and summarized from the Second Atlas of Breeding Birds in New York[59]. Birds that were observed on site by Ecological Solutions in 2008 were noted. Photographs taken by Chazen of the Project Site during field work in September and October were reviewed and compared to habitat requirements and knowledge of bird habitat use by Mr. Kevin McGrath[60], and a conclusion about likely on-site breeding for each particular bird species was developed. This information is documented in Attachment 4, Breeding Bird Atlas Data.

[58] NYSDEC. 2015. Breeding Bird Atlas Codes for Google Earth. See http://www.dec.ny.gov/animals/7312.html for link.

[59] McGowan, Kevin and Corwin, Kimberly. 2008. Second Atlas of Breeding Birds in New York State. Cornell University Press, Ithaca, NY.

[60] Mr. McGrath is an avid birder, with more than 45 years of field experience. He is a member of the American Ornithological Union, American Birding Association, National Audubon Society, Delaware Valley Ornithological Society and past-president of the Hudson-Mohawk Bird Club (HMBC). As president of HMBC, he organized, complied and authored a breeding bird survey of 27 upstate New York properties for the Nature Conservancy. He

In summary, 110 bird species were found either within one of the six breeding bird survey blocks or were observed on site by Ecological Solutions LLC during the 2008 investigation. Of these, 88 were found in either both or one or the other survey blocks where the Project Site is located (59 species in both, 14 species only in the northern block (5862C) and 15 species only in the southern block (5862A)). There were 18 species that were not found in either survey block where the project is located, but were found in the surrounding blocks identified on Figure C. Ecological Solutions LLC identified 29 bird species on-site. Four of these species were not identified as confirmed breeders in any of the survey blocks, indicating that these four species were likely transients.

Federal Species: There were no federally listed endangered or threatened species of birds identified as occurring within these breeding bird blocks. The bald eagle, a delisted federal species, and state listed threatened species is identified as occurring in block 5861A. The site does not provide habitat for this species, which requires large bodies of water, and the species was not identified by NYNYP as occurring within the range of the Project Site; it is likely that this is an occurrence along the Hudson River. Attachment 2, NYNHP Letter, includes an email from Natural Heritage dated August 4, 2016 indicating that the nearest NYSDEC-documented bald eagle nest is 2.7 miles from the site based on a database updated the week before. Since the nest is more than a mile from the site, the NYSDEC would not expect the project to impact the eagles.

State Endangered and Threatened Species: For state species, the peregrine falcon, a state-listed endangered species is identified as occurring in block 5861A. This species was not identified by NYNHP as occurring within the range of the Project Site. It is Chazen's opinion that its presence on-site is unlikely; it may be a transient fly-over. The bald eagle, a state listed threatened species, is discussed above. There were no other state-listed threatened or endangered species identified.

State Species of Special Concern: The following species of Special Concern (state - unregulated) were identified in Attachment 4.

- Osprey. This species is identified in survey block 5862C; there is not suitable habitat for this species on the site.
- Sharp-shinned hawk. This species is not identified in either survey block where the project is located. It is identified in block 5861B, to the east of Poughkeepsie. The species may be a transient or visitor to the site, but the site offers limited breeding habitat due to the small forest patch sizes.
- Cooper's hawk. This species was identified in survey block 5862C (containing Project Site) and 5861B. This species may be a transient or occasional visitor to the site, but there is limited to no suitable breeding habitat (deep woods) for this species on the site; it is noted that this is a highly adaptive species.
- Red-shoulder hawk. This species was not identified on the two survey blocks where the Project Site is located, but is found in three surrounding survey blocks. This is a bird of extensive mature woodland forests. There is not suitable habitat for this species on the site.
- Cerulean warbler. This species is not identified in either survey block where the project is located. It is identified in block 5862A, to the north of Hyde Park. It prefers to nest in

has completed numerous Christmas bird surveys (in several states) for the National Audubon Society, collected and contributed data to the New York State Breeding Bird Atlas, worked with the President of the Audubon Society of Southwest Florida on the Breeding Bird Atlas for Lee County, Florida, and has contributed to several field guidebooks on bird locations for upstate New York.

cottonwoods, and may be present within cottonwoods growing along the Hudson River in survey block 5862A. There is not suitable habitat for this species on the site.

General Bird Species Use: A review of site photographs does not suggest that there is any unique, special or rare habitats on the site. The site consists of overgrown lawns, driveways, and lawns with intermittent secondary and old growth mixed forest areas. Most of the forested areas are highly fragmented and too small to support true woodland breeders. The quality of breeding bird habitat for species other than habitat generalists is reduced by the large amount of edge habitat, the fact that the shrubland habitat is not extensive, and is dominated by thick stands of semi-wooded black raspberry, wine raspberry and Asian bittersweet, and that the meadow habitat is dominated by common wormwood.

Most of the breeders on the site will be open wood, fringe and field birds. The list of probably and very-probable birds is long, and contains most of the common backyard birds typically found in Eastern New York. There does not appear to be any truly suitable habitat for the less common or rare breeders. The lack of significant open water or sizeable woody swampland also makes the swamp species unlikely breeders, although they still may visit the site at times. A number of the "observed" species were probably transients, as they are not typically breeders in this locale.

6.5 NYSDEC 1990-1999 Herpetological Atlas

The NYSDEC Herpetological Atlas[61] was reviewed for possible occurrences of herptofauna within the Poughkeepsie Quadrangle where the Project Site is located, and within the five topographic quadrangles surrounding the Poughkeepsie Quadrangle. As shown in Figure 12, those quadrangles are labeled in yellow and include Hyde Park to the north, Salt Point to the northeast, Pleasant Valley to the east, Hopewell Junction to the southeast and Wappinger Falls to the south. Figure 12 below illustrates the Project Site relative to these topographic quadrangles.

A list was compiled of the herptofauna found within these quadrangles from the NYSDEC Herpetological Atlas. The habitat requirements for each species was compiled and compared to habitats observed on site. A conclusion about likely on-site presence for each particular species was developed. This information is documented in Attachment 5, Herptofauna Atlas Data.

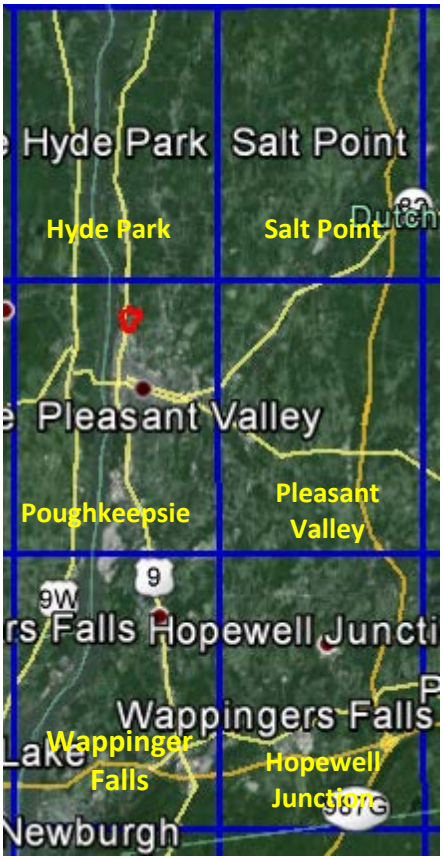
The NYSDEC Herp Atlas Project identified 41 species of herptofauna occurring on the six quadrangles above. Of these, 15 species were identified as occurring on the Poughkeepsie Quadrangle where the Project Site is located.

Federal Species: One federally listed (Threatened) species is identified in Attachment 5, specifically bog turtle. This species is also state-listed Endangered. The USFWS IPAC review did not identify the potential for bog turtle on the Project Site, likely because calcareous bedrock is not present below the Project Site. The bog turtle is not identified as occurring on the Poughkeepsie Quadrangle, and is only identified as occurring on the Hopewell Quadrangle. The NYNHP does not report records of bog turtle in the vicinity of the Project Site. The Project Site is not underlain by calcareous bedrock, a habitat requirement for this species. The site does not contain muck soils, specific calcareous-dependent plants

[61] NYSDEC. 2015. NYSDEC Herp Atlas Project. See http://www.dec.ny.gov/animals/7140.html for location maps for each species.

that constitute habitat, or proper hydrology. Both Chazen and Ecological Solutions agree that bog turtle habitat is not present on the site.

Figure 12: NYSDEC Herpetological Project – Topographic Quadrangles Surrounding Site



<u>State Endangered and Threatened Species</u>:

- The bog turtle, also a state-listed Endangered species is discussed above; the site does not contain bog turtle habitat. This species is not present on the site.
- The state-listed Endangered cricket frog is not identified as occurring on the Poughkeepsie Quadrangle. It is identified on the Hyde Park Quadrangle. The NYNHP does not identify cricket frog as occurring in the vicinity of the Project Site. The cricket frog requires wetlands or waterbodies with floating mats of vegetation. This habitat is not found on the Project Site.
- The state listed Threatened timber rattlesnake is not identified on the Poughkeepsie Quadrangle, and the NYNHP does not have occurrence records for this species at the Project Site. The species is identified only on the Wappinger Quadrangle. There is no hibernaculum habitat present in the vicinity. This species is not present on the site.

With regard to Blanding's Turtle, this turtle is not identified on the Poughkeepsie Quadrangle[62]. The NYNHP did not identify occurrence records for this species on the site[63]. Core habitat for this species is buttonbush or intermittent woodland pool, which is not present on the site. As discussed in Section 6.2 (Figure 10), Hudsonia identifies some nesting habitat in the northeast corner of the Project Site. However, Figure 10 also illustrates nesting habitat even closer to the Core Habitat (further east) than that found on the Project Site. The on-site stream does not represent a means of habitat connection for this species given its fragmentation by culvert crossings and underground conveyances, which significantly lessen the streams value for use by the species, and are a potential trap for any species that might move through the corridor. While the site is located within an Hudsonia-designed "Area of Concern" zone, there does not appear to be any biological impetus for a Blanding's turtle to continue moving westward beyond the Hudsonia-designated "Conservation Zone" area in to the "Area of Concern," where the Project Site is located, because core, associated and nesting habitat are all available within the Conservation Zone limits. For these reasons, the Chazen Companies believes it highly unlikely that the Project Site is used by the Blanding's turtle.

State Species of Special Concern: The following Special Concern (state - unregulated) species were discussed in Attachment 5.

- Marbled Salamander, Jefferson salamander, and blue-spotted salamander. None of these three species were identified on the Poughkeepsie Quadrangle. They were all identified on the Hyde Park Quadrangle; the marbled salamander was also identified on the Salt Point Quadrangle, and the blue-spotted salamander was also identified on the Hopewell Junction Quadrangle. The lack of vernal pools or intermittent woodland ponds on the site significantly reduces the potential for these species to be present. The Marbled Salamander may use streambeds for migration routes. These species may be found in deciduous bottomland or floodplain forests. Chazen rated these species as possible, but not probable on the site.
- Spotted turtle. The spotted turtle was not identified on the Poughkeepsie Quadrangle. It is identified as occurring on the five surrounding quadrangles. The spotted turtle requires large wetland areas with a mosaic of wetland habitats including ponds, emergent marshes, shrub swamps, forested wetlands, wet meadows, seasonal pools, streams, rivers, forests and other upland habitats. The Project Site does not contain large wetland areas, and the wetland types are limited. The open upland areas on the site are dominated by invasive wormwood, and do not have significant sunlight penetration, reducing nesting potential. Habitat not present. The use of the Project Site by spotted turtles is unlikely.
- Wood turtle. Wood turtles use rivers and streams in wooded areas with overhanging banks and are closely associated with clean flowing water, typically capable of supporting trout populations. Chazen rated these species as possible but not probable on the site, because A) the stream on the site is ranked as Class C, indicating that it is not particularly clean or oxygenated, nor does it support trout; B) the stream within Wetland A is impacted by siltation, which is also present in Wetland B; and C) the on-site stream is fragmented by a culvert between Wetland B and the off-site stream, and is then conveyed underground before emerging in Wetland A, which is then culverted again to the west. These barriers significantly fragment the habitat, which also significantly reduce the potential use of the site by this species.

[62] It is identified on the Hyde Park, Salt Point, Pleasant Valley and Wappinger Falls Quadrangles.
[63] The NYNHP will report this species as being in the vicinity of a project, if there is an occurrence record for the species within 0.81 mile of a Project Site boundary.

- Box Turtle. Box turtle was identified as occurring on the Project Site by Ecological Solutions.

Other Herptofauna: Ecological Solutions identified four herptofauna on the Project Site, specifically the northern red-backed salamander, the eastern American toad, the box turtle and the eastern garter snake. The Ecological Solutions report also assessed that the soil moisture in the woods could, at times, support herptofauna. See Section 6.3.

It is Chazen's assessment that the lack of vernal pools or open waterbodies (ponds, lakes) on the Project Site limits vernal pool species use of the Project Site. Wetland B and A may support stream-dependent species, or species that may use streams for movement, however its habitat potential is reduced by the fragmentation of this habitat (culverts to the off-site stream; underground conveyance between Wetland A and B), its relatively small size, and its lower water quality (Class/Standard C, rather than C(T) or better). Second, while much of the mapped upland soils are identified as friable, where those soils were developed (i.e., areas mapped as Hoosic-Urban Land Complex), the use of those soils for herptofauna may be limited by the prior development. The presence of asphalt and building materials reduce the "burrowing potential" of the soils. In addition, prior development of the Project Site in the southern and eastern sections of the Project Site, immediately adjacent to Wetland A and B, reduce the habitat potential of the Project Site, as this development increases the distance that must be traveled by herptofauna from a water source to undeveloped/undisturbed uplands. Any herptofauna found on the site will be likely be habitat generalists capable of living in disturbed habitats or in a variety of habitats.

7. CHAZEN'S ON-SITE REVIEW

During the September 4 and October 21, 2015 site inspections, Chazen reviewed the ecological communities on the site, delineated wetlands and aquatic resources on the site, identified plants occurring on the site, and assessed the site's habitats for their potential to support endangered, threatened or rare species of wildlife, focusing on birds (see Section 5.4) and herptofauna (see Section 5.5).

7.1 Identified Plant Communities

Following are descriptions of the plant communities found on the Project Site, using the same community names as in the work of Tabak and Stevens (2008). Photographs of on-site habitats are provided in Attachment 6, Photographs of the Site, except for photographs of the wetlands, which are provided in Attachment 7, Wetland Delineation Report. Figure 13, Habitat Communities, Existing Conditions illustrates the approximate limits of these resources on the Project Site. On Figure 13, photograph locations are noted that correspond to the photograph numbers in Attachment 6. Table 2, Exiting Habitat Areas on the Project Site, identifies the areas and percent coverage of these different habitats.

Table 2. Existing Habitat Areas on the Project Site

Habitat Name	Area (Acres)	Percent Coverage
Upland Hardwood Forest	20.94	13%
Mixed Hardwood Forest	4.88	3%
Upland Shrubland	8.69	6%
Upland Meadow	44.3	28%
Human Habitat	76.39	49%
Impervious	(35.5)	(23%)
Non-Impervious	(40.89)	(26%)
Aquatic Resources	0.7	<1%
TOTAL	**155.90**	**100%**

LEGEND	HABITAT NAME	EXISTING AREA (ACRES)
	UPLAND HARDWOOD FOREST	20.94
	MIXED HARDWOOD FOREST	4.88
	UPLAND SHRUBLAND	8.69
	UPLAND MEADOW	44.30
	AQUATIC RESOURCES	0.70*
	HUMAN HABITAT – IMPERVIOUS	35.50
	HUMAN HABITAT – NON–IMPERVIOUS	40.89
	TOTAL SITE	155.90

SEVERAL OF THE DELINEATED WETLANDS EXTEND BEYOND THE SUBJECT PROPERTY, EQUATING TO AN ADDITIONAL 0.377 ACRES OF ASSOCIATED OFF–SITE WETLAND.

PHOTOS

POTENTIAL BAT TREE PHOTOS

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HUDSON HERITAGE

HABITAT COMMUNITY EXISTING CONDITIONS MAP

TOWN OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK

designed CJL	checked
date 11/30/15	scale 1"=500'
project no. 81402.00	
sheet no. FIG 13	

Drawing Name: Z:\projects\81400–81499\81402.00 – Hudson Heritage\DWG\51_FIG13_81402–00_HABITAT COMMUNITIES EXISTING.dwg Date Printed: Aug 04, 2016, 11:51am

- Upland Hardwood Forest: In most places, this is a relatively mature forest, but with a relatively variable composition. Generally, the dominant trees include sugar maple, Norway maple, black oak, tulip-tree, and black walnut. Trees that may be found occasionally include pignut hickory, shagbark hickory, red oak, white oak, black locust, and American basswood. The understory tends to be composed of saplings of the canopy trees and small trees such as American hornbeam. Shrubs tend to be sparse, as are the herbaceous plants. In some places, periwinkle is an abundant groundcover. Herbaceous plants such as white snakeroot are also abundant in some places. Vines such as Asian bittersweet, Virginia-creeper, and river-bank grape are also abundant on the outer edge of the forest in many places. The abundance of non-native plants such as Norway maple, Asian bittersweet, and periwinkle keeps this community from appearing very natural.

  The Upland Hardwood Forest and Upland Mixed Forest are highly fragmented and disturbed, including by the presence of escaped species from the surrounding landscape plantings. The largest forest patches are 4.75 acres in the northwest portion of the site, adjacent to Route 9, and 3.5 acres along the eastern property boundary. In addition, these forest patches are relatively long and thin, meaning that they have a large edge to core habitat ratio. This reduces the potential for these patches to be used by interior forest breeding birds.

  As discussed above in Section 6.1, the Hudsonia Report identifies a crest/ledge/talus area in the within a wooded area in the northwest corner of the Project Site[64]. This area is immediately adjacent to Route 9. It is not a talus slope, nor is it particularly a crest slope. It may be considered a bedrock outcropping, but it did not contain talus or significant fissures or crevices. In this particular situation, the relatively small size of the crest ledge, its location immediately adjacent to NYS Route 9, within a forest patch of approximately 4.75 acre (and thus not large enough to support interior bird species) likely diminishes its suitability as habitat for a number of the species identified by Hudsonia, especially the bird and mammal species. This particular habitat area further isolated and separated from the remaining Project Site by an upland meadow area. Along with the bedrock outcrop in the northwest portion of the Project Site, a small area of bedrock outcrop was also found in the northeast corner of the Project Site in an area of Upland Hardwood Forest immediately behind a small building. See Attachment 6, Photographs 28 and 29.

- Upland Mixed Forest: This community is similar in composition to the Upland Hardwood Forest, but with the addition of coniferous trees, including eastern white pine, Austrian pine, eastern red cedar, eastern hemlock, Norway spruce, and European larch. Most of these trees are non-native; therefore, areas of this forest type are not like natural communities. It appears that some of these trees were planted in groups, and then seeds of hardwood trees that had dispersed among them germinated and grew into mature individuals, forming the mixed forest. In other cases, it is the conifers that appear to have dispersed into a hardwood forest. Some of the conifers are very large, with diameters greater than 16 inches. The coniferous species contributing to the "Upland Mixed Forest" are mostly transplanted Norway spruce and early successional white pine, which do not result in a unique Mixed Upland Forest community, but rather, degrade the overall quality of this habitat community.

[64] As will be discussed in Section 8.1, this area will not be impacted by the proposed project.

- Upland Shrubland: There are few places where a significant area is dominated by shrubs. In some sections of the northeastern portion of the Project Site, along the edge of the "Great Lawn," there are some large clusters of semi-woody plants that grow at least several feet tall, such as black raspberry and wine raspberry. There are also some large patches where the woody vine Asian bittersweet is sprawling over the ground and other plants, which may appear as shrubby patches on aerial photographs.

  As written in Section 6.1, the Hudsonia report discussed the importance of calcareous shrublands. This is not an issue at this site, given the lack of calcareous bedrock underlying the site. Further, the Hudsonia report identified that upland shrublands can contain violets or native grasses such as little bluestem. Violets and Andropogon were identified on the Project Site by Ecological Solutions, LLC in the 2009 report, but were not identified on site by Chazen (see Table 4). It is possible that these species have been overrun by the common wormwood at the site.

- Upland Meadow: There are large areas that may have been maintained at one time as mowed meadows, but which are no longer maintained and have become successional old fields or Upland Meadows. Common wormwood has become especially abundant in these places. Other broad-leaved plants that are common in these herb-dominated areas include Canada goldenrod, early goldenrod, common milkweed, asters, spotted knapweed, brown-ray knapweed, red clover, great mullein, and bird's-foot trefoil. In addition, a wide variety of grasses exist in these places, including orchard grass, creeping wild rye, tall false rye grass, and Kentucky blue grass.

  The common wormwood, *Artemisia vulgaris*, an invasive plant is dominant in the upland meadow area. This plant forms dense stands approximately three to four feet high and reduces potential habitat use due to its thick growth pattern. Further, the habitat value of these areas, for example for grassland breeding birds is reduced by patch size. The two largest contiguous upland meadow patch are relatively small, both at 15 acres.

- Human Habitat: This is the largest area mapped, comprising over 50% of the total Project Site. This area has been extensively modified by the construction of buildings, roadways, parking lots, and walkways. The vegetation, which was once intensively maintained, but no longer is, consists of a mixture of native and non-native trees and shrubs, along with former lawns that now have a plant composition similar to that of the upland meadow. Typical trees and shrubs in this community are black locust, eastern white pine, black walnut, sugar maple, Norway maple, Norway spruce, black oak, cottonwood, catalpa, American sycamore, tree-of-heaven, green-stemmed forsythia, rambler rose, European privet, Japanese barberry, and European buckthorn. Some of the trees are large, with diameters greater than 16 inches.

- Aquatic Resources: Areas that meet the federal definition of wetlands, in that they exhibit wetland hydrology, hydric soils, and hydrophytic vegetation, are confined to the outer edges of the subject property. There are four wetland areas that can be divided into two types, Stream Valley Wetlands, and Spring Seepage Wetland, as described in Section 6.2 below.

- Habitat Patches: The Hudsonia's assessment of habitat patches as shown in Figure 9, Section 6.1 does not take into account fragmentation caused by NYS Route 9 to the west of the Project Site, nor does it take into consideration the fragmentation caused by the intermingling of "meadow" area with forested habitat, especially given the low quality of habitat in the "meadow" area. The identified brown contiguous habitat (100-250 acres) along the southeast property boundary may be an overestimation. A review of Figure 2 indicates this area includes

landscape plantings associated with the HRPC, and shows a mowed lawn encroachment off-site to the east. The area is fragmented by an existing rail line along the eastern boundary, and the stream in this area is conveyed underground for a portion along the site's eastern property boundary.

7.2 Aquatic Resources

Aquatic resources (i.e., wetlands, streams, waterbodies) were delineated at the Project Site according to the methods in the Corps of Engineers delineation manual (Environmental Laboratory, 1987) and the regional supplement to that manual (USACOE, 2011). Attachment 7, Wetland Delineation Report, provides a description of these wetland areas. Figure 13B, Wetland Delineation Survey, provided here, illustrates the locations of these resources. In summary, the delineation identified three areas constituting a Valley Stream Wetland along the southern property boundary (Wetland A), and eastern property boundary (Wetland B), with another small wetland pocket (Wetland C) to the northwest and adjacent to Wetland B. The stream enters the Project Site on the eastern property boundary via a culvert under the road/trail, and then continues south to a headwall. From this location, the stream is conveyed westward underground, under the old railroad line, and then continues through an underground conveyance southward, until it daylights in the eastern portion of Wetland A. Wetland A, containing the stream and associated wetland is located between the southern site boundary and the Home Depot to the south. This wetland, and its 25 foot Town Regulated Buffer (discussed below) are shown on Figure 13B.

Finally, a small spring seepage wetland (Wetland D) was identified in the northwest portion of the site. Below is a brief description of these wetlands. Table 3, Aquatic Resources on the Project Site further summarizes these resources.

Table 3. Aquatic Resources on the Project Site

Wetland or Stream	Delineated Resource (On-site = 0.7 acre) (Town Buffer Area)	Centroid (on or adjacent to Project Site)		Cowardin Class	Stream Type/ Length
		Latitude	Longitude		
Wetland A	0.680 acre (1.25 acre buffer)	41° 34.644	73° 55.796	PEM1/SS1	Perennial 463 LF
Wetland B	0.242 acre (0.572 acre buffer)	41° 43.779	73° 55.575	PEM1/SS1	Perennial 121 LF
Wetland C	0.054 acre (0.155 acre buffer)	41° 43.859	73° 55.549	PEM1/SS1	None Adjacent to Wetland B
Wetland D	0.101 acre (0.204 acre buffer)	41° 44.061	73° 55.995	PF01B	Short Distance Off-Site

Stream Valley Wetlands: A small stream runs along much of the southern boundary of the Project Site (delineated as Wetland A), as well as along a part of the eastern edge of the Project Site (Wetland B, and the adjacent Wetland C). The bottom of this stream valley is occupied by an herbaceous emergent marsh vegetation that exhibits a great deal of variation. In some places, common reed is dominant, forming dense stands. Where common reed is not dominant, the invasive Japanese stilt grass covers

much of the ground. There are also areas where rice cut grass and reed canary grass are dominant. Other herbaceous plants, which are generally less abundant than those grasses, include spotted touch-me-not, fowl manna grass, Canadian clearweed, purple loosestrife, dotted smartweed, arrow-leaf tearthumb, jumpseed, narrow-leaf cat-tail, skunk-cabbage, bristly buttercup, late goldenrod, and white avens. Shrubs and trees associated with these wetlands include northern spicebush, pussy-willow, American sycamore, green ash, and tulip-tree. In general, the stream in Wetland A (approximately 463 feet long) is about 2.5 to 3.5 feet wide, with a gravelly to sandy bottom.

The stream in Wetland B is confined to a space between the old railroad grade, which is high and steep sided, and an old road bed which rises a few feet above the wetland. The stream enters from the east, through a culvert under the old road bed, and heads south for approximately 121 feet, before entering a double culverted headwall that conveys the stream under the railroad bed. This underground conveyance continues southward to Wetland A. The stream in this location is about three to four feet wide, and has a bottom covered mainly with gravel and cobbles. Wetland B continues north from the point where the stream enters from the east. Wetland C is a continuation of Wetland B, separated by a narrow area of fill. Wetlands A, B, and C are identified as Palustrine Emergent Marsh Broadleaved Deciduous/Scrub Shrub Deciduous (PEM1/SS1) given their relatively open canopy and emergent marsh character next to the stream. Chazen identified sycamore as the dominant trees in the vicinity of these wetlands, rather than red maple per Ecological Solutions (see Section 6.3 above).

The stream exits Wetland A and is conveyed off-site to the west towards the Hudson River. The stream is mapped by the NYSDEC indicating that it is perennial, but its Classification/Standards of C indicates that it does not support trout. The review of on-site conditions would confirm that rating. As documented in photographs, the streambed in Wetland A contains significant silt. A review of Figure 2 illustrates that the previous HRPC encroached upon Wetland A with an entrance road into the site off of NYS Route 9, with parking areas and building infrastructure, and with a landfill in the southeast corner of the Project Site. The stream within Wetland B is confined between a railroad embankment and a road/trail embankment, with culverts at the upstream portion where it enters the site, and underground conveyance through which it flows to Wetland A.

Spring Seepage Wetland: On the northwestern edge of the Project Site, there is a seepy area at the base of a rocky hillside, which gives rise to a small perennial stream at the western edge of the wetland. That stream flows a short distance westward (approximately 55 feet) before joining a roadside ditch along US Route 9, and flowing into a culvert under the road. The mucky soil of the seepy area supports skunk-cabbage, bristly buttercup, and Canada clearweed. The rocky stream channel supports fowl manna grass and watercress. Trees on the edge of this wetland include weeping willow, bitter-nut hickory, Norway maple, and American hornbeam. Chazen identified this as a Palustrine Forested Deciduous/saturated Wetland (PFO1B).

Regulatory Jurisdiction: The four aquatic resource areas delineated on the Project Site appear to be regulated by the Corps of Engineers due to hydraulic connectivity to the Hudson River, a tidal and traditionally navigable water located approximately 900 feet to the west from the Project Site. None of the aquatic resource areas are regulated by the NYSDEC. The stream which flows along the southern and eastern boundaries of the Project Site is Class/Standard C, and thus not regulated by the NYSDEC. The NYSDEC does not map a stream in Wetland D. The wetlands are also not mapped by the NYSDEC, and are not large enough (12.4 acres in size or greater) to be regulated by the NYSDEC. The Town of Poughkeepsie would regulate Wetlands A, B, C and D, as part of a stream corridor under the Town's Aquatic Resource Protection regulations at Chapter 116 of their Town Code. All four wetlands would therefore include a 25-foot town regulated buffer around the wetland areas.

7.3 Identified Plants

During the course of the field inspections, observed plants were noted, and identified by habitat. In addition, as discussed in Section 5.3, the Ecological Solutions Report of 2009 also listed plants commonly observed in various habitats during that site inspection. Table 4 provides a list of the plant species identified in the course of field work by Chazen as well as by Ecological Associates. The wetland indicator status of each species is also listed. Approximately 46 species of trees, 14 species of shrubs, seven species of woody vines, and approximately 100 species of herbaceous plants were identified. The list of plant species identified on the site by Chazen and Ecological Resources are generally common plants ubiquitous to disturbed or managed landscapes and habitats.

Chazen then reviewed this list compared to the 11 New York Rare Plants that are on the federal endangered species list.[65] None of these 11 plants were observed on the site. Chazen also reviewed this list compared to the NYSDEC's list of "Protected Native Plants," found at 6 NYCRR 193.3. This list is broken out into Endangered, Threatened, Rare and Exploitably Vulnerable Plants. No Endangered or Threatened plants were observed by Chazen or Ecological Solutions. Ecological Solutions noted one rare plant, *Asclepias verticillata*, Whorled Milkweed, in an upland meadow on the site; that plant was not noted by Chazen. Five plants were identified on the site which are "Exploitably Vulnerable". These were *Juglans cinerea*, White Walnut (Chazen); *Athyrium angustum*, northern lady fern (Chazen); *Dryopteris intermedia*, evergreen wood fern (Chazen); *Dryopteris spinulosa* (cathusiana), spinulose wood fern (Ecological Solutions); and *Polystichum acrostichoides*, Christmas fern (Ecological Solutions). These are noted on Table 4.[66]

According to the NYSDEC "Plant Rarity and the Law"[67] rare plants (meaning Endangered, Threatened, Rare and Exploitably Vulnerable Plants) listed at 6 NYCRR 193.3 are regulated under New York State Conservation Law section 9-1503, with Part f, reading as follows "It is a violation for any person, anywhere in the state to pick, pluck, sever, remove, damage by application of herbicides or defoliants, or carry away, **without the consent of the landowner,** [emphasis added] any protected plant. Each protected plant so picked, plucked, severed, removed, damaged or carried away shall constitute a separate violation." Violations of the regulation are subject to fines of $25 per plant illegally taken.

[65] NYSDEC. 2016. "Plant Rarity and the Law." http://www.dec.ny.gov/animals/30393.html.
[66] AKRF in completeness comments on the DEIS noted that they identified the state-endangered *Monarda clinopodia* (basil balm) in similar habitat (meadow edge) within ½ mile of the Hudson River in Dutchess County. Chazen did not observe *M. clinopodia* plant on the site. Chazen's field work was conducted on September 4, 2015, well within the flowering period for this plant. In addition, Chazen notes that this species of plant was previously considered a variety of *M. fistulosa*, a common plant, which Chazen's Dr. Futyma, an expert in plant botany, did observe on the site. The *M. clinopodia* has mainly white flowers with purple spots, while *M. fistulosa* has pale lavender flowers that sometimes may be whitish. Without careful observation, a pale-flowered *M. fistulosa* can be confused for *M. clinopodia*. There are no vouchered specimens for *M. clinopodia* for New York State in Dutchess County.
[67] Ibid.

Table 4. Plants Identified Growing on the Project Site

Scientific Name*	Common Name Status - 6 NYCRR 193.3 (R = Rare) (EV = Exploitably Vulnerable)	Wetland Indicator Status†	Habitat(s) Where Found MHF = Mixed Hardwood Forest UHF – Upland Hardwood Forest US = Upland Shrubland UM =Upland Meadow HH= Human Habitat SVW = Stream Valley Wetland SSW = Spring Seep Wetland	Identified By C=Chazen B = Both ES =Ecological Solutions
Trees				
Acer negundo	Ash-Leaf Maple	FAC	HH/LA, MHF, UHF	C
Acer platanoides	Norway Maple	UPL	HH/LA, UHF, SVW, SSW	C
Acer saccharinum	Silver Maple	FACW	UM	ES
Acer saccharum	Sugar Maple	FACU	HH/LA, UHF, MHF	B
Acer rubrum	Red Maple	FAC	MHF, Wetland	ES
Aesculus hippocastanum	Horse Chestnut	NL	HH/LA, UHF	C
Ailanthus altissima	Tree-of-Heaven	UPL	HH/LA	C
Betula alleghaniensis	Yellow Birch	FAC	UHF	C
Betula populifolia	Gray Birch	FAC	UM	ES
Betula lenta	Sweet Birch	FACU	UHF	C
Carpinus caroliniana	American Hornbeam	FAC	UHF, SVW	C
Carya cordiformis	Bitter-Nut Hickory	FAC	SSW	C
Carya glabra	Pignut Hickory	FACU	UHF	C
Carya ovata	Shag-Bark Hickory	FACU	UHF	C
Catalpa sp.	Catalpa	FACU	HH/LA	C
Celtis occidentalis	Common Hackberry	FAC	HH/LA, SVW	C
Cercis canadensis	Redbud	FACU	HH/LA	C
Fraxinus americana	White Ash	FACU	HH/LA, MHF	B
Fraxinus pennsylvanica	Green Ash	FACW	SVW	C
Juglans cinerea	White Walnut **(EV)**	FACU	HH/LA	C
Juglans nigra	Black Walnut	FACU	HH/LA, UHF, SVW	C
Juniperus virginiana	Eastern Red-Cedar	FACU	MHF, UM	B
*Larix decidua^*	European Larch	NL	HH/LA, UHF	C (ES^)
Liriodendron tulipifera	Tulip Tree	FACU	UHF, SVW	B
Morus sp.	Mulberry	FACU	HH/LA	C
Ostrya virginiana	Eastern Hop Hornbeam	FACU	MHF	ES
Picea abies	Norway Spruce	NL	HH/LA, MHF	B
Pinus nigra	Austrian Pine	NL	MHF	C
Pinus resinosa	Red pine	FACU	MHF	ES
Pinus strobus	Eastern White Pine	FACU	HH/LA, MHF, UM	B
Platanus occidentalis	American Sycamore	FACW	HH/LA, SVW	C
Populus balsamifera	Balsam Poplar	FACW	HH/LA	C
Populus deltoides	Eastern Cottonwood	FAC	HH/LA,	C

Scientific Name*	Common Name Status - 6 NYCRR 193.3 (R = Rare) (EV = Exploitably Vulnerable)	Wetland Indicator Status†	Habitat(s) Where Found MHF = Mixed Hardwood Forest UHF – Upland Hardwood Forest US = Upland Shrubland UM =Upland Meadow HH= Human Habitat SVW = Stream Valley Wetland SSW = Spring Seep Wetland	Identified By C=Chazen B = Both ES =Ecological Solutions
Prunus pensylvanica	Fire Cherry	FACU	UHF	C
Prunus serotina	Black Cherry	FACU	UHF	B
Quercus alba	Northern White Oak	FACU	UHF, MHF	B
Quercus palustris	Pin Oak	FACW	HH/LA	C
Quercus rubra	Northern Red Oak	FACU	UHF, MHF	B
Quercus velutina	Black Oak	NL	HH/LA, UHF, MHF	B
Robinia pseudoacacia	Black Locust	FACU	HH/LA, UHF, MHF, SVW	C
Salix nigra	Black Willow	OBL	SVW	C
Salix X sepulcralis	Weeping Willow	FACW	SSW	C
Tilia americana	American Basswood	FACU	UHF	C
Tsuga canadensis	Eastern Hemlock	FACU	MHF	B
Zelkova sp.	Zelkova	NL	HH/LA	C
Shrubs				
Berberis thunbergii	Japanese Barberry	FACU	HH/LA, UHF	C
Cornus alternifolia	Alternate-Leaf Dogwood	FACU	SSW, UHF	C
Cornus racemosa	Grey dogwood	FAC	MHF	ES
Forsythia viridissima	Green-Stemmed Forsythia	NL	HH/LA,	C
Hamamelis viginiana	Witch Hazel	FACU	HH/LA,	ES
Ligustrum vulgare	European Privet	FACU	SVW, SSW	C
Lindera benzoin	Northern Spicebush	FACW	MHF	C
Lonicera spp.	Honeysuckle	unknown	HH/LA	B/ES
Philadelphus floridus	Mock Orange	NL	HH/LA,	C
Rhamnus cathartica	European Buckthorn	FAC	HH/LA, UHF, UM, US	C
Rhus typhina	Staghorn Sumac	NL	UM	B
Rosa multiflora	Rambler Rose	FACU	HH/LA, MHF, UM, SVW,	B
Salix discolor	Pussy-Willow	FACW	SVW	C
Viburnum sieboldii	Siebold's Viburnum	NL	UHF	C
Woody Vines				
Ampelopsis brevipedunculata	Porcelain Berry	NL	HH/LA	C
Celastrus orbiculatus	Asian Bittersweet	UPL	HH/LA, UHF, UM, US	C
Lonicera japonica	Japanese Honeysuckle	FACU	HH/LA	
Parthenocissus quinquefolia	Virginia-Creeper	FACU	HH/LA, UHF, MHF, UM, US	B
Toxicodendron radicans	Eastern Poison Ivy	FAC	HH/LA, UHF, MHF, UM, US	B
Vitis labrusca	Fox Grape	FACU	MHF	ES
Vitis riparia	River-Bank Grape	FAC	HH/LA, UHF, MHF, UM, US	C

Scientific Name*	Common Name Status - 6 NYCRR 193.3 (R = Rare) (EV = Exploitably Vulnerable)	Wetland Indicator Status†	Habitat(s) Where Found MHF = Mixed Hardwood Forest UHF – Upland Hardwood Forest US = Upland Shrubland UM =Upland Meadow HH= Human Habitat SVW = Stream Valley Wetland SSW = Spring Seep Wetland	Identified By C=Chazen B = Both ES =Ecological Solutions
Herbaceous Plants				
Achillea millefolium@	Common yarrow	FACU	UM	ES
Ageratina altissima	White Snakeroot	FACU	HH/LA, UHF, SVW	C
Alliaria petiolata	Garlic-Mustard	FACU	HH/LA, MHF	B
Ambrosia artemisiifolia	Annual Ragweed	FACU	HH/LA, UM	C
Andropogon scoparius (Schizachyrium scoparium	Little Bluestem	FACU	UM	ES
Andropogon virginicus	Broom sedge	FACU	UM	ES
Anthriscus sylvestris	Wild Chervil	NL	HH/LA	C
Artemisia vulgaris	Common Wormwood	UPL	HH/LA, UM	C
Asclepias syriaca	Common Milkweed	UPL	HH/LA, UM	B
Asclepias verticillata	Whorled Milkweed **(R)**	UPL	UM	ES
Aster# *spp.*	Wild Aster	unknown	UM	ES
Athyrium angustum	Northern Lady Fern **(EV)**	FAC	UHF	C
Bromus inermis	Smooth Brome	UPL	UM	ES
Centaurea jacea	Brown-Ray Knapweed	FACU	HH/LA, UM	C
Centaurea stoebe (maculosa)	Spotted Knapweed	NL	HH/LA, UM	B
Chelidonium majus	Greater Celandine	UPL	UHF	C
Leucanthemum vulgare (Chrysanthemum leucanthemum)	Ox-eye Daisy	UPL	UM	ES
Cichorium intybus	Chicory	FACU	HH/LA, UM	C
Cinna latifolia	Slender Wood-Reed	FACW	SVW	C
Cirsium spp.	Thistle	unknown	UM	ES
Cirsium arvense	Canadian Thistle	FACU	HH/LA, UM	C
Convolvulus spp.	Bindweed	unknown	UM	ES
Coronilla varia	Common Crown-Vetch	NL	HH/LA, UM	C
Cuscuta sp.	Dodder	unknown	HH/LA, UM, US, SVW	C
Dactylis glomerata	Orchard Grass	FACU	HH/LA, UM	C
Daucus carota	Queen Anne's-Lace	UPL	HH/LA, UM	B
Dianthus deltoides	Maiden Pink	UPL	UM	ES
Dichanthelium clandestinum (Panicum clandestinum)	Deer-Tongue Rosette Grass Deer-Tongue Grass	FACW	UM	B
Digitaria sp. (*sanguinalis)*	Crab Grass	unknown	UM	C/ES
Dryopteris intermedia	Evergreen Wood Fern **(EV)**	FAC	UHF	C
Dryopteris spinulosa	Spinulose Wood Fern **(EV)**	FACW	MHF	ES

Scientific Name*	Common Name Status - 6 NYCRR 193.3 (R = Rare) (EV = Exploitably Vulnerable)	Wetland Indicator Status†	Habitat(s) Where Found MHF = Mixed Hardwood Forest UHF – Upland Hardwood Forest US = Upland Shrubland UM =Upland Meadow HH= Human Habitat SVW = Stream Valley Wetland SSW = Spring Seep Wetland	Identified By C=Chazen B = Both ES =Ecological Solutions
(carthusiana)				
Elymus repens	Creeping Wild Rye	FACU	HH/LA, UM	C
Epilobium coloratum	Purple-Leaf Willowherb	OBL	SVW	C
Erigeron annuus	Daisy fleabane	FACU	UM	B
Erythronium americanum	Trout Lily	NL	MHF	ES
Euphorbia maculata	Spotted Sandmat	FACU	HH/LA	C
Euthamia graminifolia	Flat-Top Goldentop	FAC	HH/LA, UM, SVW	C
Fallopia convolvulus	Black-Bindweed	FACU	HH/LA, UM	C
Festuca elatior (Schetomoress arundinaceuss)	Meadow Fescue	NL	UM	ES/C
Fragaria virginiana	Wild Strawberry	FACU	MHF, UM	ES
Galium spp.	Bedstraw	Unknown	UM	ES
Geranium maculatum	Wood Geranium	FACU	MHF	ES
Geum canadense	White Avens	FAC	UM, SVW	C
Glyceria striata	Fowl Manna Grass	OBL	SVW	C
Hackelia virginiana	Beggar's-Lice	FACU	HH/LA, UHF, UM	C
Hesperis matronalis	Mother-of-the-Evening	FACU	SVW	C
Impatiens capensis	Spotted Touch-Me-Not	FACW	SVW	C
Leersia oryzoides	Rice Cut Grass	OBL	SVW	C
Lobelia siphilitica	Great Blue Lobelia	FACW	SVW	C
Lotus corniculatus	Garden Bird's-Foot-Trefoil	FACU	HH/LA, UM	C
Lycopodium sp.	Clubmoss	unknown	MHF	ES
Lythrum salicaria	Purple Loosestrife	OBL	HH/LA, SVW	C
Microstegium vimineum	Japanese Stilt Grass	FAC	HH/LA, UHF, UMF, UM, VW	C
Monarda fistulosa	Oswego-Tea	FACU	UM	C
Nasturtium officinale	Watercress	OBL	SSW	C
Oclemena acuminata	Whorled Nodding-Aster	FACU	UHF	C
Oenothera biennis	King's-Cureall	FACU	HH/LA, UM	C
Onoclea sensibilis	Sensitive Fern	FACW	UM, SVW	C
Persicaria punctata	Dotted Smartweed	OBL	SVW	C
Persicaria sagittata	Arrow-Leaf Tearthumb	OBL	SVW	C
Persicaria virginiana	Jumpseed	FAC	UHF, SVW	C
Phalaris arundinacea	Reed Canary Grass	FACW	SVW, UM	B
Phlem pretense	Timothy	FACU	UM	ES
Phragmites australis	Common Reed	FACW	SVW	C

Scientific Name*	Common Name Status - 6 NYCRR 193.3 (R = Rare) (EV = Exploitably Vulnerable)	Wetland Indicator Status†	Habitat(s) Where Found MHF = Mixed Hardwood Forest UHF – Upland Hardwood Forest US = Upland Shrubland UM =Upland Meadow HH= Human Habitat SVW = Stream Valley Wetland SSW = Spring Seep Wetland	Identified By C=Chazen B = Both ES =Ecological Solutions
Phytolacca americana	Pokeweed	FACU	UM	ES
Pilea pumila	Canadian Clearweed	FACW	UHF, SVW, SSW	C
Poa pratensis	Kentucky Blue Grass	FACU	HH/LA, UM	B
Polygonum[+] *spp.*	smartweed	unknown	UM	ES
Polystichum acrostichoides	Christmas Fern **(EV)**	FACU	MHF	ES
Ranunculus hispidus	Bristly Buttercup	FAC	SVW, SSW	C
Reynoutria japonica	Japanese-Knotweed	FACU	HH/LA, UHF, SVW	C
Rubus flagellaris	Whiplash Dewberry	FACU	HH/LA, UHF, UM, US	C
Rubus occidentalis	Black Raspberry	NL	HH/LA, MHF, US	B
Rubus phoenicolasius	Wine Raspberry	FACU	HH/LA, US, UM	C
Rudbeckia hirta	Black-eyed Susan	FACU	UM	ES
Rumex obtusifolius	Bitter Dock	FAC	HH/LA, UM	C
Sanicula marilandica	Maryland Black-Snakeroot	FACU		C
Schedonorus arundinaceus (Festuca elatior)	Tall False Rye Grass	FACU	HH/LA, UM	C/ES
Setaria faberi	Japanese Bristle Grass	FACU	HH/LA, UM	C
Smilacina racemosa (Maianthemum racemosum)	False Solomon's seal	FACU	MHF	ES
Smilax herbacea	Carrion flower	FAC	MHF	ES
Solanum dulcamara	Climbing Nightshade	FAC	HH/LA, UM, US, SVW	C
Solidago spp.	Goldenrod	unknown	UM	ES
Solidago canadensis	Canadian Goldenrod	FACU	HH/LA, UM	B
Solidago gigantea	Late Goldenrod	FACW	SVW	C
Solidago juncea	Early Goldenrod	NL	HH/LA, UM	C
Solidago rugosa	Rough-stemmed Goldenrod	FAC	UM	ES
Solidago speciose[=]	Showy Goldenrod		UM	ES
Symphyotrichum lanceolatum	White Panicled American-Aster	FACW	HH/LA, UM	C
Symphyotrichum pilosum	White Oldfield American-Aster	FACU	HH/LA, UM	C
Symplocarpus foetidus	Skunk-Cabbage	OBL	SVW, SSW	B
Trifolium spp.	Clover	unknown	MHF	ES
Trifolium pratense	Red Clover	FACU	HH/LA, UM	C
Tussilago farfara	Colt's-Foot	FACU	UHF	C
Typha angustifolia	Narrow-Leaf Cat-Tail	OBL	UVM	C
Veratrum viride	False hellebore	FACW	SVW	ES

Scientific Name*	Common Name Status - 6 NYCRR 193.3 (R = Rare) (EV = Exploitably Vulnerable)	Wetland Indicator Status†	Habitat(s) Where Found MHF = Mixed Hardwood Forest UHF – Upland Hardwood Forest US = Upland Shrubland UM =Upland Meadow HH= Human Habitat SVW = Stream Valley Wetland SSW = Spring Seep Wetland	Identified By C=Chazen B = Both ES =Ecological Solutions
Verbascum thapsus	Great Mullein	UPL	HH/LA, UM	C
Vicia cracca	Cow Vetch	NL	HH/LA, UM	C
Viola spp	Violet	unknown	MHF	ES
Vinca minor	Periwinkle	NL	UHF	C

- *Scientific names, common names, and wetland indicators are obtained from the National Wetland Plant List (US Army Corps of Engineers, 2014). For plants not on the list (i.e. having an "NL" wetland indicator), scientific and common names are taken from Weldy et al. (2015).
- †The Wetland Indicator refers to the affinity of the plant for wetland environments:
- Obligate Wetland (OBL) = Almost always occur in wetlands
- Facultative Wetland (FACW) = Usually occur in wetlands, but may occur in non-wetlands
- Facultative (FAC) = Occur in wetlands or non-wetlands
- Facultative Upland (FACU) = Usually occur in non-wetlands, but may occur in wetlands
- Obligate Upland (UPL) = Almost never occur in wetlands
- Plants not on the list (NL) are considered to be the same as UPL for delineation purposes.
- ^ - This plant was identified as Larix larcina by Ecological Solutions. Chazen believes it is planted species, specifically European Larch, *Larix decidua*.
- @ The Ecological Solutions Report, page 26, identified this as common yarrow (*Achillea nudifolium*). This was likely a typographical error of the species name. The scientific name of common yarrow is *Achillea millefolium*.
- # - Subsequent to 2009, plants that were formerly placed in the genus Aster have been moved to other genera, including Oclemena and Symphyotrichum.
- + - Many plants that were formerly placed in the genus Polygonum have been moved to other genera, including Fallopia, Persicaria and Reynoutria
- = This goldenrod species, included in Ecological Solutions 2009 report, is not known to exist.

7.4 Trees with Crevices, Snags, Exfoliating Bark

During the field investigation, the trees on site were reviewed for their potential to serve as bat roosting habitat. In general, the trees on the site range from small saplings to larger trees. Many of the trees identified as potential bat roosting trees were trees planted for landscaping, specifically sugar maples and oaks which, due to their age and size, had developed crevices, rot, snags, or crags. Many of these trees constitute "danger trees" and would need to be removed under any scenario. However, these trees were generally not within "forested" areas, but rather stood alone within planted wooded groupings. Within the forested portions of the Project Site, other trees were observed with characteristics that would constitute roosting habitat and would be available for use by any roosting bat species. A number of the trees identified are noted on Figure 13, which provides approximate locations; corresponding photographs found in Attachment 6, as are photos other trees and general habitat.

8. ANALYSIS OF POTENTIAL IMPACTS AND MITIGATION

The following assess potential impacts on plant communities, plants, birds and herptofauna based on the proposed development plan for the site and the identification of potential resources that may occur on the site resulting from Mapping, Record and Literature Reviews, and Chazen's site inspection.

8.1 Ecological Communities

In order to assess potential impacts on ecological communities, the proposed development limits were overlain on Figure 13, Habitat Communities, to develop Figure 14, Habitat Communities Impacted Conditions Map. Table 2, Exiting Habitat Areas on the Project Site, identifies the areas and percent coverage of these different habitats.

Table 5. Impacts to Community Habitats

Habitat Name	Area (Acres)	Percent Coverage	Impacted Area (Acre)	Retained Community Area (Acre)	Percent Community Retained
Upland Hardwood Forest	20.94	13%	-7.56	13.38	64%
Mixed Hardwood Forest	4.88	3%	-4.52	0.36	7%
Upland Shrubland	8.69	6%	-2.34	6.35	73%
Upland Meadow	44.30	28%	-15.66	28.64	65%
Human Habitat	76.39	49%	+30.08	106.47	139%
(Impervious)	(35.50)	(23%)	(+28.01)	(63.51)	(179%)
(Non-Impervious)	(40.89)	(26%)	(+2.07)	(42.96)	(105%)
Aquatic Resources	0.7	<1%	0	0.7	100%
TOTAL	**155.90**	**100%**	**30.08 (Changed)**	**155.9**	

This analysis demonstrates that approximately 68% of the Project Site will be impacted by the development, with 32% of the Project Site retained in its natural condition. Of these impacts, the majority of impacts (76.39 acres of the 106.47 acres impacted or 72% of impacts) are located within the already disturbed and poor habitat quality Human Habitat, with all of this community being reused for the development. Approximately 93% of the low quality mixed hardwood forest is also being impacted. In contrast, more important ecological resources are being retained on site. There are no impacts to the aquatic resources on the site. Approximately 64% of the upland hardwood forest, 65% of the upland meadow and 73% of the upland shrubland habitats are being retained. There are also no impacts proposed to the bedrock outcrop found within the Upland Hardwood Forest in the northwestern portion of the site near Wetland D.

Given that the project focuses redevelopment within areas already impacted by development and the lower quality mixed hardwood forest, no additional mitigation is anticipated to be required for ecological communities.

LEGEND	HABITAT NAME	EXISTING AREA (ACRES)	PROPOSED AREA (ACRES)	IMPACTED AREA (ACRES)
	UPLAND HARDWOOD FOREST	20.94	13.38	−7.56
	MIXED HARDWOOD FOREST	4.88	0.36	−4.52
	UPLAND SHRUBLAND	8.69	6.35	−2.34
	UPLAND MEADOW	44.30	28.64	−15.66
	AQUATIC RESOURCES	0.70*	0.70*	0.00
	HUMAN HABITAT – IMPERVIOUS	35.50	63.51	+28.01
	HUMAN HABITAT – NON–IMPERVIOUS	40.89	42.96	+2.07
	TOTAL SITE	155.90		

SEVERAL OF THE DELINEATED WETLANDS EXTEND BEYOND THE SUBJECT PROPERTY, EQUATING TO AN ADDITIONAL 0.377 ACRES OF ASSOCIATED OFF–SITE WETLAND.

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HUDSON HERITAGE

HABITAT COMMUNITY IMPACTED CONDITIONS MAP

TOWN OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK

designed	checked
CJL	
date 11/30/15	scale 1"=500'
project no. 81402.00	
sheet no. FIG 14	

Drawing Name: Z:\projects\81400–81499\81402.00 – Hudson Heritage\DWG\51_FIG14_81402–00_HABITAT COMMUNITIES IMPACTED.dwg Date Printed: Aug 04, 2016, 4:26pm

8.2 Aquatic Resources

As stated in Section 8.2, Table 5, and as illustrated in Figure 14, there are no impacts to aquatic resources on the Project Site or the Town's regulated 25 foot buffer. No permits are required from the Corps of Engineers or the Town of Poughkeepsie to implement the proposed project. Given that there are no significant impacts, no additional mitigation is anticipated to be required for aquatic resources.

Regarding floodplains, the Town Code regulations are designed to prevent flood damage. The Hudson Heritage project will be designed to either avoid impacts to floodplains or to comply with the requirements of the Town Code regarding floodplains. See DEIS Section 3.6.

8.3 Plant Species

The list of plant species identified on the site by Chazen and Ecological Resources are generally common plants ubiquitous to disturbed or managed landscapes and habitats. No state-listed endangered or threatened species are found on the site. One rare plant species was identified by Ecological Solutions, and five exploitably vulnerable species are noted on the site. This designation is a protection for the land owner against illegal collection of plant species., The proposed project focuses impacts on already disturbed and landscaped areas. The project will not result in a significant adverse impact to plant species. Given that there are no significant impacts, no additional mitigation is anticipated to be required for plant resources.

8.4 Federal Species

As discussed in Sections 5.1 and 5.3 of this report, two federally and state listed species, the Indiana bat and the northern long-eared bat were identified as being in the range of the Project Site by the USFWS and as having supporting habitat (wooded habitat) on-site, such that additional review was warranted. The on-site review demonstrated the presence of tree species that could support these two bat species.

On July 15, 2015, Chazen wrote to the USFWS describing the existing conditions on the Project Site and the proposed project to request whether there would need for a site specific Phase II Presence/Absence Survey for Indiana or Northern long-eared bats would need to be completed. See Attachment 1. The letter reviewed the project in relationship to 2015 Range-Wide Indiana Bat Summer Survey Guidelines. Regarding initial consultation, it noted that the NYNHP did not identify any occurrence records for the Indiana or northern long-eared bats in the vicinity of the project. However, given the wooded habitat, it was presumed that suitable habitat for the Northern long-eared bat and Indiana bat would be present. The guidelines state that even if the project may result in adverse effects to the Indiana and Northern long-eared bats, if those impacts can be adequately assessed and conservation measures can be designed to minimize those effects without additional presence/absence information, then no further summer surveys are necessary. In this case, the guidance document states that the applicant should "coordinate with the USFWS Field Office regarding an assessment of the project's potential effects, development of conservation measures, and determination of any need for any ESA Incidental Take Authorizations."

It was Chazen's opinion that it is possible to adequately assess potential impacts to bat habitat in the areas where tree clearing is proposed and to devise conservation measures to protect the bats. That would involve a review of the affected areas and assessment of the trees for characteristics that provide habitat for the bats. Potential conservation measures may be as simple as conducting tree clearing during the period for late fall to late winter, when the bats are not likely to be present. The letter also

presented figures illustrating approximately 25.69 acres of wooded habitat on the site, with an estimated disturbance at that time of 7.92 acres, leaving approximately 17.77 acres (70%) of the wooded habitat intact on the site.

By email dated July 23, 2015 (see Attachment 1), Robyn Niver of the USFWS responded that she agreed with Chazen's assessment that bat presence/absence surveys would not be required for this project given that winter clearing seems to be a viable option and the USFWS better understands the nature of the proposed tree removal. She requested that Chazen send another letter with the assessment of impacts based on acreage, distribution of tree removal and proposed conservation measures, and whether any federal agencies would be involved (i.e., is the project to be reviewed under Section 7 or Section 10 of the Endangered Species Act).

As described in Section 7.4, during the on-site review, photos of trees with features such as crevices, snags, and less so exfoliating bark were taken. Examples of these trees are provided in Attachment 6, Photographs of the Project Site, and locations noted on Figure 13. These features are described in Section 7.4.

As shown in Table 5 above, the project impacts 7.56 acres (36%) of the upland hardwood forest, leaving 64% of this plant community in place. The project impacts approximately 4.52 acres (93%) of the lower quality mixed hard wood forest. Clearing wooded vegetation, during the winter months, when bats would not be present on the site, will reduce potential direct impacts to the species. Given that there are no impacts to wetlands associated with this project, and no federal funding, the Endangered Species Review would be under Section 10. Under the guidelines, the landowner will provide a letter to the USFWS finalizing the assessment of impacts, and asking for concurrence that the project will not result in Take of the species, given the conservation measures that will be implemented to avoid take. Since the NYSDEC has no record of this species present on the site, no additional review by the NYSDEC is required.

8.5 State Endangered and Threatened Species

Sturgeon: As discussed in Section 4.2, two state listed species were identified by the NYNHP as occurring in the vicinity of the Project Site, the shortnose sturgeon and the Atlantic sturgeon. Both species occur specifically in the Hudson River. The project will have no impacts on the Hudson River, and so no additional review is required.

The discussions in Section 5.2, 6.2, 6.4 and 6.5 concluded that that the bald eagle, peregrine falcon, bog turtle (also federally listed), cricket frog, Blanding's turtle, and timber rattlesnake were highly unlikely to be present on the site. Therefore, no impacts are anticipated and no additional mitigation is anticipated to be required.

8.6 State Species of Special Concern

State species of special concern are not regulated by the NYSDEC.

Birds: The discussions in Section 6.4 identified that the osprey, sharp-shinned hawk, Cooper's hawk, Red-Shoulder Hawk, Cerulean warbler are unlikely to utilize the site for breeding due to the small forest patch sizes or lack of other suitable habitat characteristics. Since these species are unlikely to be present, no impacts are anticipated and no additional mitigation is anticipated to be required.

Herptofauna: The discussions in Section 6.5 identified that presence was possible but unlikely for spotted turtle, marbled salamander, Jefferson salamander, blue spotted salamander and wood turtle due to a lack of suitable habitat on the site. Even if these species are present on the site, the habitat in Wetland B and C and areas of adjacent upland woods will not be impacted by the proposed project. Therefore, no impacts are anticipated, and no additional mitigation is anticipated to be required.

The Box Turtle was observed on site in uplands by Ecological Solutions (see Section 6.3). Development is located adjacent to the observation point, but a significant area of shrubland and upland meadow is proposed to remain where this species was found. A box turtle typically occupies a little over a one-acre range (an area approximately the size of a football field). The habitat in the location where the turtle was found is not being modified. The area south and west of the location where the turtle was found, extending south to the main access road, and west to NYS Route 9, which contains shrubland, woodland and meadow habitat, is not proposed to be changed, except that western portion of the main access road is being realigned and the 25-foot deep depression is being used for stormwater infiltration. The realignment of the western access road is likely out of the range of the turtle, and the use of the depression for infiltration may improve the turtle habitat by providing an intermittent source of water for the species. The area to the east of the location where the turtle was found is previously developed; those limits are not changing. To the north is an approximately 350-foot by 350-foot area, separated from this location by the existing secondary gravel/paved access road. This area currently contains buildings and other developed and landscaped areas under a planted evergreen canopy. The area is being modified for development of residential homes. To the north of this area, the existing meadow and shrub community is being maintained. No additional mitigation is anticipated to be required.

8.7 Other Bird Species

As discussed in Section 6.4, the site does not contain any unique, special or rare habitats. The forested areas on site are highly fragmented and too small to support true woodland breeders. Similarly, the meadow areas are fragmented, with the two largest patches of 15 acres, much of which is impacted by the invasive common wormwood species. Therefore, most breeders on the site will be open wood, fringe and field birds, including most of the common backyard birds typically found in Eastern New York.

As shown in Table 5 above, the project focuses impacts on to the already developed areas of the site, with 72% of the project development occurring in already developed areas. The project will impact approximately 7.56 acres (36%) of the upland hardwood forest, 4.52 acres (93%) of the lower quality mixed hard wood forest, and 15.66 acres (35%) of the upland meadow. Removing these habitat areas is unlikely to reduce the number of species that nest on the site; it may reduce the numbers of individuals nesting on the site (at least until they adjust to the disturbances). Avoiding the removal of vegetation during breeding and fledgling periods (i.e., avoid cutting from April 1 to August 1) will reduce impacts on bird species as this will be outside of nesting and fledgling seasons. No additional mitigation is anticipated to be required.

8.8 Other Herptofauna

As discussed in Section 6.5, it is Chazen's assessment that other herptofauna will be limited to habitat generalists capable of living in disturbed habitats or a variety of habitats. This is due to the lack of vernal pools or other open water bodies on the site; the lack of significant wetland habitats on site; the fragmentation of the stream corridor in the eastern and southern portion of the site, and the fact that the remaining upland habitat has been adversely impacted by the presence of common wormwood and other invasives. Finally, while much of the mapped upland soils on the site are identified as friable,

where those soils were developed (i.e., areas mapped as Hoosic-Urban Land Complex), the use of those soils for herptofauna may be limited by the prior development. The presence of asphalt and building materials reduce the "burrowing potential" of the soils. In addition, prior development of the Project Site in the southern and eastern sections of the Project Site, immediately adjacent to Wetland A and B, reduce the habitat potential of the Project Site, as this development increases the distance that must be traveled by herptofauna from a water source to undeveloped/undisturbed uplands.

Any herptofauna found on the site will be likely be habitat generalists capable of living in disturbed habitats or in a variety of habitats. As discussed previously, there are no impacts to aquatic resources or their Town-regulated buffer area. Development is mainly focused within previously developed areas. This reduces potential impacts to the generalist herptofauna species present on the site. No additional mitigation is anticipated to be required.

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ATTACHMENT 1

USFWS Review and Coordination

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 LUKER ROAD
CORTLAND, NY 13045
PHONE: (607)753-9334 FAX: (607)753-9699
URL: www.fws.gov/northeast/nyfo/es/section7.htm

Consultation Code: 05E1NY00-2015-SLI-0899 May 18, 2015
Event Code: 05E1NY00-2015-E-02431
Project Name: 81402.00 Hudson Heritage Park Development

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

To Whom It May Concern:

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

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

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

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

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

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

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: 81402.00 Hudson Heritage Park Development

Official Species List

Provided by:

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

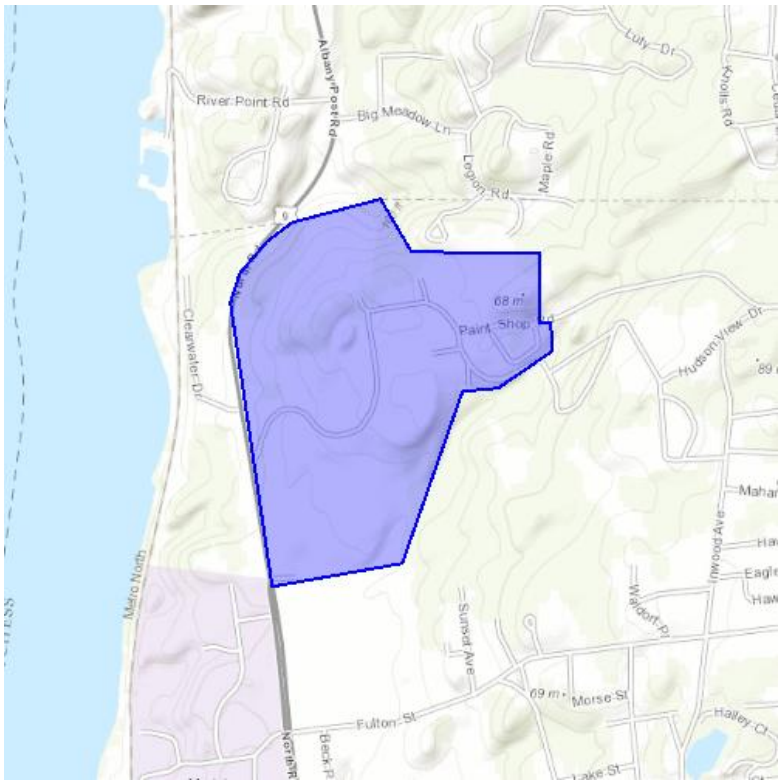
Consultation Code: 05E1NY00-2015-SLI-0899
Event Code: 05E1NY00-2015-E-02431

Project Type: DEVELOPMENT

Project Name: 81402.00 Hudson Heritage Park Development
Project Description: The proposed project involves the development of the land for a mixed-use pedestrian-oriented residential and commercial development. The project site is located off of Route 9 in the Town of Poughkeepsie, Dutchess County, NY. The geographic coordinates of the approximate project site centroid are 41Â°43'55.00"N, 73Â°55'50.00"W.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-73.93165826797485 41.73649497476632, -73.92858982086182 41.737119440586035, -73.92753839492798 41.73572639311449, -73.92305374145508 41.73571038089894, -73.9230751991272 41.733884962158974, -73.92266750335693 41.7339009748296, -73.92264604568481 41.733164387848866, -73.92451286315918 41.732219622617265, -73.92575740814208 41.73212354401866, -73.92783880233765 41.72765573047684, -73.93240928649902 41.7270632014019, -73.933846950531 41.73439736563922, -73.93352508544922 41.73516596319505, -73.93253803253174 41.73603062445146, -73.93165826797485 41.73649497476632)))

Project Counties: Dutchess, NY

Endangered Species Act Species List

There are a total of 4 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Clams	**Status**	**Has Critical Habitat**	**Condition(s)**
Dwarf wedgemussel *(Alasmidonta heterodon)* Population: Entire	Endangered		
Mammals			
Indiana bat *(Myotis sodalis)* Population: Entire	Endangered		
New England Cottontail *(Sylvilagus transitionalis)*	Candidate		
Northern long-eared Bat *(Myotis septentrionalis)*	Threatened		

Critical habitats that lie within your project area

There are no critical habitats within your project area.

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www.chazencompanies.com

Hudson Valley Office (845) 454-3980
Capital District Office (518) 273-0055

July 22, 2015

Ms. Robyn Niver
Endangered Species Biologist
U.S. Fish and Wildlife Service
New York Ecological Field Services Office
3817 Luker Road
Cortland, NY 13045

Re: Indiana bat and northern Long-eared bat
Hudson Heritage Project, 3532 North Road/U.S. Route 9,
Town of Poughkeepsie, Dutchess County, New York
Job # 81402.00

Dear Ms. Niver:

The Chazen Companies are assisting EFG/DRA Heritage, LLC, in creating a plan for the redevelopment of the former Hudson River Psychiatric Center property in the Town of Poughkeepsie. As part of the initial review, we have contacted the New York Natural Heritage Program (NYNHP) to identify state records of occurrences in the vicinity of the project site, and we have also reviewed the USFWS IPAC website. We have also reviewed the USFWS' July 9, 2015 letter to Mr. Cantor.

As you know, the IPAC records indicates that the site is located within the range of the Indiana bat (*Myotis sodalis*) and the northern long-eared bat (*Myotis septentrionalis*). However, the files of the New York Natural Heritage Program do not contain any records of either bat species occurring on or near the project site (see attached copies of correspondence with NYNHP).

Attached is a map of the existing ecological conditions on the project site. Woodland patches and isolated trees cover approximately 16% of the property. Given that this site was landscaped some time ago, and that the trees are likely greater than 3" dbh, there is the possibility that the trees on the site have the potential to serve as summer roosting habitat. The current proposed master plan, also attached, shows that the area covered by trees and woodland will decrease to approximately 11% cover following development. Consequently, there is likely to be removal of trees that could serve as summer roosting habitat for maternity colonies of both bat species.

We have consulted the "2015 Range-Wide Indiana Bat Summer Survey Guidelines" for guidance on conducting initial project screening and determining whether Phase II presence/absence surveys should be completed. We assume that the same guidelines would apply to the northern long-eared bat.

Given that the NYNHP has no occurrence records, we presume under Phase 1 - Initial Project Screening, Step 1, that "the project is located outside a known maternity colony home range." We are therefore directed to Step 2. Question a of Step2 asks whether there is suitable habitat within the project area. The answer to that is affirmative. Step 3 states that if the project may result in adverse effects to Indiana bat, but the impacts can be adequately assessed and conservation measures can be designed to minimize those effects without additional presence/absence information, then no further summer surveys are necessary. In this case, the guidance document states "coordinate with the USFWS FO regarding an assessment of the project's potential effects, development of conservation measures, and determination of any need for any ESA Incidental Take authorizations."

It is Chazen's opinion that it is possible to adequately assess potential impacts to bat habitat in the areas where tree clearing is proposed to take place and to devise conservation measures to protect the bats. That would involve a review of the affected areas and assessment of the trees for characteristics that provide habitat for the bats. Potential conservation measures may be as simple as conducting all clearing during the period from late fall to late winter, when the bats are not likely to be present.

Therefore, we would like to open an initial informal review with USFWS, beginning with discussion of options that would avoid the need for in-field surveys for the bats.

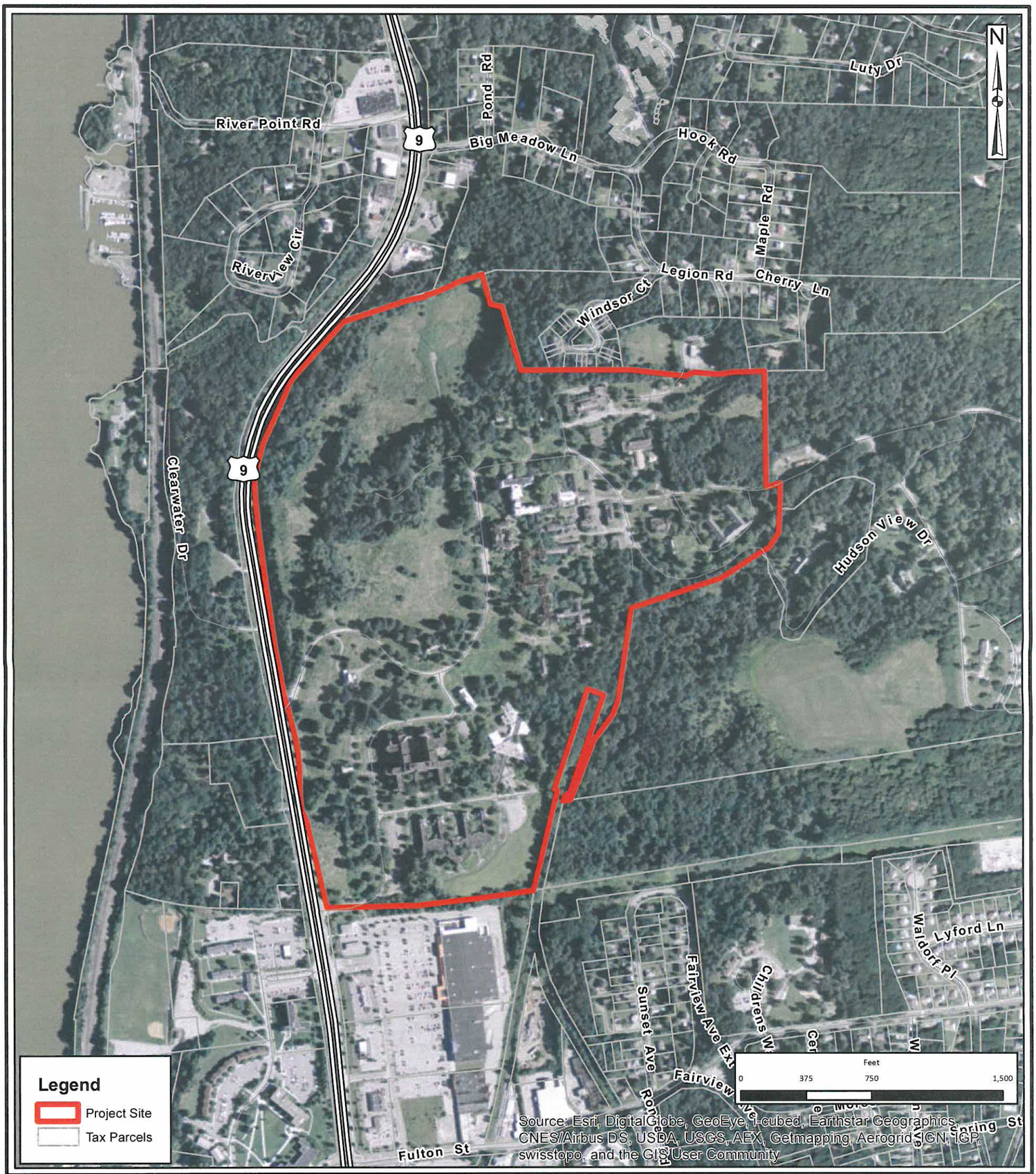
Please contact me at your earliest convenience to discuss how we may proceed on this matter.

Sincerely,

Barbara B. Beall
Director, Natural Resource Services

BBB/bbb
Encl. – Existing and Proposed Woodland Cover Map

cc: Stuart Mesinger, Chazen



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Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

North Country Office:
375 Bay Road, Queensbury, NY 12804
Phone: (518) 812-0513

Hudson Heritage Park

Orthophoto Tax Map

Town of Poughkeepsie - Dutchess County, New York

Drawn:	GHM
Date:	05/13/2015
Scale:	1 inch=750 feet
Project:	81402.00
Figure:	2

Document Path: S:\8\81400-81499\81402.00 - Hudson Heritage\GIS\Maps\81402_00_Orthophoto_8x11.mxd

TOTAL PROPERTY ACREAGE=155.90
TOTAL WOODS ACREAGE= 25.69

CONCEPT PLAN - NOT FOR CONSTRUCTION

HUDSON HARRITAGE

EXISTING CONDITIONS MAP

TOWN OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK

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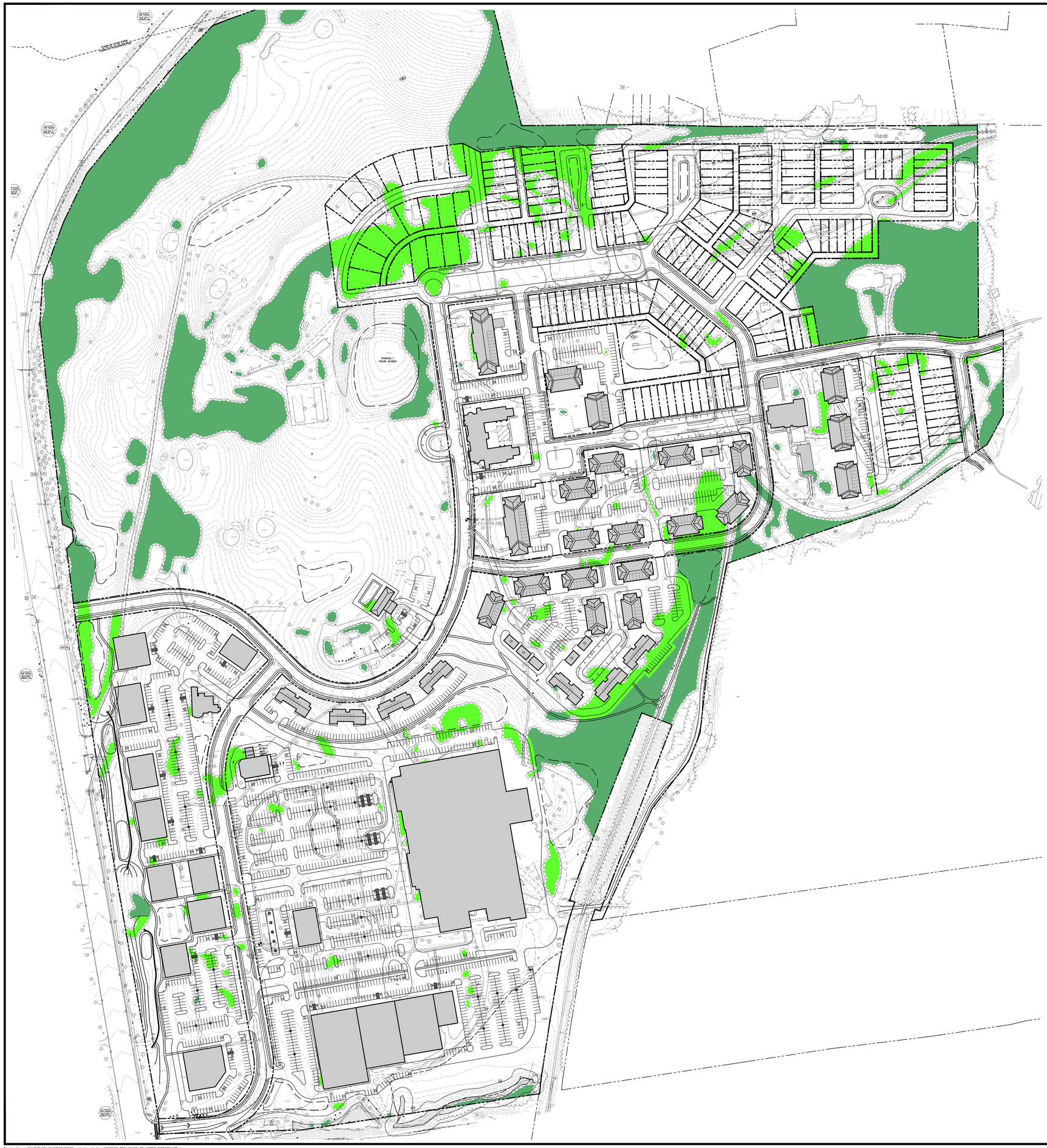
Capital District Office: 547 River Street, Troy, New York 12180 Phone: (518) 273-0055
Mohawk Valley Office: 310 Rte 9W, Marlboro, New York 12542 Phone: (845) 802-0513

rev.	date	description

drawn	checked
C.E.	
date 7/22/22	scale 1"=100'
project no. 81402.00	
sheet no. FIG1	

Drawing Name: S:\81\81400-81499\81402-00 - Hudson Heritage\DWG\00_FIG1_81402-00_WOODS DISTURBANCE.dwg
Xrefs Attached: XTB_81402-00_V36x48; XLAYOUT_81402-00; XBASE-ENG_81402-00
Date Printed: Jul 22, 2015, 8:15am



TOTAL PROPERTY ACREAGE=155.90
TOTAL WOODS ACREAGE= 25.69
TOTAL WOOD DISTURBANCE ACREAGE= 7.92

CONCEPT PLAN - NOT FOR CONSTRUCTION

HUDSON HARRITAGE

EXISTING CONDITIONS MAP
W/ PROPOESED DESIGN OVERLAID

TOWN OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK

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Capital District Office
547 River Street Troy, New York 12180 Phone: (518) 273-0055

Albany County Office
3 Southwoods Blvd. Albany, New York 12204 Phone: (518) 812-0513

rev.	date	description

drawn CJL	checked
date 7/22/22	scale 1"=100'
project no. 81402.00	
sheet no. FIG2	

Drawing Name: S:\81400-81499\81402-00 - Hudson Heritage\DWG\50_FIG2_81402-00_WOODS DISTURBANCE.dwg
Xref's Attached: XTB_81402-00_V36x48; XLAYOUT_81402-00; XBASE=ENG_81402-00
Date Printed: Jul 22, 2015, 10:00am

Barbara Beall

From: Barbara Beall
Sent: Thursday, July 23, 2015 8:48 AM
To: Stuart Mesinger
Cc: Russell Urban-Mead
Subject: 81402.00 - Hudson Heritage Park - USFWS Response

From: Niver, Robyn [mailto:robyn_niver@fws.gov]
Sent: Thursday, July 23, 2015 8:30 AM
To: Barbara Beall <bbeall@chazencompanies.com>
Cc: Tim R Sullivan <Tim_R_Sullivan@fws.gov>
Subject: Hudson Heritage Park

Good morning, Barb,

We received your July 22, 2015, letter on the subject property and I agree with your assessment that we would not ask for surveys for this particular project given that winter clearing seems to be a viable option and I better understand the nature of the proposed tree removal. Please send another letter with the assessment of impacts based on acreage, distribution, etc. of tree removal and proposed conservation measures. Also, please state whether any federal agencies will be involved.

Thanks much!
Robyn

--
****
Robyn A. Niver
Endangered Species Biologist
USFWS
New York Field Office
Cortland, NY 13045
607-299-0620

"Let us have faith that right makes might, and in that faith, let us to the end, dare to do our duty as we understand it." - Abraham Lincoln

ATTACHMENT 2

NYNHP Review

Barbara Beall

From: dec.sm.NaturalHeritage <NaturalHeritage@dec.ny.gov>
Sent: Thursday, August 04, 2016 5:16 PM
To: Barbara Beall
Cc: Masi, Lisa M (DEC); sandra_doran@fws.gov
Subject: RE: 81402.02 - Hudson Heritage - Bald Eagles?
Attachments: 2016_932.pdf

Hi Barb,
I received your email on July 17 and your follow-up messages, and I apologize for not getting back to you sooner. In response to your request, please see the attached letter and report. The result of our updated screening is the same as last year, with only the sturgeon species documented in the immediate vicinity of the project site. One of our zoologists has been entering several new Bald Eagle records into our database the past few months, but according to our database, which was updated last week, the nearest documented Bald Eagle nest is 2.7 mi from the project site. Bald Eagles were first documented nesting at that site in 2015 and again in 2016. Since the nest is more than a mile from the site, however, we would not expect the project to impact the eagles.

Sincerely,
Andrea

Andrea Chaloux
Environmental Review Specialist
New York Natural Heritage Program
SUNY College of Environmental Science and Forestry
In partnership with NYS Department of Environmental Conservation
625 Broadway
Albany, NY 12233-4757
(518) 402-8935
www.nynhp.org

From: Barbara Beall [mailto:bbeall@chazencompanies.com]
Sent: Tuesday, August 02, 2016 5:23 PM
To: Chaloux, Andrea M (DEC) <andrea.chaloux@dec.ny.gov>
Subject: 81402.02 - Hudson Heritage - Bald Eagles?

Andrea

I hope all is well…
I am following up on an email I thought I sent to you, but for which I can find no record in my emails….
The story of my life ☺

Back around July 12 – 17, I thought I had sent you a request to double check whether there were Bald Eagles nesting in this area and/or the closest bald eagle.
The location is the Hudson Psyc Center in the Town of Poughkeepsie, just north of the City of Poughkeepsie on the east side of Route 9.
Our old 2015 NYNHP request letter is attached.

We are addressing completeness comments for a DEIS, and the question was raised whether there were any bald eagles in the area, and if so, how close.
Is this something you could tell me?

I left you a voice mail message as well.

Thanks so much for all your help with this.

Warm Regards,
Barb

Barbara B. Beall, PWS, LEED® AP
Principal
Director, Natural Resource Services
Professional Wetland Scientist, LEED® Accredited Professional
The Chazen Companies
375 Bay Road
Queensbury, NY 12804
(518) 824-1934 (direct)
(518) 812-0513
(518) 812-2205 (fax)
(518) 469-1302 (cell)
bbeall@chazencompanies.com
www.chazencompanies.com

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

August 04, 2016

Barbara B. Beall
The Chazen Companies
375 Bay Road
Queensbury, NY 12804

Re: Proposed pedestrian-oriented residential and commercial development at site located off of Route 9 (TCC Job # 81402.00)
Town/City: Poughkeepsie. County: Dutchess.

Dear Barbara Beall:

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, or may occur, on your site or in the immediate vicinity of your site.

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

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Andrea Chaloux

Andrea Chaloux
Environmental Review Specialist
New York Natural Heritage Program

932

The following state-listed animals have been documented in the Hudson River in the vicinity of your 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 potential impacts of your project on these populations, how to avoid, minimize, or mitigate any impacts, and any permit considerations, contact the Wildlife Manager or the Fisheries Manager at the NYSDEC Regional Office for the region where the project is located. A listing of Regional Offices is at http://www.dec.ny.gov/about/558.html.

The following species have been documented near the project site, generally within 0.5 mile. Potential onsite and offsite impacts from the project may need to be addressed.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Fish				
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered	Endangered	1091
Atlantic Sturgeon	*Acipenser oxyrinchus*	No Open Season	Endangered	11464

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 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.

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www.chazencompanies.com

Hudson Valley Office (845) 454-3980
Capital District Office (518) 273-0055

May 18, 2015

Information Services, Natural Heritage Program
NYS Department of Environmental Conservation
625 Broadway, 5th Floor
Albany, New York 12233-4757
sent via e-mail

Re: Threatened and Endangered Species Request
Site Located off of Route 9, Town of Poughkeepsie, Dutchess County, NY
TCC Job # 81402.00

Dear Program Staff:

I am requesting a search of the files of the New York Natural Heritage program for records of the occurrence of any rare animals, plants, and natural communities and/or significant wildlife habitats in the vicinity of this project. The Chazen Companies' client, Hudson Heritage Park, is proposing to develop the land. The proposed project involves the development of the land for a mixed-use pedestrian-oriented residential and commercial development.

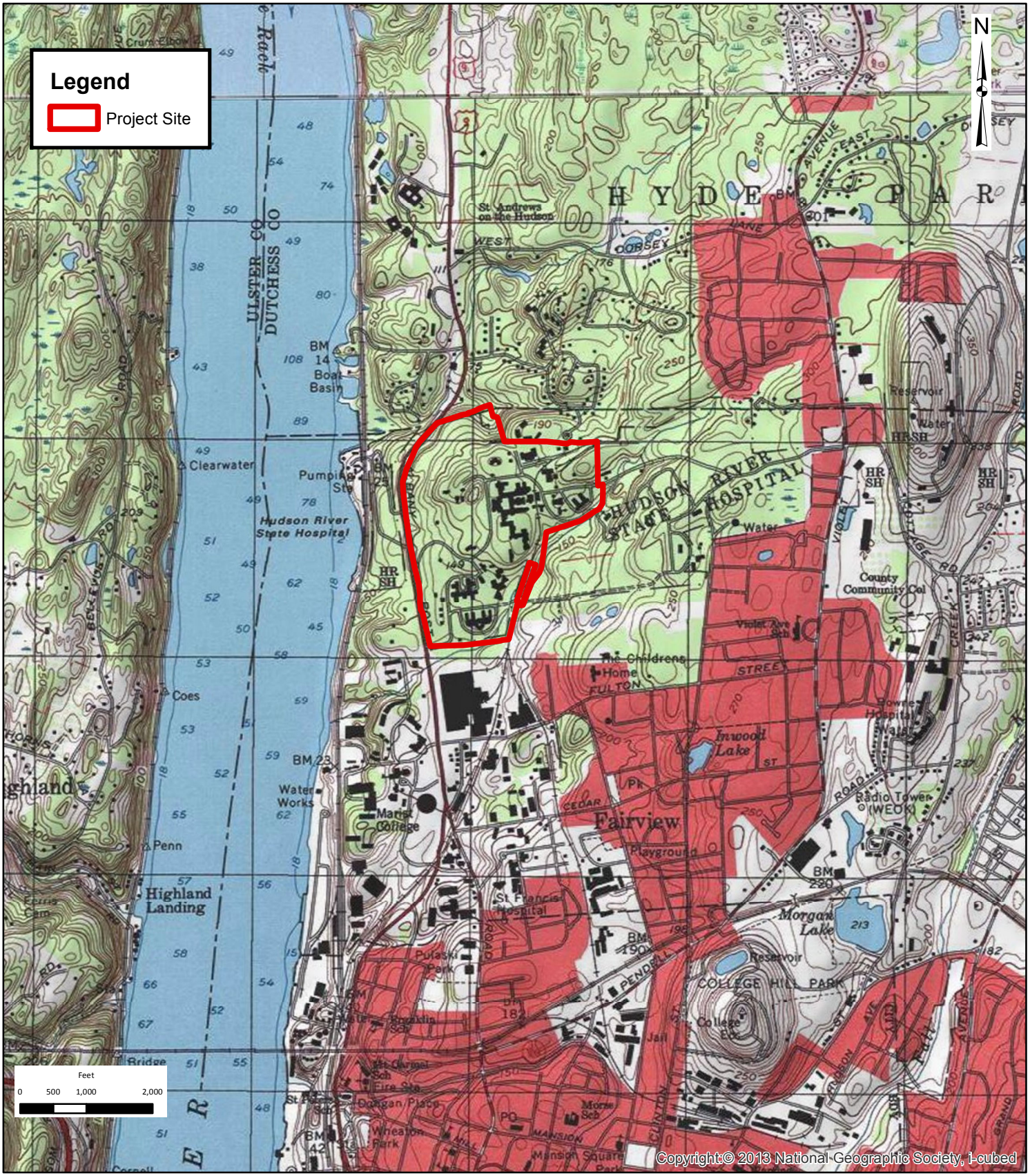
Your report will be used in SEQRA documentation and/or any permit applications. We will retain the confidentiality, as needed, of any information received.

The site is located off of Route 9 in the Town of Poughkeepsie, Dutchess County, NY. Enclosed is a site location map based of a portion of the Poughkeepsie, NY 7.5-minute USGS topographic quadrangle, on which the approximate outline of the site is indicated. The geographic coordinates of the approximate project site centroid are 41°43'55.00"N, 73°55'50.00"W. If you should need any additional information concerning this site, please do not hesitate to contact me by phone (518-824-1929) or e-mail (jsanford@chazencompanies.com). Your assistance in this matter is greatly appreciated.

Sincerely,

Jenna M Sanford

Jenna M. Sanford
Environmental Scientist
The Chazen Companies
375 Bay Road, Suite 200
Queensbury, New York 12804
(518) 812-0513
(518) 824-1929 (direct)
jsanford@chazencompanies.com



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Phone: (518) 273-0055

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Phone: (518) 812-0513

Hudson Heritage

Regional Location Map

Town of Poughkeepsie, Dutchess County, New York

Drawn:	SL
Date:	03/26/2015
Scale:	1:24,000
Project:	81402.00
Figure:	1

Map Document: (R:\0\standards\Gis\ChazenGIS\8X11P_MinimalChazenAddress.mxt)
2/16/2010 -- 1:11:34 PM

Note: The letter to NYNHP contained the full USFWS IPAC Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 LUKER ROAD
CORTLAND, NY 13045
PHONE: (607)753-9334 FAX: (607)753-9699
URL: www.fws.gov/northeast/nyfo/es/section7.htm

Consultation Code: 05E1NY00-2015-SLI-0899 May 18, 2015
Event Code: 05E1NY00-2015-E-02431
Project Name: 81402.00 Hudson Heritage Park Development

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

To Whom It May Concern:

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

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

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

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

Joe Martens
Commissioner

June 17, 2015

Jenna Sanford
The Chazen Companies
375 Bay Road, Suite 200
Queensbury, NY 12804

Re: Proposed mixed-use pedestrian-oriented residential and commercial development at site located off of Route 9 (TCC Job # 81402.00)
Town/City: Poughkeepsie. County: Dutchess.

Dear Jenna Sanford :

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, or may occur, on your site or in the immediate vicinity of your site.

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

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,

Andrea Chaloux

Andrea Chaloux
Environmental Review Specialist
New York Natural Heritage Program

The following state-listed animals have been documented in the Hudson River in the vicinity of your 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 potential impacts of your project on these populations, how to avoid, minimize, or mitigate any impacts, and any permit considerations, contact the Wildlife Manager or the Fisheries Manager at the NYSDEC Regional Office for the region where the project is located. A listing of Regional Offices is at http://www.dec.ny.gov/about/558.html.

The following species have been documented near the project site, generally within 0.5 mile. Potential onsite and offsite impacts from the project may need to be addressed.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Fish				
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered	Endangered	1091
Atlantic Sturgeon	*Acipenser oxyrinchus*	No Open Season	Endangered	11464

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 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.

ATTACHMENT 3

Ecological Solutions 2009
Natural Resource Survey and Wetland Report

Natural Resources Survey
&
Wetland Report

Hudson Heritage Property
Route 9
Town of Poughkeepsie, New York

June 29, 2008 (Revised 01/19/09).

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1.0 INTRODUCTION

Ecological Solutions, LLC conducted a natural resources survey and wetland investigation on the 156 .19 acres Hudson Heritage property (Tax ID Number 6163-03-011149) located on Route 9 in the Town of Poughkeepsie, New York on March 24, 28, April 15, 17, 30, May 7, 14, 21, 28, June 5, 10, and 18, 2008 (*Figure 1.0-1 Location Map*). The fieldwork occurred generally from 9:30am - 12:00pm or 4:00 - 7:30pm. Weather conditions varied during the field visits from cold to cool rainy days to hot, humid days.

The purpose of the survey was to document existing ecological communities/habitat cover types, evaluate the site wetlands, identify species including vegetation and wildlife and determine if any threatened or endangered species or potential habitat for such species is on the property. In addition, potential impacts to these resources and mitigation for impacts was analyzed.

Ecological Solutions, LLC conducted the inventory and evaluation during March, April, May, and June 2008 and included field surveys for birds, mammals, herpetiles, and vegetation. Methods and findings for this study are outlined below in this report. The remainder of the report focuses on anticipated impacts to these resources, and proposed mitigation measures and alternatives considered to avoid or minimize impacts.

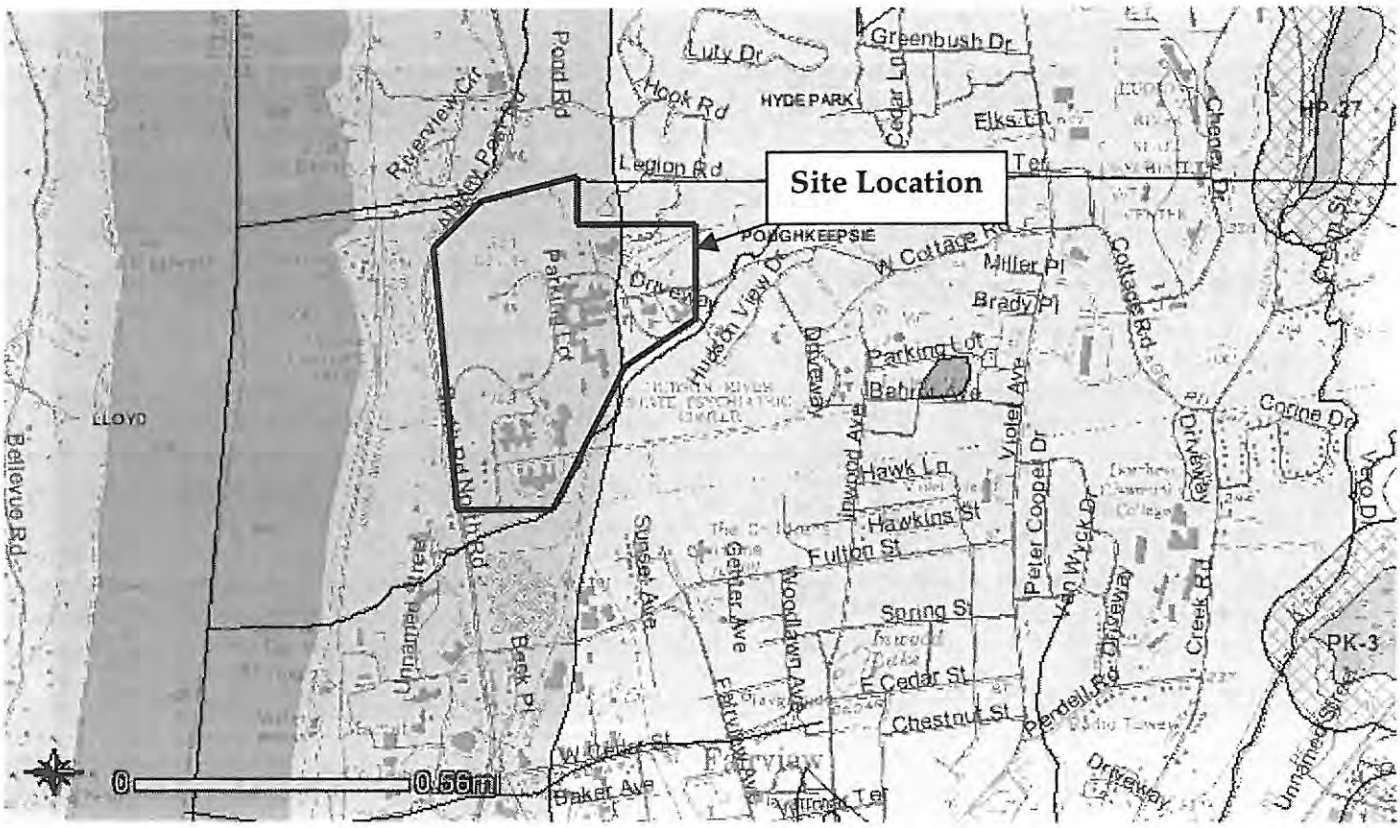
Figure 1.0-1 Location Map

2.0 METHODS

2.1 Agency Inquiry

As part of the environmental review for the subject site, Ecological Solutions, LLC, reviewed the New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Map regarding the status of rare, threatened, or endangered species on the site. A review of the US Fish and Wildlife Service (USFWS) website for threatened and endangered species in Dutchess County is attached to the end of this report[1].

Figure 2.1-1 NYSDEC Environmental Resource Map



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

2.2 Ecological Communities and Habitat Field Inventory

The vegetation inventory included identification of ecological communities or habitat cover types that involved identifying vegetation on the site. Cover type surveys were conducted by first reviewing an aerial photograph of the site and adjacent properties and subsequently by investigating the habitats on the site to identify and classify each. Cover types were identified, classified, and mapped to show their distributions.

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

2.2.1 Hudson River Critical Environmental Area

Local agencies may designate specific geographic areas within their boundaries as "Critical Environmental Areas" (CEAs). State agencies may also designate geographic areas they own, manage or regulate. To be designated as a CEA, an area must have an exceptional or unique character with respect to one or more of the following:

- a benefit or threat to human health;
- a natural setting (e.g., fish and wildlife habitat, forest and vegetation, open space and areas of important aesthetic or scenic quality);
- agricultural, social, cultural, historic, archaeological, recreational, or educational values; or
- an inherent ecological, geological or hydrological sensitivity to change that may be adversely affected by any change.

The Hudson Heritage property is not on any known list of CEA's in Dutchess County. However, the Hudson Heritage property is within the Hudson River estuary watershed. The Hudson River's abundant natural resources benefit Hudson Valley communities, New York State, and the entire North Atlantic coast environment. The estuary contains important spawning and nursery grounds for commercially valuable fish and shellfish such as striped bass, American shad, Atlantic sturgeon, and blue crab.

[2] *Hudsonia Ltd., 2001*

Its tidal wetlands and beds of submerged aquatic vegetation are essential links in a complex web of life that extends beyond the river's mouth. Along the Hudson are numerous sites where rare plant and animal species or natural communities occur. The river offers important resting and feeding areas for migratory birds.

The following habitats are conservation targets in the estuary watershed:

Shoreline corridors that provide essential habitat along the Hudson River and its tributary streams for river otter, wood turtle, cerulean warbler, wading birds, trout, stream salamanders and Hudson River water nymph;

Unbroken forests needed by scarlet tanager, warblers, wide-ranging mammals, hawks, owls, box turtles, and plants like fringed polygala flower;

Grasslands and shrublands that shelter northern harrier, bobolink, eastern meadowlark, golden-winged warbler, short-eared owl and uncommon butterflies;

Wetlands, including marshes, swamps, wet meadows, bogs and surrounding lands that support American bittern, marsh wren, Blanding's turtle, northern leopard frog and a rich diversity of flora like pitcher plant;

Seasonal woodland pools for animals that are declining throughout the Northeast including Jefferson, marbled, and spotted salamanders, wood frog, spotted turtle, fairy shrimp and others;

Caves and cliff habitats that are used by bats, peregrine falcon, overwintering snakes, migrating hawks, and rare cliff plants like purple cliffbrake and prickly pear, and;

Unique natural areas that support at-risk plants and animals.

2.3 Wildlife Field Inventory

Field surveys were conducted for wildlife species including mammals, birds, and herpetiles (reptiles and amphibians). Special surveys were also conducted to identify and locate state and federally listed species of special concern and threatened and endangered species and potential habitats for these species. 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, or other recognizable signs in habitats throughout the property. Sampling routes were established throughout the property to cover all of the identified vegetation cover types. Established sampling routes throughout the site (transects) were walked, 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*. This method included:

1. Strip transect, in which the observer records all species encountered (seen/heard) along a trail.

2. Opportunistic bird sighting, in which the observer records birds encountered randomly.

3. Sign search, in which 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*. This method 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, egg masses, and remains.

3.0 WETLANDS

3.1 Wetland Delineation

A federal and Town wetland delineation was completed on the site on March 24, 2008 in accordance with the specifications of the Routine Delineation Method outlined in the US Army Corps of Engineers (USACE) *Wetlands Delineation Manual, Technical Report Y-87-1*[3]. This included a review of published data and field investigations and sampling. In addition, each wetland boundary flag was survey located by Ausfeld and Waldruff Land Surveyors, LLP.

A. **Data Review**. The data review for this wetland delineation included the review of National Wetland Inventory (NWI) maps and NYSDEC Freshwater Wetland Maps for previously identified wetlands on the site. It also included a review of the Dutchess County Soil Survey to determine if soils on the site were conducive to wetland formation.

B. **Field Investigation and Sampling.** Federal and Town wetlands were delineated based upon the identification of the three mandatory criteria for wetland determination as outlined in the 1987 Federal Manual: dominant hydrophytic vegetation, hydric soils, and evidence of wetland hydrology and Chapter 116 Aquatic Resources Protection Law of the Town Code. To identify the wetlands, the site was walked and the general characteristics of the property observed. The Routine Methodology procedure for wetland delineation was used. Sample transects were established at each wetland. Each transect consisted of at least two sample points, one in the wetland and one in the adjacent upland. Dominant vegetation around each sample point was identified and its percent cover quantified. Areas with an appropriate landscape position were checked in detail for the presence of wetland hydrologic indicators. Soil profiles were then observed and characterized at each point.

The detailed field investigation included:

1. Identification of vegetation species with a dominance of hydrophytic plants and areas containing transitional but primarily wetland-oriented species.
2. Determination of features of hydric (poorly and very poorly drained) natural soils, transitional but wetland-oriented soils, and disturbed and filled soils that display an aquic (water-saturated) regime (*Figure 3.1-1*).
3. Observation of site features displaying evidence of wetland hydrology based on the presence of inundated areas, apparent high seasonal water tables, and

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

evidence of saturation within 12 inches of the surface (considered the root zone) during sufficient periods during the growing season to provide for anaerobic/hydric soil conditions.

Test plots were made at selected locations on the property to identify the various habitat types and to establish the wetland-upland interface. The wetland border was marked with flagging tape marked "WETLAND DELINEATION," and was based on the test plot data and observations made at mini-test plot locations along the wetland border.

3.2 Streams

A perennial watercourse exists within the federal wetland and is included in the delineation. This watercourse is shown in Figure 3.2-1. Potential impacts to aquatic species present within the site can be grouped into two categories: (1) short-term impacts from construction; (2) long-term impacts from the discharge of stormwater runoff.

Stormwater runoff during construction activities has the potential to carry sediment and other contaminants into the Hudson River. Mitigating measures will be in place to prevent excess erosion and sedimentation during construction. Stormwater runoff after completion of the project also has the potential to carry sediments and other contaminants to the Hudson River. Several stormwater quality management basins are being constructed at key locations on the site to avoid or minimize impacts to the stream. Wetland areas will remain intact.

Macroinvertebrates as Biological Indicators. Macroinvertebrates are an important component of the aquatic food web. Freshwater macroinvertebrate taxa include aquatic insects (*Insecta*), worms (*Oligochaeta*), snails (*Gastropoda*), clams (*Bivalvia*), leeches (*Hirudinea*), and crustaceans (*Crustacea*). These organisms provide the link in the food web between microscopic organisms and fish, and also facilitate the transfer of energy and materials between the terrestrial and aquatic ecosystems.

There are important differences among groups of macroinvertebrates that influence the structure and function of a particular community. Difference in tolerance to environmental conditions is the basis for using these organisms as biological indicators of environmental quality. The biological community integrates the effects of different pollutant stressors and thus provides a holistic measure of their aggregate effect. Benthic macroinvertebrates are good indicators of localized conditions. Because they have limited migration patterns or a sessile mode of life, they are well suited for

assessing site-specific impacts of point and non-point discharges. Many state agencies use macroinvertebrates as indicators of stream quality.

One important difference between groups of macroinvertebrates is their tolerance to organic (oxygen-demanding) wastes. Macroinvertebrates can be grouped into three broad categories based on their tolerance to organic waste: intolerant, moderately tolerant, and tolerant. The intolerant group includes species of mayflies, stoneflies, caddisflies, riffle beetles, and hellgrammites; the tolerant group includes worms, some midges, leeches, and some snails. The moderately tolerant group includes most snails, sowbugs, scuds, blackflies, craneflies, fingernail clams, dragonflies, and some midges.

The dipteran family *Chironomidae* is present in almost all freshwater systems and is of special importance not only because of its diversity but because of the ability of some species to tolerate extreme levels of pollution. Midges were located throughout the wetland / stream area.

It appears from the FIRM - Flood Insurance Rate Map - Town of Poughkeepsie Panel 1 of 9 Community Panel Number 361142 0001 dated September 9, 1999 that Zone X defined as areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood may exist at the eastern and southern property boundary (Figure 3.2-1).

Figure 3.2-1 Stream Map

Figure 3.2-2 FIRM Map

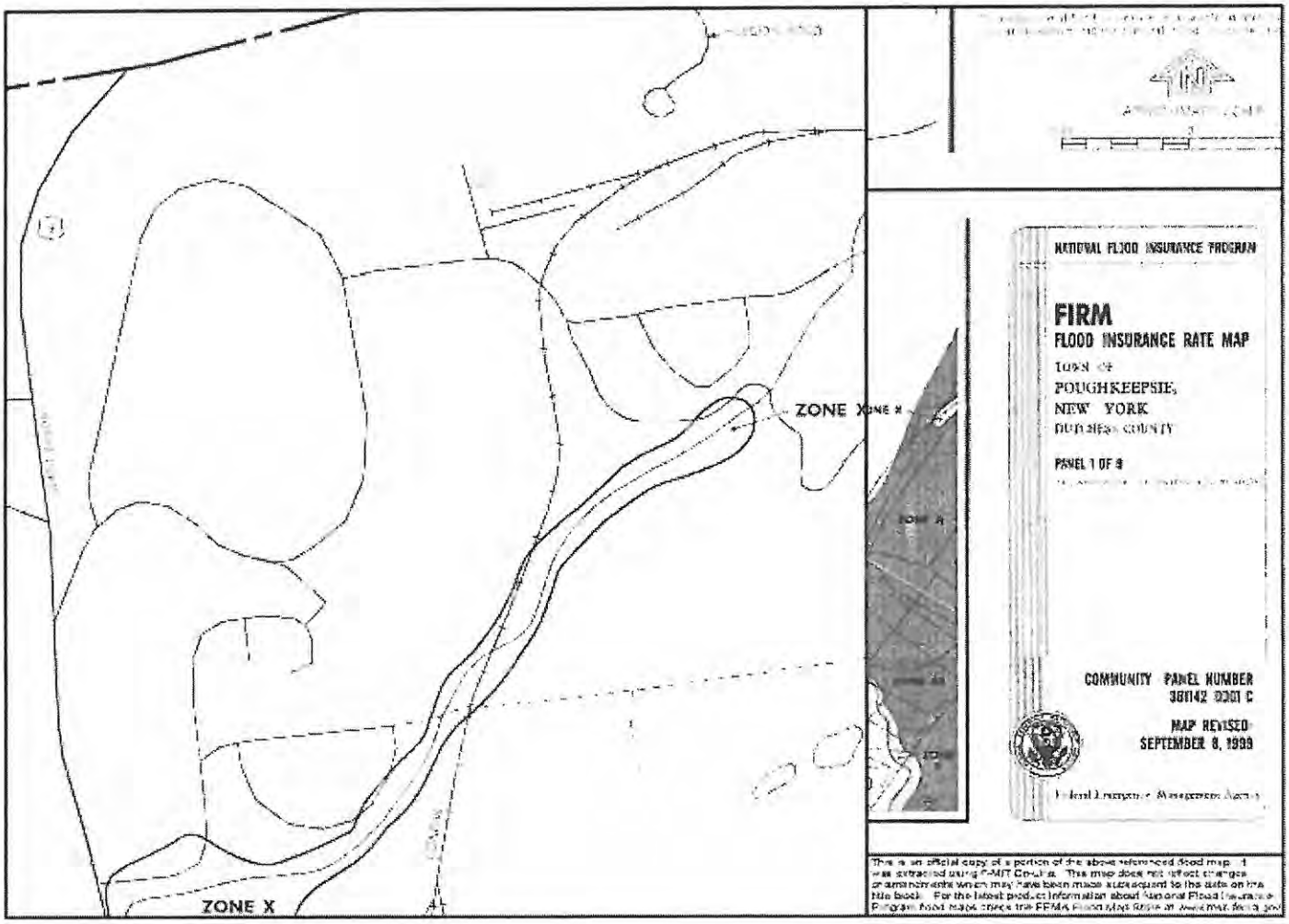


Figure 3.1-1 Soils Map

Map Unit Symbol	Map Unit Name
DwB	Dutchess-Cardigan complex, undulating, very rocky
NwB	Nassau-Cardigan complex, undulating, very rocky
NwC	Nassau-Cardigan complex, rolling, very rocky
DwC	Dutchess-Cardigan complex, rolling, rocky
DxB	Dutchess-Cardigan complex, Urban Land Complex undulating, rocky
HsA	Hoosic gravelly loam, nearly level
HsB	Hoosic gravelly loam, undulating
HsC	Hoosic gravelly loam, rolling
HsE	Hoosic gravelly loam, 25-45 percent slope
HuA	Hoosic - Urban Land Complex, nearly level
HuB	Hoosic - Urban Land Complex, undulating
NwD	Nassau-Cardigan complex, rolling, very rocky
NwE	Nassau-Rock Outcrop Complex, steep
Wy	Wayland silt loam

The wetland cover type is described using the classification system found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, *et al.*, 1979). In the Cowardin System, as it is often called, wetlands are described with a series of letters that describe the Ecological System (wetland type), Class (plant community or structural type), Subclass (vegetation cover type), and sometimes Modifiers (water regime, and disturbance regimes). Letters used in defining wetlands on the site are defined as follows:

Ecological System: Wetland Type
P - Palustrine wetland

Class: Plant Community or Structural Type
OW - Open Water, EM - Emergent, SS - Scrub/Shrub, FO - Forested

Subclass: Vegetation/Cover Type
1-persistent 1-Broad-leaved deciduous 1-Broad-leaved deciduous

Modifiers: Water Regime and Disturbance Regimes

Water Regime	**Special Modifiers**
A-Temporary	b-Beaver
B-Saturated	d-Partially drained/drained
C-Seasonal	h-Diked/Impounded
E-Seasonal Saturated	
H-Permanent	

Site Wetland

1. Wetland A Palustrine Forested (PFO1)

One (1) wetland area was identified and delineated on the site. The identified wetland can be characterized as falling under the following classifications: Palustrine Forested Wetland (PFO1). The wetland on the site was identified and delineated on March 24, 2008 and reviewed during each field visit to complete the functions and values assessment. The wetland on the site is a broad-leafed deciduous forested swamp cover type.

3.2 Wetland Functional Evaluation

An assessment of wetland functions and values was conducted on the wetland 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 wetland on the site. This method yielded an objective, descriptive quality index of each wetland rather than a subjective quantified rating of the wetland. This assessment had two major objectives:

1. Objectively identify the functions and values provided by the wetland identified on the site.

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 site.

Wetlands are legally protected because of the functions they perform and the benefits that society reaps from those functions. Wetland functions are chemical, physical, and biological processes that wetlands naturally perform as a matter of course, 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.

3.3 Methods

The functions and values assessment conducted on the Hudson Heritage Property was based on the method outlined in *The Highway Methodology Workbook Supplement: Wetland Functions and Values, A Descriptive Approach*, by the U.S. Army Corps of Engineers New England District (November 1995). 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. *

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 sites or sites of historical events, 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**[4] – The value placed on a wetland by society for effectively harboring or providing habitat for threatened or endangered species.

Each function or value in the list has a set list of qualifiers for identifying which functions and values are performed or provided by each wetland. In addition to outlining qualifying rationale for each function and value, the data forms also document information on the wetland size, distance to nearest road or other development, adjacent land uses, position in the watershed, impacts from human activity, tributaries, cover types, connectivity to other wetlands, and general condition. All of these elements factor into the functions and values assessment. Wetland data and observations for this functions and values assessment were collected during 2008 to observe herbaceous plant growth and hydrologic characteristics during the growing season to complete the functions and values assessment. Observations and other published data were used to assess the functions and values of the wetland.

3.4 Wetland Assessment Results

Findings of the assessment are outlined below.

Wetland A totals 0.125 acres. This wetland receives water primarily from overland sheet flow and is associated with an intermittent watercourse. Hydrological indicators identified within the wetland included soil saturation, watermarks, drift lines, drainage patterns, and water stained leaves. Wetland "A" is a broad-leafed deciduous forested wetland (PFO1E) located along the southern property boundary. It is a red maple dominated swamp with an understory of skunk cabbage (*Syplocarpus foetidus*) and false hellebore (*Veratrum veride*) that is seasonally inundated. This system is surrounded by development. Functions and values provided by Wetland A include floodflow attenuation, sediment trapping, nutrient removal, production export, wildlife habitat, and visual quality. Of these, the most significant functions of this wetland, based on extent of rationale in identifying functions and values, are floodflow attenuation and sediment trapping. No impact is planned for this wetland and no further involvement is required by the USACE or NYSDEC. The wetland is also regulated by the Town of Poughkeepsie and contains a 25 foot buffer area as per Chapter 116 – Aquatic Resources Protection Law.

[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.*

Hudson River Watershed

Wetland A is within the Hudson River watershed and contains a perennial watercourse that flows southwest off the property into wetlands located off the property. This system ultimately drains to the Hudson River approximately 0.5 miles away. The wetlands on the Hudson Heritage Property are subject to regulation by the USACE and Town of Poughkeepsie. There is no NYSDEC mapped wetland on the site. Wetlands are regulated because they provide functions that are valuable to society. If a wetland is significantly impacted, its functions, and subsequently its values may be lost to society. In most regulatory models, use of wetlands is ordered in a three-step process: avoid, minimize, and mitigate. First, efforts must be made to avoid impacting wetlands. If impacts to wetlands cannot be avoided, they must be minimized to the extent possible and mitigated usually in the form of creating or restoring wetlands at a proximal location so that the functions and values lost as a result of the impacts can be replaced in kind.

The wetland identified on the Hudson Heritage property performs a wide variety of functions and possesses multiple values. Generally, larger wetlands, or wetlands with more diverse structure possess more values. Special efforts have been utilized to avoid impacting wetlands on the site.

In addition, the property is not located in a designated CEA since the property does not possess the following essential parameters:

- a benefit or threat to human health - the property is previously developed and has been inactive for many years;

- a natural setting (e.g., fish and wildlife habitat, forest and vegetation, open space and areas of important aesthetic or scenic quality) - a large portion of the property is previously developed and has been heavily impacted by human activity;

- agricultural, social, cultural, historic, archaeological, recreational, or educational values - Some property features such as structures will be enhanced to preserve their historic character;

- an inherent ecological, geological or hydrological sensitivity to change that may be adversely affected by any change - the property has been intensively utilized for many decades and none of the habitats on the property are unique or possess high ecological value.

Shoreline corridors that provide essential habitat along the Hudson River and its tributary streams for river otter, wood turtle, cerulean warbler, wading birds, trout, stream salamanders and Hudson River water nymph – The project will have no impact on the character or quality of the existing shoreline which is thousands of feet and many roads and developments exist between the property and shoreline to the west.

Unbroken forests needed by scarlet tanager, warblers, wide-ranging mammals, hawks, owls, box turtles, and plants like fringed polygala flower – The property contains large areas of lawn and landscaping and forest fragments.

Grasslands and shrublands that shelter northern harrier, bobolink, eastern meadowlark, golden-winged warbler, short-eared owl and uncommon butterflies - The property contains large areas of lawn and landscaping and forest fragments.

Wetlands, including marshes, swamps, wet meadows, bogs and surrounding lands that support American bittern, marsh wren, Blanding's turtle, northern leopard frog and a rich diversity of flora like pitcher plant – There is one wetland located on the property that will remain intact.

Seasonal woodland pools for animals that are declining throughout the Northeast including Jefferson, marbled, and spotted salamanders, wood frog, spotted turtle, fairy shrimp and others – There are no vernal pools located on the property although some herpetiles are located on site.

Caves and cliff habitats that are used by bats, peregrine falcon, overwintering snakes, migrating hawks, and rare cliff plants like purple cliffbrake and prickly pear – There are no caves or cliffs located on the Hudson Heritage property. ;

Unique natural areas that support at-risk plants and animals – No threatened or endangered species or supporting habitat was observed on the Hudson Heritage property.

No impacts are expected to occur to the Hudson River by direct or indirect means. Mitigation measures to control erosion and stormwater discharge will be implemented and are discussed in the engineering documents for this site redevelopment.

3.5 Wetland Impact

There is no impact proposed to freshwater wetlands on this site and no impact proposed to the Town of Poughkeepsie regulated 25 foot buffer zone as per Chapter 116 Aquatic Resources Protection Law of the Town Code.

The project proposes to preserve the approximately 18 acre "Great Lawn" as a centerpiece for the overall development. The "Great Lawn" and perimeter landscaping are not dependent on the wetland or watercourse on the site for hydrology. These features most likely receive water from precipitation or overland flow and percolation into the root systems. No impacts to these features or wetlands on the site are expected.

3.6 Wetland Mitigation

Since there are no impacts to existing wetland or buffer resources there is no mitigation proposed.

4.0 FINDINGS

There are three (3) distinct natural cover types identified on the site, as classified by Ecological Solutions, LLC, and Reschke Table 4.1-1. The project proposes to preserve the approximately 18 acre "Great Lawn" as a centerpiece for the overall development. No rare, threatened, or endangered plant species or plant communities were identified on the site. A review of the aerial photograph of the site and adjacent properties also indicates that no unique or potential endangered or threatened habitats are located on or adjacent to the property.

TABLE 4.0-1
COVER TYPES IDENTIFIED ON THE
HUDSON HERITAGE PROPERTY

EQUIVALENT COVER TYPE NAMES		
NO.	ECOLOGICAL SOLUTIONS, LLC 2008	RESCHKE, 1990
1	Forested Wetland	Red Maple Hardwood Swamp
2	Mixed Upland Forest	Rich Mesophytic Forest
3	Successional Old Field	Successional Old Field
4	Developed Area/Cultural Cover Type	Developed Area

TABLE 4.0-2
COVER TYPE IMPACTS
HUDSON HERITAGE PROPERTY

NO.	RESCHKE, 1990	ACRES IDENTIFIED ON PROPERTY	PROPOSED IMPACTS
1	Red Maple Hardwood Swamp	0.125	0
2	Rich Mesophytic Forest	XX	XX
3	Successional Old Field	XX	XX
4	Developed Area	XX	XX
Total		156.19	XX

Mixed Upland Forest Community

The Hudson Heritage property contains several large landscaped areas or cultural cover type as well as a distinct mixed upland forest cover type occupying the well-drained areas on the property and supporting a particular array of species. This habitat type covers most of the site except for the 0.125 acres of wetland previously described in this report.

The canopy layer ranges from dense to sparse depending on the age class of the canopy layer on any given point on the site. The understory also ranges from very dense thicket to a more easily traveled zone where the trees are larger diameter. The forest community is young to medium aged and generally consists of trees ranging in size from 4 to 8 inches diameter at breast height (dbh), with larger specimen trees in the 12 to 24 inch dbh range in select locations. Soil moisture was evident in portions of the upland forest areas and was enough in some areas for some herpetiles to use as habitat.

Species observed in the upland forest canopy layer of the Hudson Heritage property includes white oak (*Quercus alba*), white ash (*Fraxinus americana*), eastern hemlock (*Tsuga canadensis*), eastern hop hornbeam (*Ostrya virginiana*), red oak (*Quercus rubra*), eastern red cedar (*Juniperus virginiana*), tamarack (*Larix laricina*), black oak (*Quercus velutina*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), white pine (*Pinus strobus*), Tulip Tree (*Liriodendron tulipifera*), red pine (*Pinus resinosa*), Norway spruce (*Picea abies*), and black cherry (*Prunus serotina*).

The shrub layer contains multiflora rose (*Rosa multiflora*), honeysuckle (*Lonicera spp.*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), black raspberry (*Rubus occidentalis*), fox grape (*Vitis labrusca*), grey dogwood (*Cornus racemosa*), and witch hazel (*Hamamelis virginiana*).

The herbaceous layer contains spinulose wood-fern (*Dryopteris spinulosa*), garlic mustard (*Allaria officinalis*), violet (*Viola spp.*), carrion flower (*Smilax herbacea*), wood geranium (*Geranium maculatum*), wild strawberry (*Fragaria virginiana*), clover (*Trifolium spp.*), false Solomon's seal (*Smilacina racemosa*), trout lilly (*Erythronium americanum*), club moss (*Lycopodium spp.*), and Christmas fern (*Polystichum crostichoides*). Bird species observed in the ground layer included brown thrasher (*Orpheus rufus*), veery (*Catharus fuscescens*), ovenbird (*Seiurus aurocapillus*), and turkey (*Meleagris gallopavo*). Herpetiles observed in the upland forest community included red-backed salamander (*Plethodon cinereus*), American toad (*Bufo americanus*), and garter snake (*Thamnophis sirtalis*).

Mammals located in the upland forest and wetland portion of the site included opossum (*Didelphis virginiana*), little brown bat (*Myotis lucifugus*), long-eared bat (*Myotis septentrionalis*), deer mouse (*Peromyscus maniculatus*), gray squirrel (*Sciurus carolinensis*), red squirrel (*Tamiasciurus hudsonicus*), eastern chipmunk (*Tamias striatus*), woodchuck (*Marmota monax*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), red fox (*Urocyon cinereoargenteus*), white-tailed deer (*Odocoileus virginiana*), and coyote (*Canis latrans*).

Additional species located on the site includes:

Baltimore Oriole	Icterus Baltimore	NP1[5]
Scarlet Tanager	Piranga olivacea	NP1
Eastern Phoebe	Sayornis phoebe	NP
Black-capped Chickadee	Poecile atricapillus	NP
Red-breasted Nuthatch	Sitta canadensis	NP
White-breasted Nuthatch	Sitta carolinensis	NP
Brown Thrasher	Orpheus rufus	NP
Tufted Titmouse	Parus bicolor	NP
Wood Thrush	Hylocichla mustelina	NP1
Red-tailed Hawk	Buteo jamaicensis	NP
White Throated Sparrow	Zonotrichia albicollis	NP
Broad-winged Hawk	Buteo platypterus	NP
Barn Swallow	Hirundo rustica	NP
Carolina Wren	Thryothorus ludovicianus	NP
Common Grackle	Quiscalus quiscula	NP
Turkey Vulture	Cathartes aura	NP
American Redstart	Setophaga ruticilla	NP
American Robin	Turdus migratorius	NP
Cardinal	Cardinalis cardinalis	NP
Red Eyed Vireo	Vireo olivaceous	NP
Pileated Woodpecker	Dryocopus pileatus	NP
Yellow Warbler	Dendroica petechia	NP
Blackburnian Warbler	Dendroica fusca	NP1
Northern Flicker	Colaptes auratus	NP
Veery	Catharus fuscescens	NP1
Ovenbird	Seiurus aurocapillus	NP1
Mourning Dove	Zenaida macroura	NP
Downy Woodpecker	Picoides pubscens	NP
Turkey	Meleagris gallopavo	NP
Star-nosed Mole	Condylura cristata	NP
Eastern Chipmunk	Tamias striatus	NP
Eastern Cottontail	Sylvilagus floridanus	NP
Red-backed Salamander	Plethodon cinereus	NP
American Toad	Bufo americanus	NP

[5] *NP1 - Forest Interior Species found on the property – Not Protected*

Successional Old Field Community

A portion of the property consists of a post development meadow plant community that has been allowed to revert back to more native conditions. The successional field/meadow are representative of several early successional serial stages ranging from fields regularly mowed and dominated principally by grasses and forbs, to fields dominated by dense shrub-scrub thickets, to areas with younger trees becoming established.

Grasses and forbs dominate vegetation within the fields/meadows area. Representative species of grasses and flowering plants include several varieties of goldenrods (*Solidago spp.*), broom sedge (*Andropogon virginicus*), pokeweed (*Phytolacca americana*), smartweed (*Polygonum spp.*), thistle (*Cirsium spp.*), wild aster (*aster spp.*), milkweed (*Asclepias syriaca*), spotted knapweed (*Centaurea maculosa*), black-eyed susan (*Rudbeckia hirta*), Queen Anne's lace (*Daucus carota*), daisy fleabane (*Erigeron annuus*), showy goldenrod (*Solidago speciosa*), rough-stemmed goldenrod (*Solidago rugosa*), Canada goldenrod (*Solidago canadensis*), reed canary grass (*Phalaris arundinacea*), ox-eye daisy (*Chrysanthemum leucanthemum*), Kentucky bluegrass (*Poa pratensis*), bindweed (*Convolvulus spp.*), common yarrow (*Achillea nudifolium*), bedstraw (*Galium spp.*), Little bluestem (*Andropogon scoparius*), timothy (*Phicum pratense*), wild strawberry (*Fragaria virginiana*), whorled milkweed (*Asclepias verticillata*), maiden pink (*Dianthus deltoids*), deer-tongue grass (*Panicum clandestinum*), crab grass (*Digitaria sanguinalis*), smooth brome (*Bromus inermis*), and meadow fescue (*Festuca elatior*).

Several shrub species of varying degrees of density have become successfully established within the fields/meadows. Species observed include staghorn sumac (*Rhus typhina*), brambles (*Rubus spp.*), honeysuckle (*Lonicera spp.*), and multiflora rose (*Rosa multiflora*). Scattered tree species consist of red cedar (*Juniperus virginiana*), gray birch (*Betula populifolia*), silver maple (*Acer saccharinum*) and white pine (*Pinus strobus*).

Some of the fields are shifting to a more scrub-shrub habitat with open pockets of field/meadow. The shrub layer ranges from 6 feet in height to over 15 feet in height. Other field areas have been mowed in the past, and others are representative of a younger plant succession stage that is predominately grasses and forbs, with minimal shrub thickets, and occasional clumps of tree species.

5.0 SPECIES OF SPECIAL CONCERN HABITAT REQUIREMENTS

One (1) NYSDEC designated Species of Special Concern was identified on the Hudson Heritage property. The species is listed and outlined below.

TABLE 5.0-1
SPECIES OF SPECIAL CONCERN
HUDSON HERITAGE PROPERTY

Species of Conservation Concern	Habitat(s)
Eastern Box Turtle	Northern portion of property

5.1 Eastern Box Turtle

The Eastern Box Turtle is a small terrestrial turtle that possesses a high, domelike shell and a hinged plastron that allows total shell closure. The carapace can be of variable coloration, but is usually brownish or black and is adorned with a yellowish or orangish radiating pattern of lines, spots or blotches. Skin coloration, like that of the shell, is variable, but is usually brown with some yellow, orange, or white spots or streaks. The color of the shell and skin also varies with age, with younger turtles often being more vibrantly colored. Males of this species usually have red eyes. Eastern Box Turtles possess a horny beak, stout limbs, and their feet are webbed only at the base. Box turtles are territorial: an individual turtle may spend its life in an area scarcely larger than a football field, provided habitat conditions remain favorable. Favoring moderately drained deciduous or mixed woodlands, particularly ones with sandy soil, the Eastern Box Turtle is found almost exclusively on land. The species can also be found in thickets, fields, pastures, vegetated dunes, marshes and the edges of bogs. Areas with the highest turtle densities feature moist, open forest with ravines or mid-sized slopes. Access to water is important for the Eastern Box Turtle, who will sometimes soak around the edges of small streams or ponds on a hot day.

6.0 ANTICIPATED IMPACTS

The proposed re-development of the property and its appurtenant features will necessarily require minor additional clearing of vegetation beyond the existing developed area. Earth moving (excavation, filling, and grading), operation of heavy machinery, construction, and alteration to existing drainage patterns, addition of impervious surfaces, changes in traffic patterns, and human activity will occur on the subject property. These activities have a potential to adversely impact the existing environmental elements of the site. Anticipated impacts from these activities are outlined below.

6.1 Impacts to Vegetation and Cover Types

A. **Forested Wetland.** Development activities have been planned to completely avoid impacts to Federal and Town wetland area.

B. **Habitat Loss.** The proposed activities on the site will require the removal of some natural vegetation in upland areas potentially altering portions of upland cover type areas but not their distribution on the site. This will result in the loss of approximately XX acres of the upland forest cover type.

The upland forest area will be replaced with cultural cover types that are currently found on the property in abundance such as mowed lawn with trees. Habitat values will be dependent on landscape planting schemes and maintenance regimes of the developed lots, and on availability of protective cover for wildlife. Overall, no significant decrease in natural wildlife habitat value will result from the proposed property re-development, and the species richness of the local wildlife community should continue with little change.

6.2 Impacts to Wildlife

A. **All Species.** Direct impacts to wildlife from the proposed re-development will primarily be displacement. Some species found on the site are typically found in suburban settings and have already adapted to proximal human habitation. These species will remain on the site as long as availability of basic habitat features (food, water, cover, and space) remains.

B. **Listed Species**. No state or federally listed threatened or endangered species are found on the site. Eastern Box Turtle however, is a NYSDEC designated species of special concern and was found on the site.

7.0 MITIGATION MEASURES

The proposed re-development of the Hudson Heritage property is anticipated to have the potential for minor environmental impacts that can be minimized through the implementation of mitigative measures. These are actions taken to prevent or lower the probability of adverse effects from the re-development activities. Mitigative measures for the potential impacts are outlined below.

7.1 Mitigation For Impacts to Vegetation and Cover Types

To minimize loss of habitat, the developer will minimize removal of natural vegetation as much as possible to preserve natural cover types on the site. Vegetation clearing will be minimized by establishing undisturbed, naturally vegetated buffers demarcated by orange construction fencing in the field.

In addition, contiguous forested areas will be saved to provide mature trees in the landscape of the proposed development. This will not only have ecological benefits, but will also retain the appearance of long-term establishment and stability.

Other habitat aspects of the site should be preserved where they do not interfere with the functioning of the re-development activities. Such elements may include existing stonewalls and standing dead trees (snags). Old stonewalls provide microhabitats for small mammals, herptiles, and invertebrates. Snags provide perching, nesting, and feeding sites for a wide variety of wildlife. These elements or parts thereof should be protected where possible. Impacts from habitat and forest fragmentation can be avoided by maintaining connecting cover 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.

7.2 Mitigation for Wildlife Impacts

Temporary wildlife displacement during construction is a short-term impact. The re-development plan minimizes forest cover removal and orange construction fencing between the areas to be graded and the areas that will be left undisturbed on the site before grading begins will be used.

8.0 THREATENED/ENDANGERED SPECIES

8.1 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 eight 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. The USFWS and NYSDEC are continually documenting habitat utilization by this species once emergence occurs.

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, only a handful of which have ever been discovered. These were 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. 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 trees greater than 5 inches dbh especially containing dead wood and snags or dead trees in a variety of habitats for roosts during the summer months. Although roosts have been documented in a wide array of hardwood and pine species, trees and snags that have exfoliating bark or crevices, such as Shagbark Hickory and Black Locust, appear to be most important to this species because females and their young rest under the bark. Trees, equal to or greater than 9 inches dbh with exfoliating bark/crevices, southern or western exposure, and solar exposure appear to be the most important habitat for maternal colonies during the summer months.

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.

According to the literature roost-tree density necessary to support Indiana bats is not understood and negative or positive biological thresholds linked to roost abundance are unknown. Similarly, there are no quantitative studies that adequately describe species composition of forest stands or stand structure surrounding occupied roosts. There is evidence however that Indiana bats return to the same summer foraging and roosting areas and sometime individual tree each year.

Indiana Bats - A large percentage of the property is already developed and remaining undeveloped areas are lightly wooded and contain distinct habitat types that can broadly be categorized as mixed upland forest, old field, and forested wetland/tributary. The property has gentle to moderately steep slopes in the mixed upland forest areas. The forested portion of the property contains some trees over 9" dbh that contain tight smooth bark and lack crevices, cavities or holes that are potential Indiana Bat roosting trees. No Indiana Bat roosting or maternal colony trees/habitat were observed on the property and no hibernacula are suspected on the property.

8.2 Bog Turtles

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)[6] and the Guidelines for Bog Turtle Surveys last revised on April 13, 2006[7].

Potential bog turtle habitat is recognized by three criteria *(not all of which may occur in the same portion of a particular wetland)*:

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

[6] *US Fish and Wildlife Service 2001 Bog Turtle (Clemmys muhlenbergii) Northern Population, Recovery Plan. Hadley, Massachusetts*
[7] *www.fws.gov/northeast/nyfo/es/btsurvey.pdf*

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 (*Saggitaria spp.*), skunk cabbage (*Symplocarpus foetidus*), panic grasses (*Panicum spp.*), other sedges (*Carex spp.*), spike rushes (*Eleocharis spp.*), grass-of-Parnassus (*Parnassia glauca*), shrubby cinquefoil (*Dasiphora fruticosa*), sweet-flag (*Acorus calamus*), and in disturbed sites, reed canary grass (*Phalaris arundinacea*) 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 sites, 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.

Suitable hydrology and soils are the critical criteria (*i.e.*, the primary determinants of potentially suitable habitat).

Wetland Information For Site

The "waters of the United States" including wetland area and tributary on the property does not contain suitable hydrology, mucky soils substrate, or vegetative structure often associated with Bog Turtle habitat such as open, early successional habitat wet meadows or open calcareous boggy areas generally dominated by sedges (*Carex spp.*) or sphagnum moss. Like other cold-blooded or ectothermic species, it requires habitats with a good deal of solar penetration for basking and nesting.

Hydrology supporting the wetlands on the site is primarily intermittent surface water and overland flow that appears to fluctuate during each storm event. The fluctuating hydrology and lack of suitable mucky soils negates the potential for bog turtle habitat on the property.

9.0 RECOMMENDATIONS

Consideration of anticipated environmental impacts and concepts for their mitigation led to the development of the following list of recommendations that have been included within the overall development planning scheme for the property. These recommendations included:

1. Protect naturally vegetated open space.
2. Maintain wildlife corridors and buffers.

10.0 PHOTOGRAPHS

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.

COUNTY Common Name	Scientific Name	Status
CLINTON		
Bald eagle	*Haliaeetus leucocephalus*	T
Indiana bat (S)	*Myotis sodalis*	E
COLUMBIA		
Bald eagle	*Haliaeetus leucocephalus*	T
Bog turtle	*Clemmys muhlenbergii*	T
Indiana bat (S)	*Myotis sodalis*	E
New England cottontail	*Sylvilagus transitionalis*	C
Shortnose sturgeon[1]	*Acipenser brevirostrum*	E
CORTLAND[2]		
DELAWARE		
Bald eagle	*Haliaeetus leucocephalus*	T
Dwarf wedge mussel	*Alasmidonta heterodon*	E
Northern monkshood	*Aconitum noveboracense*	T
DUTCHESS		
Bald eagle	*Haliaeetus leucocephalus*	T
Bog turtle	*Clemmys muhlenbergii*	T
Indiana bat (S)	*Myotis sodalis*	E
New England cottontail	*Sylvilagus transitionalis*	C
Shortnose sturgeon[1]	*Acipenser brevirostrum*	E
ERIE[2]		
ESSEX		
Indiana bat (W/S)	*Myotis sodalis*	E
FRANKLIN		
Bald eagle	*Haliaeetus leucocephalus*	T
FULTON[2]		

Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
www.dec.state.ny.us

Alexander B. Grannis
Commissioner

July 7, 2008

Nina S. Peek
saccardi & Schiff, Inc
445 Hamilton Avenue, Suite 404
White Plains, NY 10601

Dear Ms. Peek:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed Mixed Use Development - 156 Acres, area as indicated on the map you provided, located along Rte 9, Town of Poughkeepsie, Dutchess County.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. The information contained in this report is considered sensitive and should not be released to the public without permission from the New York Natural Heritage Program.
PLEASE NOTE: This project is adjacent to the Quiet Cove Riverfront State Park.

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

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environment impact assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,

Tara Seoane

Tara Seoane, Information Services
New York Natural Heritage Program

Enc.

cc: Peter N ye, Endangered Species Unit, Albany
Shaun Keeler, Bureau of Fisheries, Albany
Tom Lyons, NYS OPRHP, Empire State Pl, Bldg. 1, Albany, 12238 17th floor

Natural Heritage Report on Rare Species and Ecological Communities

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

his report contains SENSITIVE information that should not be released to the public without permission from the NY Natural Heritage Program.
Refer to the User's Guide for explanations of codes, ranks and fields.
ocation maps for certain species and communities may not be provided 1) if the species is vulnerable to disturbance, 2) if the location and/or extent is not recisely known, 3) if the location and/or extent is too large to display, and/or 4) if the animal is listed as Endangered or Threatened by New York State.

Natural Heritage Report on Rare Species and Ecological Communities

SH

Acipenser brevirostrum

Shortnose Sturgeon	**NY Legal Status:** Endangered	**NYS Rank:**	S1 - Critically imperiled	Office Use 1091
	Federal Listing: Endangered	**Global Rank:**	G3 - Vulnerable	HRF BOF
	Last Report: **	**EO Rank:**	**	USFWS

County: Columbia, Putnam, Rensselaer, Rockland, Orange, Dutchess, Greene, Westchester, Albany, Ulster, Bronx
Town: multiple
Location: Hudson River
Directions: Shortnose sturgeon are found in the long tidal portion of Hudson River.
General Quality and Habitat: For information, including management considerations, please contact the NYS DEC Hudson River Fisheries Unit at 845-256-3071.

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1 Records Processed

ore detailed information about many of the rare and listed animals and plants in New York, including biology, identification, habitat, conservation, and anagement, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at tp://www.natureserve.org/explorer, from NYSDEC at http://www.dec.ny.gov/animals/7494.html (for animals), and from USDA's Plants Database at tp://plants.usda.gov/index.html (for plants).

ore detailed information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, stribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org. For descriptions of l community types, go to http://www.dec.ny.gov/animals/29384.html and click on DRAFT--Ecological Communities of New York State.

Saccardi & Schiff, Inc.

Planning and
Development
Consultants

445 Hamilton Avenue
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www.saccschiff.com

June 16, 2008

Mr. David Stillwell
Division of Threatened and Endangered Species
U.S. Fish & Wildlife Service
3817 Luker Road
Cortlandt, NY 13045

Re: Environment Assessment of Mixed Use Development Project
Town of Poughkeepsie, Dutchess County, NY
Request for Threatened and Endangered Species Information

Dear Mr. Stillwell:

Saccardi & Schiff, Inc. is providing environmental planning services for CPCR relative to a proposed mixed use development on a 156-acre site in the Town of Poughkeepsie, Dutchess County, New York.

As shown on the attached site map indicating the approximate boundaries, the site is the former Hudson River Psychiatric Center, and is generally located on Route 9 in the Town of Poughkeepsie, directly across from Marist College and just south of the Town of Hyde Park.

In order for us to fully assess the environmental impacts of the proposed project, Saccardi & Schiff requests a data file search. Please send information you may have regarding any state or federal rare, threatened, endangered, or special concern species of plants or animals or rare or significant communities or habitats within the site.

If you require any additional information, please feel free to call me at 914-761-3582. Thank you in advance for your assistance in this matter.

Sincerely,

Nina S. Peek, AICP
Associate Vice President

John J. Saccardi, AICP
David B. Schiff, AICP, PP
David B. Smith, AICP

Syrette Dym, AICP
Bonita J. Von Ohlsen, RLA

Nina Peek, AICP
Gina Martini D'Onofrio, AICP
Owen Wells, AICP

Land Development
Comprehensive Planning
Zoning
Real Estate Economics
Environmental Studies
ing
Community Development

United States Department of the Interior

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

Project Number: 70414

To: Nina S. Peak Date: Jun 24, 2008

Regarding: Mixed use development at the former Hudson River Psychiatric Center

Town/County: Town of Poughkeepsie / Dutchess County

We have received your request for information regarding occurrences of Federally-listed threatened and endangered species within the vicinity of the above-referenced project/property. Due to increasing workload and reduction of staff, we are no longer able to reply to endangered species list requests in a timely manner. In an effort to streamline project reviews, we are shifting the majority of species list requests to our website at http://www.fws.gov/northeast/nyfo/es/section7.htm. Please go to our website and print the appropriate portions of our county list of endangered, threatened, proposed, and candidate species, and the official list request response. Step-by-step instructions are found on our website.

As a reminder, Section 9 of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) prohibits unauthorized taking* of listed species and applies to Federal and non-Federal activities. Additionally, endangered species and their habitats are protected by Section 7(a)(2) of the ESA, which requires Federal agencies, in consultation with the U.S. Fish and Wildlife Service (Service), to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. An assessment of the potential direct, indirect, and cumulative impacts is required for all Federal actions that may affect listed species. For projects not authorized, funded, or carried out by a Federal agency, consultation with the Service pursuant to Section 7(a)(2) of the ESA is not required. However, no person is authorized to "take"* any listed species without appropriate authorizations from the Service. Therefore, we provide technical assistance to individuals and agencies to assist with project planning to avoid the potential for "take," or when appropriate, to provide assistance with their application for an incidental take permit pursuant to Section 10(a)(1)(B) of the ESA.

Project construction or implementation should not commence until all requirements of the ESA have been fulfilled. If you have any questions or require further assistance regarding threatened or endangered species, please contact the Endangered Species Program at (607) 753-9334. Please refer to the above document control number in any future correspondence.

Endangered Species Biologist: Robyn A. Niver Robyn A. Niver

*Under the Act and regulations, it is illegal for any person subject to the jurisdiction of the United States to *take* (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these), import or export, ship in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any endangered fish or wildlife species and most threatened fish and wildlife species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. "Harm" includes any act which actually kills or injures fish or wildlife, and case law has clarified that such acts may include significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife

ATTACHMENT 4

Breeding Bird Atlas Data

COMMON/SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS			HABITAT REQUIREMENTS	SITE SPECIFIC CONCLUSIONS
BIRDS (Only Breeding Birds Listed)	MBTA = Migratory Bird Treaty Act; CA1, CA2, CA2, International Treaties	PB=Protected Bird; GS=Game Species; GN=Game Species No Season; SC-Special Concern; T=Threatened; E=Endangered	**In 2000-2005 Breeding Bird Atlas Blocks, 5862 (North) and 5861A (South)**	**Surrounding Breeding Bird Atlas Blocks (5862A, 5862B, 5862D, 5861B)**	Unless otherwise noted, from: McGowan, Kevin and Corwin, Kimberly. 2008. Second Atlas of Breeding Birds in New York State. Cornell University Press. Ithaca, NY.	Green = Probable breeder on-site or observed on site. Yellow = May be present as transient or feeder, but habitat unlikely to support breeding/nesting behavior. Gray = Habitat on site not suitable for species.
Swans, Geese, Ducks						
Canada Goose *Branta canadensis*	MBTA	PB-GS	Both	ALL Blocks	"Variety of wetland habitats; marshes with reeds and muskrat houses, agricultural fields, reservoirs, sewage lagoons, city lakes, parks, golf courses, highway medians, housing subdivisions."	Unlikely except as transient visitor on lawns. Not a breeder on-site.
Mute Swan* *Cygnus olor*	UN	PB-GN	No	5862D, 5861B		Unlikely except as rare visitor.
Wood Duck *Aix sponsa*	MBTA	PB-GS	Both	5862D	"A cavity-nester common to bottomland forests, swamps, beaver flows, and slower moving streams."	Unlikely in woodland surrounding wetland area. Improbable due to lack of open water.
American Black Duck *Anas rubripes*	MBTA	PB-GS	No	5861B	"Wetlands and bogs in the boreal forests and tidal salt marshes along the Atlantic Coast…but adaptable, nesting in fresh-water marshes, coastal salt marshes, along the shores of lakes, ponds and streams, and even in scrub fields or open woodlands some distance from water."	Unlikely except as transient visitor on lawns. Unsuitable habitat for breeding on-site.
Mallard *Anas platyrhynchos*	MBTA	PB-GS	Both	ALL Blocks	"Most abundant and widely distributed duck in Northern Hemisphere…nesting in marshes, farmlands, forests and urban parks." "Tremendous adaptability. It nests in a wide variety of habitats across New York, including emergent marshes, scrub-shrub and forested wetlands, alfalfa fields, grasslands close to water, beaver flows, remote bogs, tidal marshes, suburban gardens, urban park ponds."	Unlikely except as transient visitor on lawns. Unsuitable habitat for breeding on-site.
Common Merganser *Mergus merganser*	MBTA	PB-GS	No	5861B	"Nests along lakes and rivers bordered by forests…mostly a cavity nester…" Mature trees, higher water quality.	Not Suitable Habitat On-Site.
Partridges, Grouse, Turkeys						
Wild Turkey *Meleagris gallopavo*	UN	PB-GS	Both	ALL Blocks	"Open mature forests…landscapes with a mix of mature hardwoods and agriculture…it can flourish in a number of areas of suboptimal habitat…human created habitats such as agricultural fields, parklands and backyards."	Observed on site by Ecological Solutions. Probable breeder in wooded areas, brooding and feeding in fields.

Cormorants						
Double-crested Cormorant *Phalacrocorax auritus*	MBTA	PB	5861A	5862A	"Nesting in trees or on the ground, the cormorant generally establishes colonies on small islands or in wetland areas that offer protection from mammalian predation."	Not Suitable Habitat On-Site.
Bitterns, Herons and Egrets						
Great Blue Heron *Ardea herodias*	MBTA	PB	Both	5862A, 5862D, 5861B	"A widespread species…forages in fresh and brackish water and will occasionally feed in open fields. It typically nests in tall trees, generally near water…islands or swamps are frequent colony sites, but crown canopies of deciduous woods on hillsides are also used."	Unlikely except as flyover or transient feeder. Unsuitable habitat for on-site breeding.
Green Heron *Butorides virescens*	MBTA	PB	5861A	5862B, 5862D, 5861B	"Common yet easily overlooked in wetlands. Often found in swampy thickets, the species is actually rather flexible in its use of habitats. Typically it nests in forest and swamp patches, or to a lesser degree drier sites that are at least near water."	Unlikely except as flyover or transient feeder. Unsuitable habitat for on-site breeding.
Vultures						
Turkey Vulture *Cathartes aura*	MBTA	PB	Both	5862B, 5861B	"Most widespread of the American vultures…It prefers rangeland and areas of mixed farmland and forest. It builds no nest structure, putting its eggs directly on the ground in caves, crevices, mammal burrows, hollow logs, under fallen trees or in abandoned buildings. Up to 70 percent of any Turkey Vulture population in an area might not actually be breeding."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Ospreys, Eagles, Hawks						
Osprey *Pandion haliaetus*	MBTA-CA2	PB-SC	5862C	0 Blocks	"Found along coastal and inland waterways with abundant fish populations. An adaptable breeder, it readily uses a variety of man-made structures for nesting, including buildings, buoys, towers and poles, and will also nest on rocks on the ground. Mostly…chooses to place its nest in trees, usually dead snags."	Not Suitable Habitat On-Site.
Bald Eagle *Haliaeetus leucocephalus*	MBTA-T-CA1	PB-T	5861A	5862D	"Prefers undisturbed, forested habitat near lakes, rivers, or wetlands, especially complex forested habitats with variable structure containing super-canopy trees…white pines. If not available…a variety of deciduous trees."	Not Suitable Habitat On-Site.
Sharp-shinned Hawk *Accipiter striatus*	MBTA-CA2	PB-SC	No	5861B	"It nests in mixed, coniferous, and deciduous forest, but nest sites are most frequently in wooded areas with dense canopy cover, small diameter trees and high number of trees per hectare."	Flyover, common visitor, limited breeding habitat.
Cooper's Hawk *Accipiter cooperii*	MBTA-CA2	PB-SC	5862C	5861B	"A secretive woodland raptor…the Cooper's hawk tolerates human activities extremely well, reaching the highest known nesting density in a small town in Wisconsin and similar densities in New York."	Flyover, occasional visitor, limited to no suitable on-site breeding habitat (deep wood) but highly adaptive species.

Red-shouldered Hawk *Buteo lineatus*	MBTA-CA2	PB-SC	No	5862A, 5862B, 5862D	"A bird of extensive, mature mixed forests…and especially likes bottomland hardwood forests, riparian areas, and flooded swamps…found in patches of woodland remaining along streams and swampy areas.. with increased use of heavily wooded upland regions."	Not Suitable Habitat On-Site.
Broad-winged Hawk *Buteo platypterus*	MBTA-CA2	PB	5862C	5862A, 5862B, 5862D	"Nests in extensive mature deciduous or mixed deciduous-coniferous forests, where it is often seen perched along forested roads or small openings. Nest is often near a small forest opening and a wetland or stream."	Observed on site by Ecological Solutions. Likely flyover, common visitor, limited breeding habitat.
Red-tailed Hawk *Buteo jamaicensis*	MBTA-CA2	PB	Both	ALL Blocks	"Uses open habitats interspersed with forest of varying sizes or where other structures useful for nesting are found including power poles…Commonly seen perched on trees, power poles, and fences along roadways, this species appears to be tolerant of human modification of its habitat, nesting equally successfully in rural, suburban and urban settings."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Falcons						
American Kestrel *Falco sparverius*	MBTA-CA2	PB	No	5861B	"Hovers over fields in search of prey. It more often hunts from a perch; dead trees fill this need while providing nesting cavities…requires woodpecker holes or other natural cavities for nest sites…a raptor of open country, the kestrel prefers pastures, fallowed fields and open patches with short vegetation for foraging. Kestrel common in all open country including airports, golf courses, and parks… other urban-suburban areas."	Probable breeder, plenty of suitable habitat.
Peregrine Falcon *Falco peregrinus*	MBTA-CA1	PB-E	5861A	0 Blocks	"About half of New York's nests are on cliffs and half on artificial structures, usually bridges or buildings."	Flyover, unlikely breeder but can nest on building roofs and ledges.
Rails, Gallinules and Coots						
Virginia Rail *Rallus limicola*	MBTA	PB-GS	5862C	0 Blocks	"The most common species of rail in New York…Typically breeds in freshwater marshes, preferring those with shallow water and emergent vegetation, such as cattail or bulrush…"	Not Suitable Habitat On-Site.
Plovers						
Killdeer *Charadrius vociferus*	MBTA	PB-GN	5861A	5862B, 5862D, 5861B	"The most widespread and familiar of the plovers…a common bird in farmyards, fields and parking lots. Breeds in open areas, specially sandbars, mudflats, pastures, cultivated fields, athletic fields, airports, golf courses, gravel parking lots, and graveled rooftops."	Probable breeder, plenty of suitable habitat.
Sandpipers, Phalaropes and other Shorebirds						
Spotted Sandpiper *Actitis macularius*	MBTA	PB-GN	No	5961B	"It nests along the edge of nearly any water source, at home around urban ponds as well as tundra pools. It breeds in a variety of habitats such as…grassland, forest, lawn and park, but its territories must include some shoreline of a stream, lake or pond…except with woods to the water's edge…"	Not Suitable Habitat On-Site.
American Woodcock *Scolopax minor*	MBTA	PB-GS	No	5862B, 5861B	"A shorebird that has moved inland and taken up residence in forest thickets. Probes into moist soil for earthworms. Woodcock require a mix of habitats, in relatively close proximity. The most critical habitat contains early-successional forests or shrublands with canopy cover, moist soils and abundant worm populations. "	Possible breeder, limited suitable habitat. Would be attracted by mowing lawns and installing bluebird boxes.

Pigeons and Doves						
Rock Pigeon* *Columbia livia*	UN-CA3	UN	Both	5862A, 5862B, 5861B	"Buildings and other man-made structures mimic the rocky cliffs preferred by wild pigeons and therefore are widely used for roosting and nesting. Also found around natural cliffs and in agricultural areas, but rarely far from people."	Probable breeder, plenty of suitable habitat.
Mourning Dove *Zenaida macroura*	MBTA	PB	Both	5862A, 5862B, 5861B	"One of the most widespread and abundant birds in North America…breeds in a variety of open habitats, including agricultural areas, open woods, deserts, forest edges, cities and suburbs."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Cuckoos						
Yellow-billed Cuckoo *Coccyzus americanus*	MBTA	PB	Both	5862A, 5862D	"It nests in open woodlands with clearings and dense shrubby vegetation, often along water…A bird of open canopies and secondary growth…"	Possible breeder, limited suitable habitat. Would be attracted by mowing lawns and installing bluebird boxes.
Typical Owls						
Eastern Screech-Owl *Megascops asio*	MBTA-CA2	PB	No	5861B	"The species uses a variety of wooded habitats in all types of terrain, primarily deciduous and mixed forest from early successional to mature stages, as well as urban and suburban area…this owl is not common in the more forested areas of new York and…it prefers fragmented habitats, although a thorough study of its use of forest fragments has not been conducted."	Possible breeder, some suitable habitat.
Great Horned Owl *Bubo virginianus*	MBTA-CA2	PB	No	5862D, 5861B	"It is found in a wide variety of habitats, including old-growth forests,…and even urban areas, but it prefers open and second-growth woodlands, swamps and agricultural areas."	Possible breeder, some suitable habitat.
Barred Owl *Strix varia*	MBTA-CA2	PB	5862C	5862D, 5861B	"It lives in wooded areas and swamps and favors large blocks of forest…a species that prefers old-growth forest…"	Possible breeder, some suitable habitat.
Swifts						
Chimney Swift *Chaetura pelagica*	MBTA	PB	Both	ALL Blocks	"It readily took to building nests in chimneys and other artificial sites when Europeans settled North America. Nests…inside hollow trees and interior building walls…Loss of nesting habitat, especially in urban areas is considered an important factor in its decline."	Probable breeder, plenty of suitable habitat.
Hummingbirds						
Ruby-throated Hummingbird *Archilochus colubris*	MBTA-CA2	PB	5862C	ALL Blocks	"It breeds in deciduous forests and mixed woodlands, including gardens and orchards… considered primarily a woodland breeder."	Probable breeder, plenty of suitable habitat.
Kingfishers						
Belted Kingfisher *Megaceryle alcyon*	MBTA	PB	5862C	5862A, 5862D	"Breeds wherever streams and banks can be found…Prefers streams, lakes and calm marine waters where it can easily see its fish/aquatic invertebrate prey…It nests in burrows dug in earthen bank. Although the Belted Kingfisher prefers to nest near its foraging territory, it can make a burrow up to 2 km (1.2 mi) away from water and travel up to 8 km (5 mi) away to forage. "	Flyover, occasional visitor, limited to no suitable foraging habitat.

Woodpeckers						
Red-bellied Woodpecker *Melanerpes carolinus*	MBTA	PB	Both	ALL Blocks	"A bird of mixed deciduous-coniferous forest and suburbs…New York is at the northeastern edge of the range."	Probable breeder, plenty of suitable habitat.
Downy Woodpecker *Picoides pubescens*	MBTA	PB	Both	ALL Blocks	"Most widespread and abundant woodpeckers in North America. Uses a variety of hardwood forests, including mature, young, fragmented, and suburbanized ones. It prefers open woodlands and is less common in dense forests or in conifers. It also can be found nesting in abandoned orchards, parks, and pastures. It reaches its highest densities in deciduous woodlands that include small trees with low canopy heights."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Hairy Woodpecker *Picoides villosus*	MBTA	PB	Both	ALL Blocks	"Most widespread woodpecker in North America. It breeds in a wide variety of habitats including mature woods, small woodlots, wooded parks and residential areas with large trees. Although this woodpecker is primarily a bird of mature forests, it occurs in other more broken wooded areas as well albeit usually at lower densities."	Probable breeder, plenty of suitable habitat.
Northern Flicker *Colaptes auratus*	MBTA	PB	Both	ALL Blocks	"A common ant-eating woodpecker of open areas and savannah. It is a species that has been undergoing a decline in populations. The cause of declining flicker numbers are unknown but may be the result of competition for nest cavities by European Starling and loss of nesting snags as forests are managed."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Pileated Woodpecker *Dryocopus pileatus*	MBTA	PB	Both	5862A, 5862D, 5861B	"Lives in mature deciduous or coniferous forests or younger forests with scattered large, dead trees."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Flycatchers						
Eastern Wood-Pewee *Contopus virens*	MBTA	PB	Both	ALL Blocks	"Characteristic bird of eastern deciduous forest. Breeds in all types of woodlands, deciduous as well as coniferous. Prefers rather open forests but can be found in areas of closed canopy. The peewee does not appear to be affected by forest fragmentation and can be found along forest edges, in clearings and in suburban areas."	Probable breeder, plenty of suitable habitat.
Acadian Flycatcher *Empidonax virescens*	MBTA	PB	No	5862D	"While breeding, it generally associated with mature forests and forested swamps. In New York…often associated with mature eastern hemlock growing in forested areas along streams."	Not Suitable Habitat On-Site.
Alder Flycatcher *Empidonax alnorum*	MBTA	PB	No	5862D	"Breeding in beaver meadows and shrubby wetlands of the higher elevations. Common in mountainous areas…colder swamps…occurring primarily in the bogs, swamps, and streamsides at the higher elevations."	Not Suitable Habitat On-Site.

Willow Flycatcher *Empidonax trailii*	MBTA	PB	5861A	5862B	"A variety of brush and shrubby habitats, such as uplands thickly overgrown with shrubs, shrubs along stream and pond edges, and wet thickets of alder, buttonbush, viburnum and willows."	Possible breeder in areas of shrubby overgrowth along wood edges and around wetland areas.
Eastern Phoebe *Sayornis phoebe*	MBTA	PB	Both	ALL Blocks	"Breeds in woodlands and along forest edges, often near water, and makes extensive use of human created structures to nest, including under the eaves of houses, porches, barns and garages. More limited by suitable nesting sites than foraging habitat."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Great Crested Flycatcher *Myiarchus crinitus*	MBTA	PB	Both	ALL Blocks	"It breeds in open deciduous woodlands, old orchards, riparian corridors, wooded swamps, parks, cemeteries, and urban areas with large shade trees. Although it will use closed-canopy forests, it prefers isolated woodlots, second-growth woodlots, or other open forests and avoids boreal forests."	Probable breeder, plenty of suitable habitat.
Eastern Kingbird *Tyrannus tryannus*	MBTA	PB	Both	5862A, 5862D, 5861B	"It breeds in open environments with scattered perches, such as fields, orchards, shelterbelts, forest edges, urban parks and golf courses….It is listed as one of the most common birds of open areas in New York."	Probable breeder, plenty of suitable habitat.
Vireos						
Yellow-throated Vireo *Vireo flavifrons*	MBTA	PB	Both	5862A, 5862B, 5862D	"Breeds in forest-edge habitats and in open wooded habitats with tall deciduous trees, and can be found along forested streams, rivers, swamps, and roads, as well as in parks, orchards, and small towns. It generally does not breed in the forest interior, except near opens created by fallen trees or roads."	Not Suitable Habitat On-Site.
Warbling Vireo *Vireo glivus*	MBTA	PB	Both	5862A, 5862D, 5861B	"It breeds in mature deciduous woodlands, often near water. It is frequently associated with riparian forests dominated by cottonwoods and poplars…It requires large trees with a semi-open canopy, but the understory does not seem to matter. It can be found in urban parks and gardens, orchards, deciduous patches in pine forests and mixed hardwood-coniferous forests, and rarely in pure coniferous forests."	Possible breeder, plenty of suitable habitat, but tends to breed at higher elevations.
Red-eyed Vireo *Vireo olivaceus*	MBTA	PB	Both	ALL Blocks	"The Red-eyed Vireo is one of the most common and vocally conspicuous birds of eastern forests...It breeds in deciduous and mixed deciduous forests and is most abundant in the forest interior. It does not require mature forests but can be found in alder thickets, aspen groves, and urban areas and parks with large trees. An interior-forest bird... The vireo seems tolerant of some urbanization and is able to survive in a variety of habitats."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Jays, Crows, Ravens						
Blue Jay *Cyanocitta cristata*	MBTA	PB-GN	Both	ALL Blocks	"A common forest bird…now it is abundant in parks and suburbs, it is primarily a bird of forests and forest edges. It subsists in large part on mast. Acorns, beechnuts…hickory nuts and hazelnuts are known to be important in its diet."	Probable breeder, plenty of suitable habitat.
American Crow *Corvus brachyrhynchos*	MBTA	PB-GS	Both	ALL Blocks	"The crow prefers park-like settings, where it can find trees for nesting and open ground for foraging…This rather general preference allows it to nest in a great variety of habitats"	Possible breeder, plenty of suitable habitat especially in buildings.
Common Raven *Corvus corax*	MBTA	PB-GN	5862C	0 Blocks	"Species prefers mature forests in New York…The raven's preference for nesting on cliff faces…but not restricted to those sites and will nest in trees in the forest interior."	Not Suitable Habitat On-Site.

Swallows						
Purple Martin *Progne subis*	MBTA	PB	5862C	5862D, 5861B	"Eastern martins are almost entirely dependent on birdhouses, and thus are only found near human habitation….see largely but not entirely, in low-lying areas near major bodies of waters."	Not Suitable Habitat On-Site.
Tree Swallow *Tachycineta bicolor*	MBTA	PB	Both	ALL Blocks	"Found in a variety of open habitats, including fields, meadows, marshes, and wooded swamps, requiring only a cavity for nesting, and some open water for foraging."	Probable breeder, plenty of suitable habitat.
Northern Rough-winged Swallow *Stelgidopteryx serripennis*	MBTA	PB	5861A	5862A	"Breeds in a wide variety of open habitats…It nests in holes in various vertical surfaces, including banks, gorges, and human structures…A species that prefers open habitats, including around road banks and human structures."	Possible breeder, presence of suitable habitat limited by lack of associated open water. Hudson River more likely.
Barn Swallow *Hirundo rustica*	MBTA	PB	Both	ALL Blocks	"Historically a cliff and cave-nesting species, the Barn Swallow now breeds almost extensively on buildings, bridges, and other human-made structures. It is typically found where such nesting sites are near open areas such as fields and meadows, and a source of water."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Chickadees and Titmice						
Black-capped Chickadee *Poecile atricapillus*	MBTA	PB	Both	ALL Blocks	"Found in deciduous or mixed forests, open woods, second-growth woods, old fields, parks and suburban areas, where it is a frequent and welcome visitor to bird feeders."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Tufted Titmouse *Baeolophus bicolor*	MBTA	PB	Both	ALL Blocks	"A common bird of deciduous woods and suburban areas…"	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Nuthatches						
Red-breasted Nuthatch *Sitta canadensis*	MBTA	PB	No	0 Blocks	"A characteristic bird of spruce-fir forests in Canada. Occurs in mature coniferous forests, especially spruce, fir, larch, and cedar, and in mixed deciduous-coniferous forests with a high number of conifers, as well as suburban habitats."	Observed on site by Ecological Solutions. Likely casual visitor. On-site habitat not suitable for breeding.
White-breasted Nuthatch *Sitta carolinensis*	MBTA	PB	Both	ALL Blocks	"A common bird of deciduous forests and wooded suburbs…The nuthatch breeds in mature deciduous forests, especially near openings and edges, as well as in parks and suburbs with large trees."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Creepers						
Brown Creeper *Certhia americana*	MBTA	PB	5862C	5862A, 5862D	"A small well-camouflaged bird that nests in coniferous and mixed coniferous-deciduous forests and is especially common in old-growth stands."	Possible breeder, limited suitable habitat.
Wrens						
Carolina Wren *Thryothorus ludovicianus*	MBTA	PB	Both	ALL Blocks	"A characteristic bird of southeastern United States…This wren uses a wide variety of habitats, including suburban settings, usually requiring moderate to dense shrub or brushy cover and often favoring ravines and gorges."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
House Wren *Troglodytes aedon*	MBTA	PB	Both	ALL Blocks	"A familiar and noisy inhabitant of forest edges and open, shrubby woodlands, as well as city parks and residential areas with trees."	Probable breeder, plenty of suitable habitat.

Gnatcatchers						
Blue-gray Gnatcatcher *Polioptila caerulea*	MBTA	PB	5861A	5862A, 5862D	"Deciduous forests…Breeds in a variety of deciduous wooded habitats from shrub land to mature forests, especially near water. In northeastern United States, generally confined to lowlands, especially near rivers and lakes and shows a fondness for oaks. Below 2,000 feet elevation."	Probable breeder, plenty of suitable habitat.
Thrushes						
Eastern Bluebird *Sialia sialis*	MBTA	PB	Both	ALL Blocks	"A bird of open habitats…most bluebirds now nest in nest boxes, and their success is strongly tied to the availability of those boxes. Threats may come from the loss of farmland to natural succession and development…Suburban development and sprawl also negatively affects bluebirds because the house sparrow follows high densities of people."	Possible breeder, limited suitable habitat. Would be attracted by mowing lawns and installing bluebird boxes.
Veery *Catharus fuscenscens*	MBTA	PB	5862C	ALL Blocks	"The Veery generally nests in damp, deciduous forest with dense undergrowth. Preferred habitats include disturbed forest, probably because of its denser understory, and late shrub or early-successional trees. In some areas, the Veery uses coniferous and mixed forest as well. It is area sensitive, meaning it is more likely to be present in larger forest patches."	Observed on site by Ecological Solutions. Possible breeder, presence of suitable habitat limited by forest patch size.
Wood Thrush *Hylocichla mustelina*	MBTA	PB	Both	ALL Blocks	"Breeds in deciduous forests with a high canopy, a well-developed understory and leaf litter layer, and some moisture."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
American Robin *Turdus migratorius*	MBTA	PB	Both	ALL Blocks	"One of the most familiar birds in North America, as it breeds in a variety of habitats… It uses forests, woodlands, and gardens, especially short-grass areas interspersed with shrubs and trees…It is tolerant of people…."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Mockingbirds and Thrashers						
Gray Catbird *Dumetella carolinensis*	MBTA	PB	Both	ALL Blocks	"Found in dense, shrubby habitats, such as abandoned farmland, fencerows, roadsides, streamsides, forest edges and clearings as well as residential areas."	Probable breeder, plenty of suitable habitat.
Northern Mockingbird *Mimus polyglottos*	MBTA	PB	Both	ALL Blocks	"it is found in areas with open ground and shrubby vegetation, such as parkland, cultivated land, and suburbs…commonly forages for prey on mowed lawns."	Probable breeder, plenty of suitable habitat.
Brown Thrasher *Toxostoma rufum*	MBTA	PB	5861A	0 Blocks	"Thickets, hedgerows, and forest clearings…it breeds in brushy open country, thickets, shelter belts, riparian areas, and suburbs…early successional habitats."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Starlings						
European Starling *Sturnus vulgaris*	UN	UN	Both	ALL Blocks	"A ubiquitous resident of human-dominated landscapes."	Probable breeder, plenty of suitable habitat.
Waxwings						
Cedar Waxwing *Bombycilla cedrorum*	MBTA	PB	Both	ALL Blocks	"Shuns dense forests. Prefers wetlands and open wooded habitats that offer fruit and insect foods. Exposed perches near water bodies for emergent insects; it also gleans insects from vegetation."	Probable breeder, plenty of suitable habitat.

Wood Warblers						
Blue-winged Warbler *Vermivora pinus*	MBTA	PB	5861A	5862A, 5862D, 5861B	"Breeds in dry, early- to middle-successional habitat and in swamps with a high density of shrubs…abandoned farmland, pastureland."	Probable breeder, plenty of suitable habitat.
Brewster's Warbler *Vermivora pinus x V. chrysoptera*				5861B		Hybrid. Does not breed successfully.
Yellow Warbler *Dendroica petechia*	MBTA	PB	Both	ALL Blocks	"A widespread and adaptable breeder….Uses a wide variety of breeding habitats...margins of marshes, swamps, ponds, and streams, to upland gardens, orchards, and old fields. Sites near water are almost always occupied when adequate shrubby vegetation is present, whereas occupancy of upland sites is more localized, with many unoccupied sites at least superficially similar to occupied ones."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Chestnut-sided Warbler *Dendroica pensylvanica*	MBTA	PB	None	5862A, 5862D, 5861B	"A bird of forest edges and early-successional deciduous forest habitats, such as abandoned farmlands, and regenerating clear-cuts. It prefers small trees or saplings to perch on while singing, but spends much of its time on the ground in shrubs and thickets."	Possible breeder, some suitable habitat.
Magnolia Warbler *Dendroica magnolia*	MBTA	PB	5861A	5861B	"A common bird of the eastern boreal forest. New York is near the southeastern edge of its range. It breeds in small, dense conifers, especially young spruces, in purely coniferous stands or in mixed forest. It is densest in young second-growth spruces but can also be found in mature forests if a dense understory is present."	Possible breeder, some suitable habitat.
Black-throated Blue Warbler *Dendroica caerulescens*	MBTA	PB	5861A	0 Blocks	"The preferred breeding habitat for the Black-throated Blue Warbler includes large tracks of relatively undisturbed hardwood and mixed forest, with a closed tree canopy and dense undergrowth that often contains hobblebush."	Not Suitable Habitat On-Site.
Black-throated Green Warbler *Dendroica virens*	MBTA	PB	None	5862A, 5862D	"One of the most common breeding species of northern coniferous forests. It is also found in mixed forests but generally in or near conifers. It typically avoids small, fragmented forest patches…Found throughout the more heavily forested portions of New York, preferring larger forest patches and especially hemlocks."	Not Suitable Habitat On-Site.
Blackburnian Warbler *Dendroica fusca*	MBTA	PB	None	0 Block	"The treetop dwelling Blackburnian Warbler breeds in tall, mature, coniferous forest and mixed woodlands where it shows a preference for hemlock. A local breeder throughout the cooler swamps, gullies and highlands of central and western New York."	Observed on site by Ecological Solutions. Possible breeder but not likely. Breeds in older pines at higher elevations and more northern latitudes.
Pine Warbler *Dendroica pinus*	MBTA	PB	5862C	5862B	"The Pine Warbler is found in forests of many species of pine but not in other coniferous forest types, such as spruces, hemlocks or larch. Largest populations in pine barrens of eastern Long Island. Prefers mature stands of pines, with a closed canopy that lacks a deciduous understory."	Possible breeder, limited suitable habitat.

Prairie Warbler *Dendroica discolor*	MBTA	PB	5861A	5861B	"A species of ephemeral, successional habitats, as well as more permanent plant communities often dominated by pitch pine or scrub oak, like those found in the pine barrens of Long Island and Albany. Its habitats often have a savannah-like appearance, with widely spaced woody plants of low stature, interspersed with grasses and forbs. Successional red cedar woodland, and pitch pine -oak forests (Long Island and Hudson Valley only)."	Possible breeder, limited suitable habitat.
Cerulean Warbler *Dendroica cerulea*	MBTA	PB-SC	None	5862A	"Two distinct habitat types are used: forested woodlands and riparian corridors dominated by sycamore, cottonwood, silver and red maples, and green ash; and dry ridgetops and hillsides dominated by mature oak-hickory and mixed mesophytic forests."	Not Suitable Habitat On-Site. Prefers nesting in cottonwoods, for example along the Hudson River.
Black-and-White Warbler *Mniotilta varia*	MBTA	PB	Both	5862A, 5862D, 5861B	"The Black-and-white Warbler can occupy a diversity of forest habitats…early- to mid-successional forests, mature and second-growth deciduous and mixed forest and forested wetlands. It appears to prefer areas of extensive forests"…declines observed in fragmented forests or with understory heavily browsed by deer.	Possible breeder, limited suitable habitat.
American Redstart *Setophaga ruticilla*	MBTA	PB	Both	5862A, 5861B	"Breeds primarily in moist second-growth deciduous forest with abundant shrubs in the understory. Primarily a bird of tree-fall gaps, edges of old beaver meadows, old burned areas, and other areas where the primary forest had been disturbed and growing back...A bird of second growth forests."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat
Worm-eating Warbler *Helmitheros vermivorum*	MBTA	PB	Both	5862A, 5862D	"It typically breeds in mature deciduous or mixed deciduous-coniferous forest with patches of dense understory, usually on a moderate to steep slope, although flatter areas, including dry islands in "nontidal wetland forests" may be used where the bird occurs on the eastern coastal plain."	Not Suitable Habitat On-Site.
Ovenbird *Seiurus aurocapilla*	MBTA	PB	5862C	ALL Blocks	"This warbler nests in mature deciduous and mixed deciduous-coniferous forests. It prefers climax forests, usually with a canopy height of 52-72 feet and a canopy closure of 60-90 percent, and reuqires 247 to 2,187 of continuous habitat to breed successfully."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Louisiana Waterthrush *Seiurus motacilla*	MBTA	PB	Both	5862A, 5862D, 5861B	"This is a bird of clear, fast-flowing forest streams, where it seeks the shade of hemlocks or other dense riparian vegetation and feeds on aquatic invertebrates."	Possible but unlikely. No hemlock shaded streams.
Common Yellowthroat *Geothlypis trichas*	MBTA	PB	Both	ALL Blocks	"One of the most widespread warblers in North America… common in thick, tangled vegetation and is most frequently found not only near water but also in prairies and dry , shrubby hillsides. Shrubby vegetation…marshes and thickets."	Probable breeder, plenty of suitable habitat.

Sparrows						
Eastern Towhee *Pipilo erythrophthalmus*	MBTA	PB	Both	5862B, 5862D, 5861B	"It breeds in habitats with low, dense cover, often in dry environments with open ground, and can be found in old fields, forest edges, dune scrub, oak scrub, pine barrens, and riparian thickets."	Probable breeder, plenty of suitable habitat.
Chipping Sparrow *Spizella passerina*	MBTA	PB	Both	5862B, 5862D, 5861B	"A bird of small open areas, the Chipping Sparrow is often found breeding near people. It breeds in open woodlands with grass, along river and lake shorelines, and in orchards, farms, urban and suburban parks, and residential neighborhoods. It often puts its nest in a small coniferous tree surrounded by grass or an open area."	Probable breeder, plenty of suitable habitat.
Field Sparrow *Spizella pusilla*	MBTA	PB	5861A	5861B	"Breeds in old fields, brushy pastures, second-growth shrublands, woodland openings and edges, roadsides, and railroads near old fields. It will nest in old fields directly after a burn or within a year of cultivation, but only if scattered woody vegetation with elevated perches are present. As succession changes old fields into a more forested state, Field Sparrow numbers decline."	Not Suitable Habitat On-Site.
Savannah Sparrow *Passerculus sandwichensis*	MBTA	PB	None	5861B	A common bird of open country…it breeds in a variety of open habitats including meadows, agricultural fields, pastures…accepts a wider range of open and early-successional habitats than other grassland sparrows…and in New York it uses grassy fields with scattered forbs; fields of alfalfa, cover and trefoil..."	Not Suitable Habitat On-Site.
Song Sparrow *Melospiza melodia*	MBTA	PB	Both	ALL Blocks	"A common and well-known bird that lives in a variety of habitats across most of North America. Found in a wide variety of forest, shrub, and riparian habitats, as well as in salt marshes, agricultural areas, suburban parks, and residential areas. In New York, it is found in all habitats except deep forests, open fields, and marshes devoid of shrubs."	Probable breeder, plenty of suitable habitat.
Swamp Sparrow *Melospiza georgiana*	MBTA	PB	None	5862D, 5861B	"A common inhabitant of New York's emergent and shrub wetlands. The swamp Sparrow nests in brackish marshes and beaver ponds."	Not Suitable Habitat On-Site.
White-throated Sparrow *Zonotrichia albicollis*	MBTA	PB	None	None	"This woodland sparrow favors mixed or coniferous forests with low, dense vegetation, usually second-growth forests that have been disturbed by logging or windstorms."	Observed on site by Ecological Solutions. Unlikely breeder, common visitor Fall-Spring migrations.
Tanagers, Grosbeaks and Buntings						
Scarlet Tanager *Piranga olivacea*	MBTA	PB	Both	ALL Blocks	"Breeds in a variety of deciduous and mixed forests. It prefers mature forests, especially those with oaks, but can be found in most of New York's Forests….The Scarlet Tanager is an area-sensitive species meaning it is more likely to be found in larger forest patches...in western New York paring success was high in all forest patches greater than...25 acre, but fledgling success increased significantly with forest size."	Possible but unlikely breeder. Habitat suitability limited by forest patch size.
Northern Cardinal *Cardinalis cardinalis*	MBTA	PB	Both	ALL Blocks	"The cardinal inhabits areas with shrubs and small trees, including forest edges, hedgerows and suburbs."	Probable breeder, plenty of suitable habitat.
Rose-breasted Grosbeak *Pheucticus ludovicianus*	MBTA	PB	Both	ALL Blocks	"It prefers deciduous and mixed deciduous-coniferous woodlands, second growth woodlands, orchards, suburban parks, and gardens. It is especially fond of the shrubby boundary of woods at streams, ponds, marshes, roads or pastures."	Probable breeder, plenty of suitable habitat.
Indigo Bunting *Passerina cyanea*	MBTA	PB	Both	ALL Blocks	"It breeds in brushy and weedy areas along the edges of cultivated land, woods, roads, power-line rights-of-way, and in open deciduous woods and old fields."	Probable breeder, plenty of suitable habitat.

Blackbirds and Orioles						
Red-winged Blackbird *Agelaius phoeniceus*	MBTA	PB	Both	ALL Blocks	"Inhabitant of marshes, swamps, river edges, moist meadows, agricultural fields, and grassy uplands throughout New York State. "	Possible breeder, limited suitable emergent reed/wetland habitat.
Common Grackle *Quiscalus quiscula*	MBTA	PB	Both	ALL Blocks	"It is found in a variety of open areas with scattered trees, including open woodland, boreal forest, swamps, marshes, agricultural areas, urban residential areas, and parks."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Brown-headed Cowbird *Molothrus ater*	MBTA	PB	Both	ALL Blocks	"Preferred habitat of the cowbird is grassland with low or scattered trees such as woodland edges, brushy thickets, prairies, fields, pastures, orchards, and residential areas…Forest-field edges are preferred breeding sites, based on the location of parasitized nests."	Probable breeder, plenty of suitable habitat.
Orchard Oriole *Icterus spurius*	MBTA	PB	5861A	5862A, 5861B	"This oriole nests in gardens, orchards, suburban areas, along streams and lakes, and in large planted trees near houses….The Orchard Oriole has never been particularly common in New York outside of Coastal Lowlands."	Possible but unlikely as this species only occasionally breeds in NY.
Northern (Baltimore) Oriole *Icterus galbula*	MBTA	PB	Both	ALL Blocks	"A bird of tall trees…It nests along woodland edges and open areas with scattered trees, especially deciduous trees, and in parks and wooded urban areas."	Observed on site by Ecological Solutions. Probable breeder, plenty of suitable habitat.
Finches						
Purple Finch *Carpodacus purpureus*	MBTA	PB	5862C	5862B	"The Purple Finch is found at the edges of coniferous forests and plantations, open mixed deciduous-coniferous forests, conifer plantations, conifer-dominated park-like habitat, and scattered backyard ornamental conifer plantings."	Not Suitable Habitat On-Site.
House Finch *Carpodacus mexicanus*	MBTA	PB	Both	ALL Blocks	"In the East is closely associated with human-dominated habitats. While the House Finch avoids continuous expanses of forest, it seems to be present even in blocks with extensive forest cover, presumably near cultivated areas."	Probable breeder, plenty of suitable habitat.
American Goldfinch *Spinus tristis*	MBTA	PB	Both	5862A, 5862D, 5861B	"The American Goldfinch likes open areas where it finds trees for nesting and fields for foraging. This rather general preference allows it to nest in a great variety of habitats such as parks, shrublands, second growth forests, forest edges, swamps, early successional fields, orchards, and hedgerows."	Probable breeder, plenty of suitable habitat.
European Sparrows						
House Sparrow* *Passer domesticus*	UN	UN	Both	ALL Blocks	"This sparrow nearly always stays near people and their buildings. The House Sparrow... is absent only from forested or sparsely populated areas at higher elevation…"	Probable breeder, plenty of suitable habitat.

ATTACHMENT 5

Herpetological Atlas Data

COMMON/SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	IN POUGHKEEPSIE QUADRANGLE	SURROUNDING FIVE QUADRANGLES	HABITAT REQUIREMENTS	SITE SPECIFIC CONCLUSIONS
REPTILES/HERPTOFAUNA						Green= Present or very likely.
						Yellow = Possible but not probable.
Hellbender, Mudpuppies and Salamanders						Gray = Highly unlikely.
Marbled Salamander *Ambystoma opacum*	UN	GN-SC	No	Hyde Park, Salt Point	"Found in upland and floodplain deciduous forests with wet depressions that provide fall breeding pools. This salamander appears to prefer forests with dry, friable soils and well drained slopes as long as moist areas are nearby. Breeding occurs during the fall in forest depressions that contain water during the fall, winter and spring but dry up during the summer....Streambeds may be used for migration routes.[C]"	Not identified on Project Site Quad. No Vernal Pools or Intermittent Woodland Ponds On-Site. Possible use of stream corridor.
Jefferson Salamander *Ambystoma jeffersonianum*	UN	GN-SC	No	Hyde Park	"Occur in deciduous forest and mixed deciduous-coniferous forests with abundant tree stumps and downed logs that provide shelter. They occur in bottomland forests adajcent to disturbed and agricultural lands. Breeding occurs in ephemeral pools and in semi-permaennt wetlands adjacent to woodland habitat. Breeding pools are generally cool, slightly turbid, and with an forested shoreline and emergent vegetation on the bottom. Fish-free ponds are prefered but some populations will breed where fish are present.[E]"	Not identified on Project Site Quad, and only one surrounding Quadrangle. No Vernal Pools or Intermittent Woodland Ponds On-Site. Some bottomland forests on site.
Blue-Spotted Salamander *Ambystoma laterale*	UN	GN-SC	No	Hyde Park, Hopewell Junction.	"Found under logs, leaf litter and other ground cover. It occurs in damp, deciduous or deciduuous-coniferous forests, as well as open areas including pastures, grassy fields that support permanent or ephemeral pools or ponds. It is occassionally found in areas of sandy soils, but is also asociated with bogs, marshes or other poorly drained sites. Breeding habitat is a vernal or permanent pool/pond (formed by ground water seepage, surface runoff and/or preciption), 20-40 yards long and approximately 3 feet in depth. The ponds usually have mud bottoms and thick vegetation above and below the water surface. A vernal pool indicator species.[A]"	Not identified on Project Site Quad. No Vernal Pools or Intermittent Woodland Ponds On-Site.
Spotted Salamander *Ambystoma maculatum*	UN	GN	No	Hyde Park, Salt Point, Pleasant Valley, Wappinger Falls	"Adults spend their lives in forested areas within a half mile of a vernal pool. They frequent small mammal burrows, crevices in rock walls, and tunnels beneath logs in soft soil…Breeds in vernal pools.[F]"	Not identified on Project Site Quad. No Vernal Pools or Intermittent Woodland Ponds On-Site.
Eastern Red-Spotted Newt *Notophthalmus viridescens*	UN	GN	Yes	Hyde Park, Salt Point, Pleasant Valley, Wappinger Falls	"Adults…are completely aquatic and are found in a variety of wetlands, including some vernal pools…Adults are fully aquatic and rely on semipermanent and permanent water bodies. They are able to become terrestrial and move to alternate locations in the event that their pond dries....Efts are terrestrial and spend 4 to 5 years wandering before reaching sexual maturity and seeking a wetland for permanent residence...They are often encountered during much of the year in dry upland areas.[F]"	No vernal pools on site. No semipermanent or permanent water bodies (i.e., ponds, lakes) present on site. Efts may be present in woods. Very common salamander in New York.
Northern Red-backed Salamander *Plethodon cinereus*	UN	GN	Yes	Hyde Park, Pleasant Valley, Wappinger Falls	"A terrestrial salamander…Forages at night for food…on the forest floor and even climbing into shrubbery…No real association with vernal pools…[F]"	Observed on Site by Ecological Solutions.
Northern Slimy Salamander *Plethodon glutinosus*	UN	GN	No	Hyde Park, Pleasant Valley, Wappinger Falls	"Terrestrial salamander..moist soil or leaf litter beneath stones, rotting logs or other debris near a permanent water source.[G]"	Habitat possibly present in vicinity of Wetland A, B.

Northern Red Salamander *Pseudotriton ruber*	UN	GN	No	Hyde park	"Typically found under logs, rocks, and leaf littler in moist forests near streams, ponds, bogs and wet meadows. Larvae develop in clean cool streams and brooks. Cold rocky streams, springs, ponds, or bogs in hardwood, conifer, and mixed woodlands or open areas with cool running streams or beaver meadows. Adults occur in or near water in leaf-litter and under rocks, and in crevices and burrows near water. Eggs are attached to the underside of rocks in water. Larvae develop in still pools...[E]"	Not identified on Project Site quadrangle, and only present on one surrounding quadrange. Requires cool clean stream or brook, pond with conifer or mixed hardwood or beaver meadow. Habitat not present on site. Unlikely.
Northern Two-Lined Salamander *Eurycea bislineata*	UN	GN	No	Hyde Park, Pleasaant Valley	"Prefers small rocky streams or seeps in forests, but may occur in moist areas far from running waters. Temporate forests, shrublands, rivers, intermittent rivers, freshwater marshes, freshwater springs, arable land, and urban areas.[G]"	Not identified on Project Site Quadrange. Associated with small rocky streams in forests. Possible habitat in Wetland B and A.
Toads and Frogs						
Eastern American Toad *Anaxyrus americanus*	UN	GS	Yes	ALL QUADRANGLES	"Wet areas such as vernal pools, marshes, swamps and the shallows of rivers and lakes and even water-filled ditches and ruts. Toadlets emerge on land …and disperse into woodlands and across suburban lawns.[F]"	Observed on Site by Ecological Solutions.
Fowler's Toad *Anaxyrus fowleri*	UN	GS	No	Salt Point, Pleasant Valley	"Found in wooded lowlands, river valleys and floodplains, and agricultural areas, and are typically associated with dry, friable sois. Dry soils facilitate underground burrowing during times of inactivity, though this toad may also hide under rocks, plants, or other cover when inactive. Breeding occurs in shallow water of marshes, ponds, lakes, reservoirs, flooded areas, and other bodies of water lacking a strong current including ephemeral pools, ditches, and borrow pits. Fowler's toads do not avoid disturbed areas and can occur in suburban areas, as they do on Long Island.[C]"	Site does contain a river valley, floodplain and friable soil. Site does not contain breeding habitat such as marshes, ponds, lakes or reservoirs. Stream in Wetland B has some strong current. Site does not have ephemeral pools, ditches, borrow pits. Can occur in disturbed areas. Possible habitat.
Eastern (Northern) Cricket Frog *Acris crepitans*	UN	GN-E	No	Hyde Park	"Found along the vegetated shorelines of lakes, bogs, ponds, vernal pools and extensive marshes. They use uplands during the fall and for hibernation…Breeding occurs in almost any permanent freshwater body including lakes, ponds, rivers and streams, though large water bodies and those that are polluted are generally avoided. Breeding areas typically have shallow water, floating mats of aquatic vegetation, sloping banks that are muddy or sandy, limited canopy cover, and at least some surrounding forest.[A]"	Not identified on Project Site. Not identified by NYNHP. Habitat on site not suitable. Wetlands/watercourses on site do not have floating mats of vegetation. Habitat not present on site. Unlikely.
Gray Treefrog *Hyla versicolor*	UN	GS	Yes	ALL QUADRANGLES	"They breed in vernal pools and other wetlands in the spring. Live in forested areas during rest of year. Adults are often found near suburban homes where they feed on insects attracted to lights at night...[then] found in flower boxes and hanging plants where they spend the day. [F]"	Breeding habitat not present on site, as there are no vernal pools. Forested habitat is present. Possible habitat during remainder of year. Adaptable species.
Spring Peeper *Pseudacris crucifer*	UN	GS	Yes	ALL QUADRANGLES	"Primarily live in forests and regnerating woodlands near ephemeral or semipermanent wetlands. Requires marshes, ponds, or swamps.[G]"	May be present on site in wetlands and upland woods. Vernal pools not present on site, but Wetland A and C may be used.
American Bullfrog *Lithobates catesbeianus*	UN	GS	No	ALL FIVE SURROUNDING QUADRANGLES	"Bullfrogs are typical of permanent and semipermanent water bodies where they breed. They may use temporary vernal pools during migrations and for feeding throughout the spring and summer.[F]"	There are no permanent or semipermanent waterbodies (ponds, lakes) on the site for breeding. There are no vernal pools on the site. Habitat not present on the site. Unlikely.
Northern Green Frog *Lithobates clamitans*	UN	GS	Yes	ALL QUADRANGLES	"Live wherever shallow freshwater ponds, road-side ditches, lakes, swamps, streams, and brooks are found.G"	A common species that uses a variety of habitats. Could be on site in Wetlands A and B.
Wood Frog *Lithobates sylvaticus*	UN	GS	Yes	ALL QUADRANGLES	"A terrestrial frog found in moist woodlands…the adults are seldom associated with water other than during the breeding season of early spring when wood frogs migrate en masse to vernal pools…mating and egg laying follow and are completed within a few weeks, upon which adults leave the vernal pool and return to nearby uplands. The adults sometimes overwinter...under the leaf litter of the forest floor.[F]"	There are no vernal pools on the site. Species found in moist woodlands. May be present in the undisturbed woods on the site.

Northern Leopard Frog *Lithobates pipiens*	UN	GS	No	Hyde Park, Pleasant Valley, Wappinger Falls	"Wide range of habitats…Found in permanent ponds, swamps, marshes, and slow moving streams throughout forest, open, and urban areas…waterbodies with abundant vegetation.[G]"	A common species that uses a variety of habitats. Could be on site in Wetlands A and B.
Pickerel Frog *Lithobates palustris*	UN	GS	No	Hyde Park, Pleasant Valley, Hopewell Junction, Wappinger Falls	"Pickerel frogs can be found at a variety of wetland habitats but seem to favor shallow water and a shoreline with herbaceous vegetation. They are frequently encoutered in damp woods, meadows, and similar moist areas.[F]"	This is frog of shallow open water with herbaceous vegetation, but also found in damp woods and meadows. Site does not have open waterbodies or wet meadows, and woods are not damp. If it was on site, it would be confined to Wetlands A, B or C.
Turtles						
Snapping Turtle *Chelydra serpentina*	UN	GS	Yes	ALL QUADRANGLES	"Snapping turtles are aquatic, spending most of their time in fresh water bodies or basking at the surface. Any freshwater water body may be used but there is a preference for slow-moving, shallow water with muddy bottom. The shallower edges of larger, deeper lakes may also be used...While they require permanent water bodies to survive, snapping turtles may live without water for up to two weeks, allowing for extensive terrestrial migrations through dense forest and uneven terrain... Manmade structures, including roadsides (road shoulders), dams and aggregate pits are used for nesting. Hibernation occurs in the soft mud of shallow water where turtles congregate, often on top of one another.[D]"	No open water bodies present on site of suitable depth for this turtle. It is a common species, so could be present, but not likely.
Eastern Musk Turtle *Sternotherus odoratus*	UN	GN	No	Hyde Park, Hopewell Junction	"Use a variety of waterbodies that have soft, muddy substrate, submerged vegetation, and little or no current. They may be found in canals, ponds, large streams, marshes, and weedy coves of natural lakes and rivers. Isolated water bodies are generally not occupied, since musk turtles do not wander distances across land...Nesting sites are variable, but must be close to water and have exposure to direct sunlight.[B]"	Streams on site not deep enough to have submerged aquatic vegetation, and would not qualify as a "large stream." Habitat not present. Unlikely.
Spotted Turtle *Clemmys guttata*	UN	GN-SC	No	ALL FIVE SURROUNDING QUADRANGLES	"Use large areas that provide a mosaic of habitats including ponds, emergent marshes, shrub swamps, forested wetlands, fens, wet meadows, seasonal pools, streams, rivers, forests and other upland habitats. Wetlands may be open or forested but soft bottom substrate is required, as is shallow clear water, and aquatic vegetation...dominant ground cover in the habitat of spotted turtles in Massachusetts study was Sphagnum. Nesting occurs in open areas that are non-forested including meadows, fields, pastures, sand and gravel pits and roadsides, as well as hummocks in emergent wetlands and red maple swamps...Hibernation occurs in areas that provide structural protection...abandoned muskrat and beaver lodges and burrows, beaver dams, and submerged roots in flooded trees, and in the crevices of stone walls that cross wetlands.[B]"	Spotted turtle not identified on the Poughkeepsie quadrangle. Site does not contain a large wetland, nor a wetland mosaic, nor does it contain ponds, wet meadows, seasonal pools. The open areas on the site are dominated by invasive wormwood, and do not have significant sunlight penetration to the ground reducing nesting potential. Habitat not present. Unlikely.
Bog Turtle *Glyptemys muhlenbergii*	T-CA1	GN-E	No	Hopewell Junction	"Low-lying open calcareous wetland complexes with a variety of pockets that may be dry, saturated, and subject to flooding. These wetlands are characterized by a continuous flow of water seeping through the saturated soil surface. Within these wetlands, bog turtles need a variety of microhabitats for basking, foraging, nesting, shelter and hibernation including dry pockets, saturated pockets and areas subject to flooding. Hibernation occurs in densely vegetated areas of the wetland complex where turtles use channels beneath hummocks that are covered with trees and shrubs.[B]"	Only identified on the Hopewell Junction quadrangle. Site not underlain by calcareous bedrock. Bog turtle habitat not present on site. Site does not muck soils, specific calcium dependent plants, or proper hydrology.

Wood Turtle *Glyptemys insulpta*	UN-CA2	GN-SC	Yes	Salt Point, Pleasant Valley, Hopewell Junction, Wappinger Falls.	"Found in a variety of aquatic habitats including rivers, streams, swamps, bogs, seasonal pools, and wet meadows. However, they are most strongly associated with flowing water and adjacent early-successional uplands…Slow moving streams with sandy bottom substrate and stream banks that are heavily vegetated seem to support the highest densities of this turtle. Wood turtle require clean water, and populations are commonly found in streams with native brook trout. Terrestrial habitats are used extensively...Fields and meadows, frequently containing alder, willow, or meadowsweet thickets or multiflora rose, adjacent to streams and rivers are used for basking and feeding. Early to mid-successional forests, composed of oak, black birch, and red maple are also used, as are hemlock forests and agricutural lands...Nesting occurs on railroad grades, sand/gravel pits, eroding river banks, sand bars and dirt roads.[B]"	Wood turtles use rivers and streams and are associated with flowing water, which is present in Wetland B, and somewhat in Wetland A. However, they are typically found in cleaner waters with trout populations; the on-site watercourse is not a Class C(T) stream. In addition, the on-site stream is fragmented by a culvert between Wetland B and off-site/upstream, and is then conveyed underground before emerging in Wetland A, which is then culverted to the west. Therefore, presence is assessed as possible, but not likely.
Eastern Box Turtle *Terrapene carolina*	UN	GN-SC	No	ALL FIVE SURROUNDING QUADRANGLES	"Found in dry and moist woodlands…this species is also associated with pastures and meadows as well as old fields and powerline cuts. There is a preference for sandy, well-drained soi, and occupied habitat is typically near ponds or streams. Nesting occurs in a variety of open habitats including road sides, gardens, lawns and woodlands.[B]"	Observed on Site by Ecological Solutions.
Northern (Common) Map Turtle *Graptemys geographica*	UN	GN	No	Hyde Park	"Found in large lakes and rivers with slow moving water and a muddy bottom…A high density of deadwood snags is an important component of suitable habitat for species, as is the width of the waterbody such that aerial basking can occur…and a line of sight that allows turtles to drop quickly into the water when threatened... An abundant source of invetebrate prey is also important. Beyond basking, map turtles leave the water only to lay eggs, and females will move a distance to find an upland area outside of the flood zone. Juveniles use shallow areas where they are less exposed to aquatic and terrestrial predators, while adults use deeper water; their larger body size allows them to deal with a stronger current. Map tutles hibernate in the mud at the bottom of deep pools within large water bodies, or in the burrows of beaver or muskrat....Well-oxygenated water is required during hibernation.[D]"	Habitat not present on site. No large moving rivers or lakes.
Red-eared slider (slider turtle) *Trachemys scripta*	UN	GN	No	Wappinger Falls	"Areas with a source of still, warm water such as ponds, lakes, swamps, creeks, streams or slow-flowing rivers. They live in areas of calm water where they are able to leave the water easily by climbing onto rocks or tree trunks so they can warm up in the sun....they also require abundant aquatic plants, as these are the adult's main food source.[G]"	No on-site ponds, lakes or swamps. Site does have a stream, with some current. Stream did not include a abundant submerged aquatic plants. Possible but unlikely.
Painted turtle *Chrysemys picta*	UN	GN	Yes	ALL FIVE SURROUNDING QUADRANGLES	"Lives in slow-moving fresh waters…with soft bottoms, basking sites and aquatic vegetation. Creeks, marshes, ponds and the shores of lakes.G"	No on-site marshes, ponds or shores of lakes. Site does have a stream with some current. Possible but unlikely.
Blanding's Turtle *Emydoidea blandingii*	UN	GN-T	No	Hyde Park, Salt Point, Pleasant Valley, Wappinger Falls	"Requires large tracts of land with a variety of permanent and temporary wetlands and upland habitats including ponds, rivers, marshes, fens, swamps, vernal pools, wetlands, forests, and shrublands….found in shallow emergent marsh and scrub/shrub wetlands with abundant aquatic vegetation dominated by buttonbush...Nesting occurs in exposed areas such as plowed fields, pastures, dirt road edges, sand and gravel pits, and bedrock outcrops.[B]"	Species not identified by NYNHP on the site, so site is more than 0.81 miles from any known occurrence. Core habitat (buttonbush or intermittent woodland pool) not present on site. Some nesting habitat identified by Hudsonia but unlikely to be useful due to presence of invasive wormwood, reducing solar exposure. Unlikely to be present.
Lizards						
Common Five-lined Skink *Plestiodon fasciatus*	UN	GN	No	Hopewell Junction	"Ground dwelling animals. They prefer moist, partially wooded habitat that provides ample cover or inside walls of buildings as well as site to bask in the sun. They can also be found in broken, rocky areas at the northern edge of their habitat.[G]"	Not commonly found in Dutchess County (identifed in only three out of 21 Quadrangles in Dutchess County). Habitat present. Possible.

Snakes						
Common Watersnake *Nerodia sipedon*	UN	GN	Yes	ALL FIVE SURROUNDING QUADRANGLES	"Hunt among plants at the water's edge…basking on stream banks. Lives near lakes, ponds, marshes, rivers and canals[G.]"	Habitat present. Likely.
Northern brownsnake *Storetia dekayi*	UN	GN	Yes	Salt Point, Wappinger Falls	"Dense forest to open grasslands, dry hillsides to marsh borders of ponds and lakes, abandoned human habitats, vacant lots, and other variable habitats. May be found under rocks, logs, boards or other debris.[H]"	A habitat generalist that uses abandoned human habitats, vacant lots, under rocks, debris, dry hillsides. Not found on Poughkeepsie Quadrangle and only found on two surrounding quadrangles. Possible.
Northern red-bellied Snake *Storeria occipitomaculata*	UN	GN	No	None	"Deciduous hardwood forest and upland regions, open canopy woodlands, wood/field borders, wood/stream borders, moist woodlands, open fields, marsh or bog borders. May be found under rocks, logs, bark or other natural debris.[H]" "Can be found in moist flowerbeds, gardens and moist woodlands, such as borders between a forest and a wetland…often found under logs and rocks near a woods or forest.[G]"	A habitat generalist. However, not found on Poughkeepsie Quadrangle or any surrounding quadrangles. Possible.
Eastern Gartersnake *Thamnophis sirtalis*	UN	GN	Yes	ALL FIVE SURROUNDING QUADRANGLES	"Variety of habitats, with a preference for grassy or shrubby fields, including abandoned farmland, outbuildings, trash dumps. Stonewalls that separate forest from fields. Moist habitats such as lakes, rivers, streams, swamps, bogs, ponds, drainage ditches, quarries. Snakes are present in urban environments.[H]"	Observed on Site by Ecological Solutions.
Eastern Ribbon snake *Thamnophis sauritus*	UN	GN	No	Hyde Park, Pleasant Valley	"Associated primarily with aquatic habitats, frequenting the edges of ponds, marshes, bogs, and streams…Although they avoid deep water, ribbonsnakes will readily swim and are second only to the northern watersnake for their affinity for water...The ribbonsnake is semi-arboreal...using thick vegetation of shrubs for shelter, and thus a shrub layer is an important component of the habitat. Basking occurs in open grassy areas adajcent to water. Gravid females may move a short distance to upland areas before giving birth. Hibernation occurs in small mammal tunnels, among tree roots at the water's edge, or under fallen logs and other debris.[D]"	Stream habitat present on site. Not found on quadrangle, and only on two adjacent quadrangles. Possible.
Northern ring-necked Snake *Diadophis punctatus*	UN	GN	Yes	Salt Point, Pleasant Valley,	"Wide variety of habitats….areas with abundant cover and denning locations. Northern species found in open woodlands near rocky hillsides, or in wetter environments with abundant cover or woody debris.[G]"	Habitat present on site. Likely.
Northern Black Racer *Coluber constrictor*	UN	GN	No	Hyde Park, Salt Point, Pleasant Valley, Wappinger Falls	"Is a habitat generalist, but in the Northeast is typically associated with dry, upland forest habitats. They are found in open woodlands, shrubby grasslands and pastures, old fields, dunes and along marsh edges…wetlands may be an important component of the habitat mosaic, as racers are particularly susceptible to dehydration...in the fall, racers move great distances to rocky, wooded slopes and ledges where hibernation occurs. Other hibernation sites include mammal burrows, old building foundations, and rotted tree stumps....Racers may hibernate with other large snakes including timber rattlesnakes, northern copperheads and black ratsnakes.[D]"	Habitat generalist. Habitat components present. Probable.
Black Ratsnake *Pantherophis[Elaphe] alleghaniensis*	UN	GN	No	Hyde Park, Salt Point, Hopewell Junction, Wappinger Falls	"Are found in areas that provide a mixture of open land and forested land. Open areas include fields, thickets, early-successional habitats, and wetland edges; occupied forests may be dense. Abandoned buildings, infrequently used buildings, and barns may also be used...At the northern limit of the distribution in the northeast, eastern ratsnakes may be limited by the availability of suitable hibernacula. Hibernation takes place in rocky talus, rocky woodland areas, or along ledges, as well as in basements, root cellars, cisterns, and wells. Southern or southwestern exposure is necessary to provide the maximum thermal benefit from the winter sun, and to provide basking aresa in the spring and fall. This species may overwinter with black racer, timber rattlesnake, and northern copperhead.[D]"	Habitat generalist. Habitat components present. Probable.

Eastern Milk Snake *Lampropeltis triangulum*	UN	GN	Yes	Salt Point, Pleasant Valley, Hopewell Junction, Wappinger Falls.	"Habitat varies. Forest regions, but can be found in open praries or rocky slopes.[G]"	Habitat generalist. Habitat components present. Probable.
Northern Copperhead *Agkistrodon controtrix*	UN	GN	No	Hyde Park, Wappinger Falls	"Copperheads are found in open areas of deciduous forests where topography can be characterized as hilly or mountainous. Abundant rocks, logs, stumps, and leaf litter provide an excellent match for this snake's camouflage. Exposed rocky outcrops, ledges, and talus slopes with a south-facing exposre provide important basking and hibernation opportunities. During summer months, copperheads may be found in wet meadows, fields, and at the edges of swamps.[D]"	Not present on Poughkeepsie Quadrangle. Site not "mountainous" nor does it have large rocky outcrops, ledges or talus slopes with south facing exposure; rock outcrop along NYS Route 9 has northwest exposure. Site not known to have copperheads.
Timber rattlesnake *Crotalus horridus*	UN	GN-T	No	Wappinger Falls	"Annual life cycle…centers around the hibernaculum, which is typically situated on a mountain slope with southern exposure whre partial canoy over porvides both sun and shade, and there is access to deep underground retreats…Summer habitat consists primarily of deciduous forests in mountainous aeras, but rattlesnakes also use coniferous forests, mixed forests, old fields, or wetlands.[B]"	Only found on Wappinger Falls Quad. No reports of species by NYNHP. No hibernaculum habitat present in vicinity. Not present.

A) Source: NYSDEC. 2015. New York State Wildlife Action Plan. Amphibians. http://www.dec.ny.gov/docs/wildlife_pdf/hpsgcnamp.pdf

B) Source: NYSDEC. 2015. New York State Wildlife Action Plan. Reptiles. http://www.dec.ny.gov/docs/wildlife_pdf/hpsgcnreptiles.pdf

C) Source: NYSDEC. 2015. New York State Wildlife Action Plan. Amphibians. http://www.dec.ny.gov/docs/wildlife_pdf/sgcnamphibians.pdf

D) Source: NYSDEC. 2015. New York State Wildlife Action Plan. Reptiles. http://www.dec.ny.gov/docs/wildlife_pdf/sgcnreptiles.pdf

E) Source: NYSDEC. 2015. New York State Wildlife Action Plan. Amphibians. http://www.dec.ny.gov/docs/wildlife_pdf/spcnamphibians.pdf

F) Source: Kenny, Leo P. and Burne, Matthew R. 2000. "A Field Guide to the Animals of Vernal Pools." Massachusetts Division of Fisheries and Wildlife natural Heritage and Endangered Species Program & Vernal Pool Association.

G) Source: https://en.wikipedia.org/wiki

H) Source: http://www.paherps.com

ATTACHMENT 6

Photographs of the Project Site

Photo #1
Description: View west towards Route 9 from southern parking lot on site.

Photo #2
Description: View northeast from southern parking lot of landscape trees and buildings beyond.

Photo #3
Description: Tree with cavities east of parking lot at southern property boundary.

Photo #4
Description: Tree with crevices within landscaping of southern parking lot.

Photo #5
Description: View east across parking lot of buildings.

Photo #6
Description: View west of cottage (typical) west of southern parking lot.

Photo #7
Description: Photo east along driveway and buildings.

Photo #8
Description: View west of building and surrounding landscaping.

Photo #9
Description: View east towards building.

Photo #10
Description: View of sugar maple with crevices, peeling bark.

Photo #11
Description: Sugar maple landscaping tree with crevices, snags, exfoliating bark.

Photo #12
Description: View southeast of upland meadow and in farground additional poles next to roadway associated with developed Human Habitat/Landscape Areas.

Photo #13
Description: View west of large oak tree from Photo 12, with surrounding Upland Meadow.

Photo #14
Description: From Photo 12 location, view north parallel to road of Upland Meadow.

Photo #15
Description: View northeast from Photo 12 of landscaping tree with snags, crevices.

Photo #16
Description: View of Upland Meadow, Mixed Upland Forest (Norway Spruce) and Upland Shrub habitat.

Photo #17
Description: View of split tree, with crevices, crags.

Photo #18
Description: View north of gazebo in Mixed Upland Woods, with coniferous mostly planted Norway Spruce.

Photo #19
Description: View north into upland shrub habitat.

Photo #20
Description: Landscape tree on path with crevices.

Photo #21
Description: Upland Meadow dominated by invasive wormwood.

Photo #22
Description: View west of upland meadow, with more natural species in farground.

Photo #23
Description: View of cabin in Upland Mixed Forest, with Norway Spruce.

Photo #24
Description: View of landscaped area within previously developed site.

Photo #25
Description: View southeast of landscaping trees (sycamore and oaks).

Photo #26
Description: Landscaping tree (oak) with crevices and snags.

Photo #27
Description: View southwest into wooded area at Hudson View Drive and Old Bake Shop Road.

Photo #28
Description: View northeast of rock ledge in northeast corner in Upland Hardwood Forest.

Photo #29
Description: Sugar maple hardwood forest.

Photo #30
Description: View northeast of open area within developed limits of site.

Photo #31
Description: View of open upland looking northwest down on fenced in area.

Photo #32
Description: View southwest across Upland Meadow to southern portion of site.

ATTACHMENT 7

Wetland Delineation Report

Wetland Delineation Report

HUDSON HERITAGE PROJECT

At the Former Hudson River Psychiatric Center (HRPC)
NYS Route 9

Town of Poughkeepsie
Dutchess County, New York

FINAL – December 11, 2015

THE Chazen COMPANIES®
Proud to be Employee Owned
Engineers
Land Surveyors
Planners
Environmental Professionals
Landscape Architects

Prepared for:

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Wetland Delineation Report

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Attachment A – Wetland and Stream Delineation Map
Attachment B – Hydric Soils Report
Attachment C – Wetland Determination Data Forms
Attachment D – Photographs of the Project Site

LIMITATIONS: This wetland delineation report represents the professional opinion of The Chazen Companies regarding the extent and jurisdiction of aquatic resources on the Site and is non-binding on the US Army Corps of Engineers, NYSDEC, or Town of Poughkeepsie. Opinions presented in this report also apply to Site conditions and regulations existing only at the time of Chazen's delineation and may not necessarily apply to future Site conditions and/or regulations, which may change over time. Reliance on this report without validation or approval by the regulatory agencies is solely at the risk of the Client.

1.0 CONTEXT OF SITE AND REPORT

The Project Site is located at the prior Hudson River Psychiatric Center (HRPC), located in the Town of Poughkeepsie, on the east side of NYS Route 9, with the southwest corner at Winslow Gate Road, extending northward to a location approximately 790 feet south of Big Meadow Lane.

The proposed project involves the construction of residential and commercial components. The residential component will include multi-family apartments, townhouses and single-family homes. The commercial component will include retail stores and a large box store that will serve as the commercial anchor tenant to the commercial development. In general, this construction is proposed within areas previously disturbed for the Hudson River Psychiatric Center (HRPC).

This Wetland Delineation Report is an Attachment to a larger Endangered and Threatened Species and Natural Resources Assessment Report (NRAR), prepared to support the Draft Environmental Impact Statement (DEIS) for the Hudson Heritage Project. During the September 4 and October 21, 2015 site inspections, Chazen reviewed the ecological communities on the site, completed a plant survey of the site, and delineated wetlands and aquatic resources on the site. The Endangered and Threatened Species and Natural Resource Assessment Report describes the various plant communities found on the Project Site, using the same community names as in the work of Tabak and Stevens (2008). It also provides figures and maps to illustrate various aspects of the project. In order to avoid duplication, figures, plant lists and descriptions of ecological communities are provided in the Endangered and Threatened Species and Natural Resource Assessment Report.

Figure 1, USGS Location Map (see Figures in NRAR) shows the location of the site on the Poughkeepsie and Hyde Park, NY USGS topographic quadrangles. The Project Site covers approximately 156 acres, which is a mix of previously developed land containing buildings, paved and landscaped areas associated with the former and abandoned HRPC, meadow areas mainly dominated by the invasive wormwood (*Artemesia vulgaris*), forested areas, which in many locations contain landscaping trees either planted or escaped, and a stream/riparian area located along a portion of the southern and southeastern property boundaries.

On September 4, 2015 and October 21, 2015, Chazen environmental scientists Jenna Sanford[1] and Richard Futyma delineated the boundaries of wetlands on the Project Site. The flags used to mark the location of the boundaries were located and mapped by Chazen land surveyors on October 27, 2015. That map is presented in Attachment A. No wetlands on the Project Site have been mapped previously by the New York Department of Environmental Conservation (NYSDEC) or National Wetland Inventory (NWI). A Class/Standard C stream is mapped on the Project Site by the NYSDEC.

2.0 MAPPED RESOURCES

2.1 Topography

As shown on Figure 1 USGS Location Map, the site is located west of NYS Route 9, and ranges in elevation from approximately 100 feet above sea level to 200 feet above sea level. The site slopes from the center northwest and southwest towards the Hudson River, and then southeast towards a ravine that runs along the southeastern property boundary. The site is rolling and more level in the eastern and southern portions, which have been developed with buildings associated with the prior Hudson River State Hospital. There are numerous roads and buildings shown on the USGS Topographic

[1] Jenna Sanford delineated on September 4, 2015 only.

Quadrangle in the southern and eastern portions of the site. The Project Site lies within the watershed of the Hudson River; the stream in the eastern and southern portions of the site drains to the Hudson River, located approximately 900 feet to the west.

2.2 Orthophotograph

As shown on Figure 2, Orthophoto, the site is largely developed, with the HRPC buildings located in the southern and eastern portions of the site surrounded by landscaping trees and lawn. Wooded areas are scattered throughout as shown by the darker areas on the orthophotograph, which are a mix of deciduous and coniferous trees. The orthophotograph also shows, in light brown, large open areas, which are herbaceous lawn or meadow areas. As discussed before, many of these areas are dominated by the invasive wormwood plant (*Artemesia vulgaris*). The open areas significantly fragment the wooded areas on the site.

The orthophotograph also shows the shopping plaza east of NYS Route 9 and the Marist Campus west of NYS Route 9. East of the site is a wooded area and an open lawn/meadow that has been extended into the woods, with residential lands further to the east. North of the site is a mix of wooded and residential areas. West of NYS Route 9 are residential areas, woods and a County Park (Quiet Cove) adjacent to the Hudson River.

2.3 Soils

As shown on Figure 3, Hydric Soil Map for the Project Site, and hydric soil ratings, and Figure 4, Soil Map[2], the following 12 soil units are mapped within the Project Site, and are described below (per the Dutchess County Soil Survey). Attachment B is a report on the hydric soils ratings.

- Dutchess-Cardigan complex, undulating, rocky (DwB)
- Dutchess-Cardigan complex, rolling, rocky (DwC)
- Hoosic gravelly loam, nearly level (HsA)
- Hoosic gravelly loam, undulating (HsB)
- Hoosic gravelly loam, 25 to 45 percent slopes (HsE)
- Hoosic-Urban land complex, nearly level (HuA)
- Hoosic-Urban land complex, undulating (HuB)
- Nassau-Cardigan complex, undulating, very rocky (NwB)
- Nassau-Cardigan complex, rolling, very rocky (NwC)
- Nassau-Cardigan complex, hilly, very rocky (NwD)
- Nassau-Rock Outcrop complex, steep (NxE)
- Wayland silt loam (Wy)

- <u>Dutchess-Cardigan complex, undulating, rocky (DwB) and rolling (DwC)</u>: This unit consists of very deep, well drained Dutchess soils and moderately deep, well drained Cardigan soils that formed in glacial till deposits. It is on hilltops and undulating till plains that are underlain by folded shale or bedrock. Dutchess soils are commonly on lower concave slopes and Cardigan soils are commonly on

[2] Faber, Marjorie. 1992. Soil Survey of Dutchess County, New York. United States Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_york/NY027/0/Dutchess.pdf.

upper slopes, hilltops, and near areas of rock outcrop. This unit consists of about 40 percent Dutchess soils, 30 percent cardigan soils and 30 percent other soils and rock outcrop. Rock outcrop covers less than one to two percent of the surface. The Dutchess and Cardigan soils are in such an intricate pattern that they were not mapped separately. Both Dutchess and Cardigan soils are friable. The depth to the seasonal high water table is more than six feet and the depth to bedrock is more than 60 inches. These soils have approximately one percent of their coverage as hydric soils and so are identified as predominately non-hydric. Both Dutchess and Cardigan soils are friable soils in their upper part. A large expanse of DwC soil is mapped in the northwestern portion of the site. Smaller areas of DwB soil is mapped along the southern property boundary.

- Hoosic gravelly loam nearly level (HsA), undulating (HsB), and 25 to 45 percent slopes (HsE): The Hoosic map unit consists of very deep, somewhat excessively drained soils that formed in glacial outwash deposits. It is on valley floors and outwash plains. Areas are irregularly shaped. Slopes are complex and are dependent upon the slope ratings identified above. Hoosic soils are friable. The depth to the seasonal high water table is more than six feet and the depth to bedrock is more than 60 inches. They have approximately five percent of their coverage as hydric soils, and so are identified as predominately non-hydric. On the Project Site, this soil is mapped along the northcentral property boundary and in the western center of the site north and south of the center drive into the site.

- Hoosic-Urban land complex, nearly level (HuA) and undulating (HuB): These units are deep and somewhat excessively drained. It is on valley floors and outwash plains. This unit consists of about 40 percent Hoosic soils, 35 percent urban land, and 25 percent other soils. The Hoosic soils and urban lands are in such an intricate pattern that they were not mapped separately. Areas are irregularly shaped or rectangular. The urban land area consists of lands covered by buildings, streets, parking lots and other impervious surfaces that obscure soil identification. The natural soil layers have been altered or mixed with non-soil material such as bricks, broken concrete or cinders. The Hoosic soils are friable; the urban fill may not be friable. The depth to the seasonal high water table is more than six feet and the depth to bedrock is more than 60 inches. These units have approximately five percent of its coverage as hydric soils, and so are identified as predominately non-hydric. On the Project Site, these soils are associated with the previously developed areas in the southern and eastern portions of the site.

- Nassau-Cardigan Complex, undulating very rocky (NwB), rolling very rocky (NwC), hilly very rocky (NwD): These units consist of shallow, somewhat excessively drained Nassau soils and moderately deep, well drained Cardigan soils that formed in glacial till deposits. It is on hilltops and undulating hill plains, upper slopes, and lower concave slopes that are underlain by folded shale bedrock. The unit consists of approximately 40 percent Nassau soils, 40 percent Cardigan soils and 20 percent other soils and rock outcrop. Rock outcrop covers two to ten percent of the soil surface. The Nassau and Cardigan soils and rock outcrop are in such an intricate pattern that they were not separated in mapping. Nassau soils are friable in the upper 16 inches. Cardigan soils are friable. The depth to the seasonal high water table is more than six feet and the depth to bedrock is between 20 and 40 inches for NwB and NwC, with depth to bedrock of ten to 20 inches in NwB. The NwB and NwC soils have approximately one percent hydric soil coverage, while the NwD soil has approximately ten percent hydric soil coverage, making all three soils predominately non-hydric. These soils are found in the northeast corner of the Project Site.

- Nassau-Rock Outcrop complex, steep (NxE): This soil consists of shallow somewhat excessively drained Nassau soils and areas of rock outcrop. It is on hills and sideslopes that are underlain by folded shale bedrock. This unit consists of approximately 45 percent Nassau soils, 30 percent rock outcrop and 25 percent other soils. The Nassau soils and areas of rock outcrop are in such an intricate pattern that they were not separated in mapping. Areas are elongated or irregularly shaped. Nassau soils are friable in the upper 16 inches. The depth to the seasonal high water table is more than six feet and the depth to bedrock is between ten to 20 inches. This soil has a five percent coverage by hydric soils, and so is identified as predominately non-hydric. The soil is mapped in the northwest corner of the site.

- Wayland silt loam (Wy): This unit consists of very deep, nearly level and poorly drained and very poorly drained Wayland soils that formed in alluvium deposits. It is on flood plains. Areas are elongated or irregularly shaped. Slopes range from zero to three percent. This soil has s depth to bedrock of more than 60 inches, and a depth to the seasonal high water table of +0.5 feet to 1 foot November through June. This soil has 88 percent coverage by hydric soils, and so is identified as predominately hydric. The soil is mapped along the southern and southeast property boundaries.

As indicated in Attachment B, the Wayland soil is predominantly hydric. The remaining soils are all identified as predominantly non-hydric (one to 32 percent coverage by hydric soils), with those soils having hydric soil coverage ranging from one to 10 percent.

2.4 Wetlands and Streams

Figure 5, Wetlands and Streams Map, illustrates the location of wetlands mapped by the US Fish and Wildlife Service under the National Wetlands Inventory (NWI), the NYSDEC under Environmental Conservation Law Article 24, Freshwater Wetlands Act and streams mapped under Environmental Conservation Law Article 15, Use and Protection of Waters.

There are no NYSDEC wetlands mapped within the Project Area. There are no National Wetland Inventory wetlands mapped within the project area. The NYSDEC maps a stream along the southern and eastern property boundaries. This stream is identified as having Classifications and Standards of Class C, meaning it is not regulated by the NYSDEC. This stream, and its associated wetlands would be regulated by the Corps of Engineers.

Aquatic resources (i.e., wetlands, streams, waterbodies) were delineated on the Project Site according to the methods in the Corps of Engineers delineation manual (Environmental Laboratory, 1987) and the regional supplement to that manual (USACOE, 2011).

In summary, the delineation identified the mapped stream and associated wetlands along the southern property boundary (Wetland A), and along the eastern property boundary (Wetland B), with another small wetland pocket (Wetland C) to the northwest of Wetland B. The stream enters the Project Site on the eastern property boundary via a culvert under the road/trail, and then continues south to a headwall. From this location, the stream is conveyed westward underground, under the old railroad line, and then underground southward, until it daylights in the eastern portion of Wetland A. From this location, the stream and wetland continue westward until it again is conveyed underground under the southern entrance road of the site as well as NYS Route 9. A final small seep wetland (Wetland D) was identified in the northwest portion of the site.

3.0 DESCRIPTION OF WETLANDS AND STREAMS

The identification of wetlands and delineation of their boundaries was carried out according to the methods in the Corps of Engineers delineation manual (Environmental Laboratory, 1987) and the regional supplement to that manual (USACOE, 2011). Points on the wetland boundaries were marked using pieces of vinyl flagging tape tied to trees and shrubs, each of which was given an ID number consisting of a letter identifying the line plus a sequential number. A map depicting the wetland boundary is presented in Attachment A. Specific details of vegetative strata, hydrology and soils are provided on the datasheets in Attachment C. Photographs of these wetlands are provided in Attachment D. Following are brief descriptions of the wetlands delineated on the Project Site. Table 1 lists the area on the Project Site, centroid coordinates (WGS84 datum), and Cowardin Class of each wetland and stream delineated.

Given the dry summer, it was requested that methodology be provided regarding the delineation of wetlands in the summer, especially in dry conditions. The delineation of wetlands involves a review of vegetation, soils, and hydrology to determine whether there are positive indicators for all three parameters within the wetland area, which are not present in the adjacent uplands. The location where one or more of these parameters is no longer present is the location where the wetland boundary is established. For streams, the wetland/upland boundary is established along the Ordinary High Water Mark. Vegetation is not likely to be strongly impacted by a period of summer drought. The distribution of vegetation within a plant community would not change appreciably by a short term drought event; certainly trees and shrubs would not show the impacts of such a short-term event, and herbaceous vegetation that had sprouted in the spring under hydrologic normal conditions, would continue to be present. Likewise, soils will not change within summer in response to a drought event. It would take much more than one season of dry conditions to remove positive indicators of hydric soils. With regard to hydrology, there are numerous primary and secondary hydrologic indicators, which include indicators that would be present in drought conditions, such as surface soil cracks, algal mats or crusts, sediment deposits. In this case, a water table was present within 6 inches of the surface in Wetland A; a thin muck surface was present at the datapoint for Wetland B, and there was saturation to the surface and standing water in Wetland D. The droughty conditions did not impact the delineation, and the datasheets identified that “normal conditions” were present.

<u>Wetland A</u> is a riparian wetland associated with the stream running along the southern boundary of the Project Site. In this stream valley wetland, there are different patches in which the dominant plants vary among common reed, reed canary grass, Japanese stilt grass, and rice cut grass. The stream flowing through this wetland is identified as perennial, approximately 463 feet long. The stream varies from about 2.5 to 3.5 feet wide, with a gravelly to sandy bottom. There are 69 flags on line A, which surrounds this wetland. A 25-foot wide Town of Poughkeepsie regulated buffer is located around this wetland, and is 1.25 acres in size.

<u>Wetland B</u> is also associated with a part of the stream that runs along the eastern and southern sides of the Project Site. This wetland is confined to the space between the old railroad grade, which is high and steep-sided, and an old roadbed, which rises only a few feet above the wetland. The stream runs through the southern part of this area, entering the Project Site from a culvert near flags B-1/B-20 and running southward to flags B-23/B-24, where it enters a headwall culvert under the railroad grade. There is little wetland vegetation associated with the stream, which is about 3 to 4 feet wide and has a bottom covered mainly with gravel and cobbles. Wetland vegetation is confined to the area north of the stream (i.e., north of flags B-2/B-20), and includes areas dominated by common reed and by

Japanese stilt grass. Other common plants include bristly buttercup, white avens, and northern spicebush. Some relatively large American sycamores exist in the northern part of the wetland. Wetland B, which defines this area, begins and ends on the property line that runs along the base of the railroad grade. The stream portion in this wetland is approximately 121 feet in length. Wetland B is approximately 0.242 acre, and the Town-regulated buffer area is 0.572 acre.

Wetland C is essentially small a northern extension of Wetland B, from which it has been separated by a small ridge of fill. Its vegetation is similar to that of Wetland B. There are seven flags on line C, which surrounds this wetland. Wetland C is approximately 0.054 acre and is adjacent to Wetland B. The 25-foot wide Town regulated buffer is approximately 0.155 acre in size.

Wetland D is the spring seepage wetland described above. The wetland starts as a broad seepage zone, which gradually becomes more of a channel as water flows westward. At the point where it leaves the Project Site, the stream flowing out of the wetland is about two feet wide, and its bottom has gravel, cobbles, and small boulders. The stream is identified as 55 feet in length within the wetland. The flow is identified as perennial; flow, albeit minimal, was observed during the September site visit, during a dry period. Wetland D, with 11 flags, begins and ends on the property line. It is 0.101 acre in size. A 25-foot wide Town Buffer (0.204 acre) has also been placed around this wetland.

Table 1. Aquatic Resources on the Project Site

Wetland or Stream	Delineated Area (Acre) (0.7 acre on-site)	Centroid (on or adjacent to Project Site)		Cowardin Class	Stream Type/ Length
		Latitude	Longitude		
Wetland A	0.680 acre	41° 34.644	73° 55.796	PEM1/SS1	Perennial 463 LF
Wetland B	0.242 acre	41° 43.779	73° 55.575	PEM1/SS1	Perennial 121 LF
Wetland C	0.054 acre	41° 43.859	73° 55.549	PEM1/SS1	None Adjacent to Wetland B
Wetland D	0.101 acre	41° 44.061	73° 55.995	PF01B	Perennial 55 LF

4.0 JURISDICTION OVER WETLANDS ON PROJECT SITE

It appears that all of the waters delineated here are under the jurisdiction of the Army Corps of Engineers. Wetlands A and B are immediately adjacent to a perennial tributary to the Hudson River, a Traditionally Navigable Water, and are approximately 600 to 900 feet from the Hudson River. Wetland C is adjacent to Wetland B, separated by a small filled berm. The perennial tributary and the adjacency of the wetlands is an adequate connection (i.e., “significant nexus”) for the Corps to take jurisdiction over these wetlands. Similarly, Wetland D flows off-site to a roadside drainage/stream, located off-site that then appears to flow to the Hudson River

The waters on site are not regulated by the NYSDEC, given that the wetlands are too small (less than 12.4 acres) for jurisdiction under Environmental Conservation Law Article 24, Freshwater Wetlands. The

stream in Wetland A/B is not regulated by the NYSDEC as it is mapped as a Class/Standards C stream, and is thus not regulated.

The Town of Poughkeepsie has adopted a local Aquatic Resource Protection Law under Chapter 116 of the Town Code. Under Section 116-4, Definitions, the Town of Poughkeepsie defines "Buffer Area." The "buffer for all streams other than Wappinger Creek shall be 25 feet from the stream bank." A "stream" is defined as "any watercourse which appears as a solid blue line on the 2003 Aquatic Resources Map for the Town." Based on this definition, it would appear that Wetlands A and B, both of which contain the perennial stream that flows along the southern and eastern boundaries of the site, would be subject to this buffer. Since Wetland C is located adjacent to Wetland B, a 25 foot buffer has also been placed around Wetland C. Wetland D is 0.101 acre in size, and flow from this wetland appears to be carried by a perennial watercourse. A 25 foot buffer has been placed around Wetland D.

There is no work proposed in any of these aquatic resources or within their Town-regulated buffers.

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Weldy, Troy, David Werier, and Andrew Nelson. 2015. New York Flora Atlas. [S. M. Landry and K. N. Campbell (original application development), Florida Center for Community Design and Research. University of South Florida]. New York Flora Association, Albany, New York (http://newyork.plantatlas.usf.edu/).

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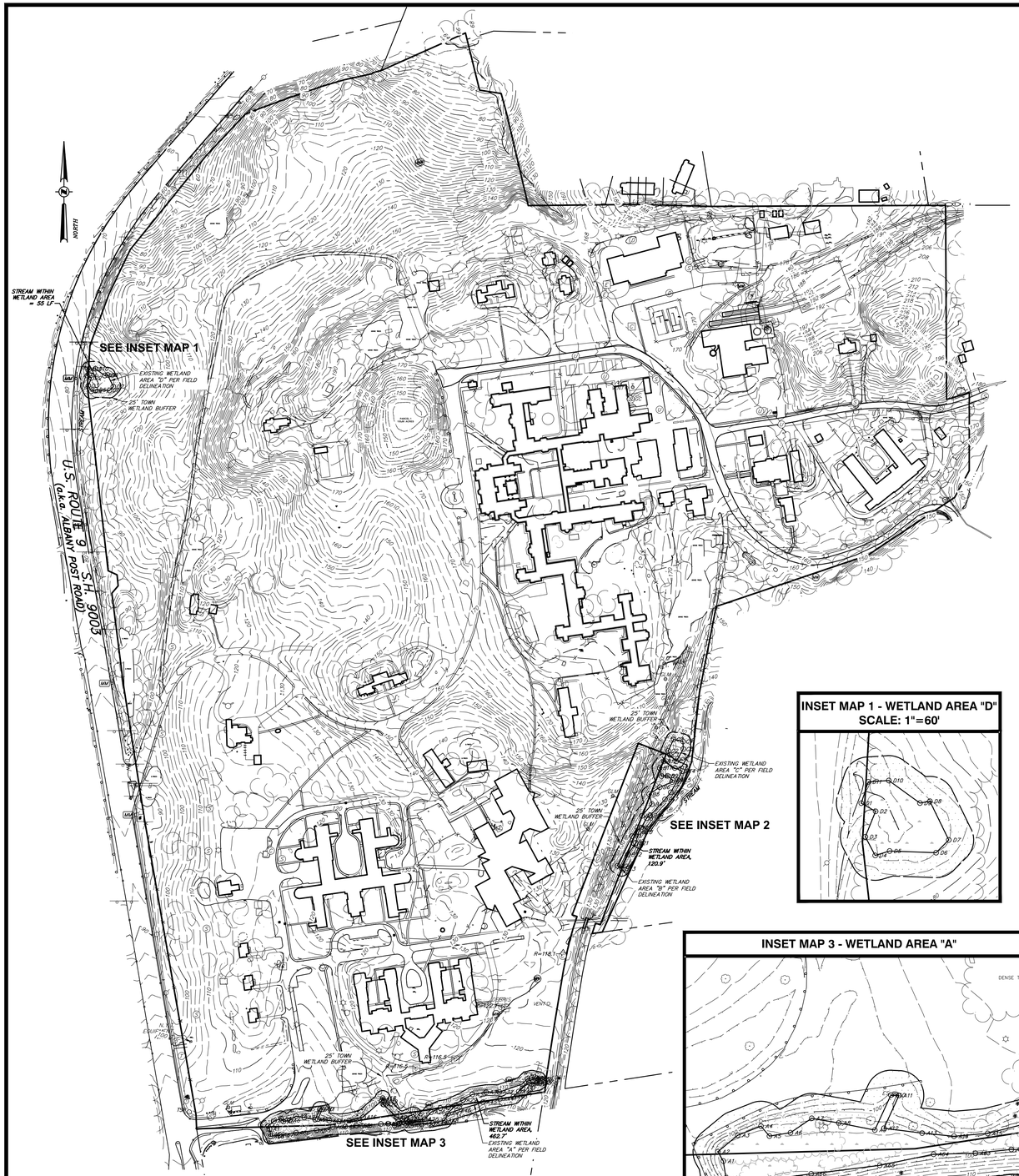
Version saved 1/8/2016 10:50:00 AM

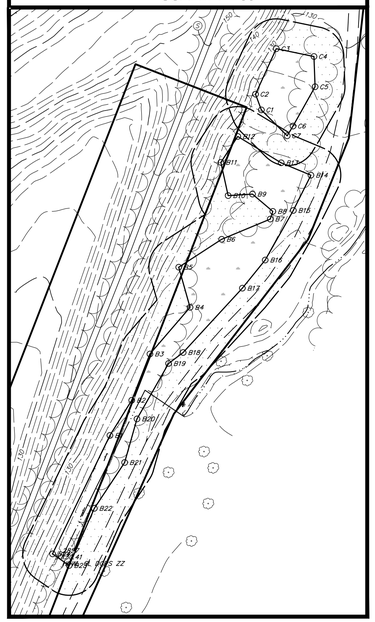
ATTACHMENT A

Wetland Delineation Map

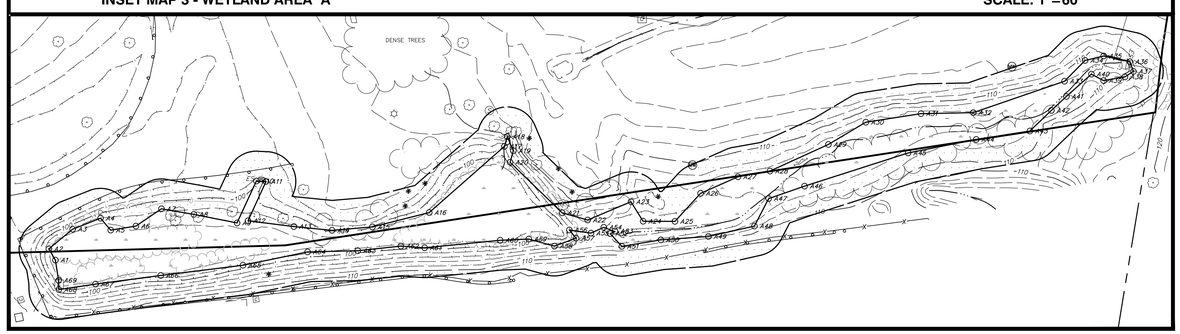


INSET MAP 1 - WETLAND AREA "D"
SCALE: 1"=60'

INSET MAP 2 - WETLAND AREA "B" & "C"
SCALE: 1"=60'



INSET MAP 3 - WETLAND AREA "A"
SCALE: 1"=60'



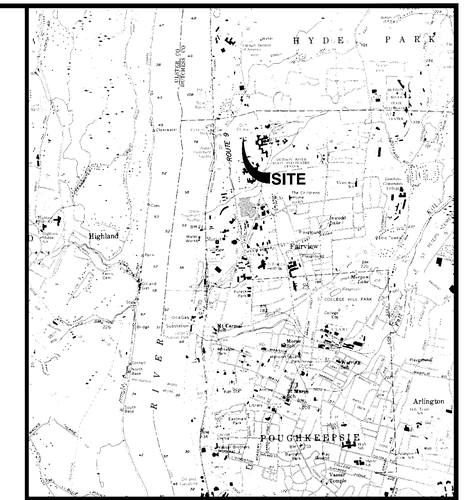
LEGEND:

EXISTING CONDITIONS:

- PROPERTY LINE NO PHYSICAL BOUNDS
- ADJACENT PROPERTY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING BUILDING
- EXISTING GUIDERAIL
- EXISTING FENCE
- EXISTING STONE WALL
- EXISTING TREE LINE
- EXISTING BRUSH LINE
- EXISTING OVERHEAD WIRES

SYMBOLS:

- EXISTING SIGN
- EXISTING SIGN
- EXISTING REFLECTOR MARKER
- EXISTING MILE MARKER
- EXISTING POST
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING TREE STUMP
- EXISTING SHRUB
- EXISTING SANITARY MANHOLE
- EXISTING CLEANOUT
- EXISTING DRAINAGE MANHOLE
- EXISTING CATCH BASIN
- EXISTING YARD DRAIN
- EXISTING END SECTION
- EXISTING ELECTRIC MANHOLE
- EXISTING ELECTRIC HAND HOLE
- EXISTING ELECTRIC METER
- EXISTING ELECTRIC BOX
- EXISTING GUY WIRE
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE W/ LIGHT
- EXISTING LIGHT POLE
- EXISTING PANEL/SWITCH BOX
- EXISTING CONDUIT TO/FROM UNDERGROUND
- EXISTING GAS METER
- EXISTING GAS STRUCTURE
- EXISTING GAS VALVE
- EXISTING WATER MANHOLE
- EXISTING WELL
- EXISTING HYDRANT
- EXISTING AUTO SPKLR. HYDRANT
- EXISTING WATER SHUT OFF VALVE
- EXISTING WATER VALVE
- EXISTING TELEPHONE MANHOLE
- EXISTING TELEPHONE PEDESTAL
- EXISTING UNKNOWN MANHOLE
- EXISTING MONITORING WELL
- EXISTING WETLAND FLAG



SITE LOCATION: 1"=1000'

SOURCE: U.S.G.S. POUGHKEEPSIE QUADRANGLE

NOTES:

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TAX PARCEL NUMBERS:

1. TAX PARCEL 6163-03-011149

AREA TABLE

SURVEY LIMITS	178.696 ACRES	7,783,979 SQ. FT.
LOT 011149	155.899 ACRES	6,790,980 SQ. FT.
WETLAND "A"	0.680 ACRE	29,633 SQ. FT.
WETLAND "A" BUFFER	1.249 ACRES	54,406 SQ. FT.
WETLAND "B"	0.242 ACRE	10,520 SQ. FT.
WETLAND "B" BUFFER	0.572 ACRE	24,935 SQ. FT.
WETLAND "C"	0.054 ACRE	2,346 SQ. FT.
WETLAND "C" BUFFER	0.155 ACRE	6,754 SQ. FT.
WETLAND "D"	0.101 ACRE	4,407 SQ. FT.
WETLAND "D" BUFFER	0.204 ACRE	8,871 SQ. FT.

0 1 2 3
ORIGINAL SCALE IN INCHES

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I HEREBY CERTIFY THAT THIS SURVEY MAP IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED OCTOBER 27, 2015 AND THAT THIS SURVEY MAP WAS MADE BY ME OR UNDER MY DIRECTION, AND CONFORMS WITH THE MINIMUM STANDARD OF PRACTICE ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS.

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375 Bay Road
Queensbury, New York 12804
Phone: (518) 812-0513

rev.	date	description

HUDSON HERITAGE - 3532 NORTH ROAD

WETLAND DELINEATION MAP

TOWN OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK

designed FJM	checked SJA
date 11/12/15	scale 1"=200'
project no. 81402.00	
sheet no. WD1 1 OF 1	

6449

Drawing Name: X:\B\81400-81499\81402.00 - Hudson Heritage\SURVEY\dwg\05_81402-00_WETLAND-DELINEATION-MAP.dwg
Xref's Attached: XBASE-SVY_81402-00
Date Printed: Nov 30, 2015, 8:53am

ATTACHMENT B

Hydric Soils Report

Hydric Rating by Map Unit—Dutchess County, New York
(Figure 3 Hydric Soils Map HRPC)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Lines

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Points

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 12, Sep 23, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Apr 16, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Dutchess County, New York (NY027)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
DwB	Dutchess-Cardigan complex, undulating, rocky	1	0.0	0.0%
DwC	Dutchess-Cardigan complex, rolling, rocky	1	31.4	19.2%
DxB	Dutchess-Cardigan-Urban land complex, undulating, rocky	1	0.1	0.0%
HsA	Hoosic gravelly loam, nearly level	5	2.2	1.3%
HsB	Hoosic gravelly loam, undulating	5	40.3	24.6%
HsC	Hoosic gravelly loam, rolling	5	0.0	0.0%
HsE	Hoosic gravelly loam, 25 to 45 percent slopes	5	1.3	0.8%
HuA	Hoosic-Urban land complex, nearly level	5	27.9	17.0%
HuB	Hoosic-Urban land complex, undulating	5	37.9	23.1%
NwB	Nassau-Cardigan complex, undulating, very rocky	1	0.2	0.1%
NwC	Nassau-Cardigan complex, rolling, very rocky	1	8.3	5.0%
NwD	Nassau-Cardigan complex, hilly, very rocky	10	1.9	1.1%
NxE	Nassau-Rock outcrop complex, steep	5	9.4	5.7%
Wy	Wayland silt loam	88	3.1	1.9%
Totals for Area of Interest			**163.9**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

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Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

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Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

ATTACHMENT C

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 81402.00 Hudson Heritage City/County: Town of Poughkeepsie, Dutchess County Sampling Date: 9/4/2015

Applicant/Owner: State: NY Sampling Point: W-A-13

Investigator(s): Richard Futyma & Jenna Sanford Section, Township, Range:

Landform (hillslope, terrace, etc.): valley of small stream Local Relief (concave, convex, none): Slope %: 2

Subregion (LRR or MLRA): Latitude: 41.726986 ° N Longitude: 73.931008 ° W Datum: WGS 84

Soil Map Unit Name: NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐

Is the Sampled Area within a Wetland? **Yes** ☑ **No** ☐

If yes, optional Wetland Site ID: Wetland A

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches):

Water Table Present? Yes ☑ No ☐ Depth (inches): 6

Saturation Present? Yes ☑ No ☐ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ☑ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water in stream ~5 feet from soil sample hole

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 NONE			
2			
3			
4			
5			
6			
7			
(50%/20% = 0 / 0)	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' radius)			
1 *Salix discolor*	5	Yes	FACW
2			
3			
4			
5			
6			
7			
(50%/20% = 2.5 / 1)	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1	
FACW species		x 2	
FAC species		x 3	
FACU species		x 4	
UPL Species		x 5	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Leersia oryzoides*	75	yes	OBL
2 *Glyceria* sp.	6	no	OBL
3 *Impatiens capensis*	5	no	FACW
4 *Lythrum salicaria*	4	no	OBL
5 *Persicaria punctata*	4	no	OBL
6 *Persicaria sagittata*	3	no	OBL
7 *Pilea pumila*	2	no	FACW
(50%/20% = 50 / 20)	99	= Total Cover	
Woody Vine Stratum (Plot size:)			
1			
2			
3			
4			
5			
6			
7			
(50%/20% = 0 / 0)	0	= Total Cover	

Hydrophytic Vegetation Indicators:

- [x] Rapid Test for Hydrophytic Vegetation
- [ ] Dominance test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (Include photo numbers here or on a separate sheet.)

RPF Photos 10 + 11

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	5 Y 3/1	100					fine sandy mucky silt, more mucky at depth	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7) **(LRR R, MLRA 149B)**
- [ ] Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- [ ] Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- [ ] Loamy Mucky Mineral (F1) **(LRR K, L)**
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- [ ] 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- [ ] Coast Prairie Redox (A16) **(LRR K, L, R)**
- [ ] 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- [ ] Dark Surface (S7) **(LRR K, L)**
- [ ] Polyvalue Below Surface (S8) **(LRR K, L)**
- [ ] Thin Dark Surface (S9) **(LRR K, L)**
- [ ] Iron-Manganese Masses (F12) **(LRR K, L, R)**
- [ ] Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- [ ] Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- [ ] Red Parent Material (TF2)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes [x] No [ ]

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 81402.00 Hudson Heritage City/County: Town of Poughkeepsie, Dutchess County Sampling Date: 9/4/2015

Applicant/Owner: State: NY Sampling Point: U-A-13

Investigator(s): Richard Futyma & Jenna Sanford Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local Relief (concave, convex, none): Slope %: 15

Subregion (LRR or MLRA): Latitude: 41.726986 ° N Longitude: 73.931008 ° W Datum: WGS 84

Soil Map Unit Name: NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☑

If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☐ No ☑ Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ☐ **No** ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Robinia pseudoacacia*	30	Yes	FACU
2 *Platanus occidentalis*	25	Yes	FACW
3 *Acer saccharum*	20	Yes	FACU
4 *Catalpa speciosa*	15	No	FACU
5 *Juglans nigra*	5	No	FACU
6			
7			
(50%/20% = 48 / 19)	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' radius)			
1 *Juglans nigra*	20	Yes	FACU
2 *Rhamnus cathartica*	20	Yes	FAC
3 *Robinia pseudoacacia*	15	Yes	FACU
4 *Prunus pensylvanica*	5	No	FACU
5			
6			
7			
(50%/20% = 30 / 12)	60	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1	
FACW species		x 2	
FAC species		x 3	
FACU species		x 4	
UPL Species		x 5	
Column Totals:	(A)		(B)

Prevalence Index = B/A = #DIV/0!

THE Chazen COMPANIES

Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Parthenocissus quinquefolia*	50	Yes	FACU
2 *Toxicodendron radicans*	30	No	FAC
3 *Vitis riparia*	3	No	FAC
4 *Celtis occidentalis*	2	No	FAC
5			
6			
7			
(50%/20% = 43 / 17)	85	= Total Cover	
Woody Vine Stratum (Plot size:)			
1 *Celastrus orbiculatus*	5	Yes	UPL
2 *Vitis riparia*	3	Yes	FAC
3			
4			
5			
6			
7			
(50%/20% = 4 / 1.6)	8	= Total Cover	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

RPF Photo 12

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10 YR 3/4	100					gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 81402.00 Hudson Heritage City/County: Town of Poughkeepsie, Dutchess County Sampling Date: 9/4/2015

Applicant/Owner: State: NY Sampling Point: W-A-30

Investigator(s): Richard Futyma & Jenna Sanford Section, Township, Range:

Landform (hillslope, terrace, etc.): small stream valley Local Relief (concave, convex, none): concave Slope %: 2

Subregion (LRR or MLRA): Latitude: 41.727959° N Longitude: 73.928966° W Datum: WGS 84

Soil Map Unit Name: NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐

Is the Sampled Area within a Wetland? **Yes** ☑ **No** ☐

If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 10

Water Table Present? Yes ☑ No ☐ Depth (inches): 5

Saturation Present? Yes ☑ No ☐ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ☑ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water in the stream is 5 feet from the soil test hole.

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Platanus occidentalis*	5	Yes	FACW
2			
3			
4			
5			
6			
7			
(50%/20% = 2.5 / 1)	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' radius)			
1 *Robinia pseudoacacia*	7	Yes	FACU
2 *Lindera benzoin*	5	Yes	FACW
3 *Juglans nigra*	2	no	FACU
4			
5			
6			
7			
(50%/20% = 7 / 2.8)	14	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1	0
FACW species		x 2	0
FAC species		x 3	0
FACU species		x 4	0
UPL Species		x 5	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

THE Chazen COMPANIES

Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Phalaris arundinacea*	85	Yes	FACW
2 *Microstegium vimineum*	10	No	FAC
3 *Impatiens capensis*	5	no	FACW
4 *Lythrum salicaria*	4	No	OBL
5			
6			
7			
(50%/20% = 52 / 21)	104	= Total Cover	
Woody Vine Stratum (Plot size:)			
1			
2			
3			
4			
5			
6			
7			
(50%/20% = 0 / 0)	0	= Total Cover	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	5Y 2.5/1	100					sandy, silty muck	
8-15	5Y 2.5/1	100					sandy muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☑ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 81402.00 Hudson Heritage City/County: Town of Poughkeepsie, Dutchess County Sampling Date: 9/4/2015

Applicant/Owner: State: NY Sampling Point: U-A-30

Investigator(s): Richard Futyma & Jenna Sanford Section, Township, Range:

Landform (hillslope, terrace, etc.): valley slope Local Relief (concave, convex, none): concave Slope %: 70

Subregion (LRR or MLRA): Latitude: 41.727959° N Longitude: 73.928966° W Datum: WGS 84

Soil Map Unit Name: NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☑

If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☐ No ☑ Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ☐ **No** ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 NONE			
2			
3			
4			
5			
6			
7			
(50%/20% = 0 / 0)	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' radius)			
1 *Robinia pseudoacacia*	3	Yes	FACU
2 *Populus deltoides*	2	Yes	FAC
3 *Platanus occidentalis*	1	no	FACW
4			
5			
6			
7			
(50%/20% = 3 / 1.2)	6	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1	
FACW species		x 2	
FAC species		x 3	
FACU species		x 4	
UPL Species		x 5	
Column Totals:	(A)		(B)

Prevalence Index = B/A = #DIV/0!

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Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Lotus corniculatus*	45	Yes	FACU
2 *Schedonorus arundinaceus*	25	Yes	FACU
3 *Microstegium vimineum*	10	No	FAC
4 *Euthamia graminifolia*	5	No	FAC
5 *Artemisia vulgaris*	5	No	UPL
6 *Oenothera biennis*	1	No	FACU
7			
(50%/20% = 46 / 18)	91	= Total Cover	
Woody Vine Stratum (Plot size:)			
1 *Celastrus orbiculatus*	30	yes	UPL
2			
3			
4			
5			
6			
7			
(50%/20% = 15 / 6)	30	= Total Cover	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/4	100					fine sandy loam	with some gravel
4+								too rocky or gravelly to dig.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 81402.00 Hudson Heritage City/County: Town of Poughkeepsie, Dutchess County Sampling Date: 10/21/2015

Applicant/Owner: State: NY Sampling Point: W-B-14

Investigator(s): Richard Futyma Section, Township, Range:

Landform (hillslope, terrace, etc.): valley flat Local Relief (concave, convex, none): Concave Slope %: 1

Subregion (LRR or MLRA): LRR R Latitude: 41.73058° N Longitude: 73.92614° W Datum: WGS 84

Soil Map Unit Name: NWI Classification: PEM/PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☐

If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☑ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☐ No ☑ Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ☑ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Platanus occidentalis*	85	Yes	FACW
2 *Liriodendron tulipifera*	10	No	FACU
3			
4			
5			
6			
7			
(50%/20% = 48 / 19)	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' radius)			
1 *Lindera benzoin*	10	Yes	FACW
2 *Rosa multiflora*	5	Yes	FACU
3 *Celtis occidentalis*	5	Yes	FAC
4			
5			
6			
7			
(50%/20% = 10 / 4)	20	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1	
FACW species		x 2	
FAC species		x 3	
FACU species		x 4	
UPL Species		x 5	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Microstegium vimineum*	80	Yes	FAC
2 *Ranunculus hispidus*	5	No	FAC
3 *Fraxinus pennsylvanica* (seedlings)	4	No	FACW
4 *Solidago gigantea*	3	No	FACW
5 *Geum canadense*	2	No	FAC
6			
7			
(50%/20% = 47 / 19)	94	= Total Cover	
Woody Vine Stratum (Plot size:)			
1 *Celastrus orbiculatus*	5	Yes	UPL
2			
3			
4			
5			
6			
7			
(50%/20% = 2.5 / 1)	5	= Total Cover	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					silt loam w/ humus	
3-12	10YR3/2	75	10YR 3/6	25	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 81402.00 Hudson Heritage City/County: Town of Poughkeepsie, Dutchess County Sampling Date: 10/21/2015

Applicant/Owner: State: NY Sampling Point: U-B-14

Investigator(s): Richard Futyma Section, Township, Range:

Landform (hillslope, terrace, etc.): old roadbed Local Relief (concave, convex, none): Slope %: 1

Subregion (LRR or MLRA): LRR R Latitude: 41.73058° N Longitude: 73.92614° W Datum: WGS 84

Soil Map Unit Name: NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☑

If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☐ No ☑ Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ☐ **No** ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Juglans nigra*	65	Yes	FACU
2 *Fraxinus pennsylvanica*	10	No	FACW
3 *Acer platanoides*	5	No	UPL
4			
5			
6			
7			
(50%/20% = 40 / 16)	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' radius)			
1 *Fraxinus pennsylvanica*	2	Yes	FACW
2			
3			
4			
5			
6			
7			
(50%/20% = 1 / 0.4)	2	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	x 1	0
FACW species	x 2	0
FAC species	x 3	0
FACU species	x 4	0
UPL Species	x 5	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Microstegium vimineum*	60	Yes	FAC
2 *Artemisia vulgaris*	50	Yes	UPL
3 *Hesperis matronalis*	5	No	FACU
4 *Geum canadense*	3	No	FAC
5			
6			
7			
(50%/20% = 59 / 24)	118	= Total Cover	
Woody Vine Stratum (Plot size:)			
1 *Celastruc orbiculatus*	3	Yes	UPL
2			
3			
4			
5			
6			
7			
(50%/20% = 1.5 / 0.6)	3	= Total Cover	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					gravelly coarse sand - udorthent	
14+								too dense to dig easily.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: The soil is a udorthent, for it is fill that was used to construct a roadbed.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 81402.00 Hudson Heritage City/County: Town of Poughkeepsie, Dutchess County Sampling Date: 10/21/2015

Applicant/Owner: State: NY Sampling Point: W-D-8

Investigator(s): Richard Futyma Section, Township, Range:

Landform (hillslope, terrace, etc.): hillside seep Local Relief (concave, convex, none): concave Slope %: 2

Subregion (LRR or MLRA): LRR r Latitude: 41.73414° N Longitude: 73.93332° W Datum: WGS 84

Soil Map Unit Name: NWI Classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐

Is the Sampled Area within a Wetland? Yes ☑ No ☐

If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 2

Water Table Present? Yes ☑ No ☐ Depth (inches): 12

Saturation Present? Yes ☑ No ☐ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: A stream with surface water was about 10 feet from the soil test hole.

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer platanoides*	25	Yes	UPL
2 *Salix* x sepulcralis	15	Yes	FACW
3 *Carya cordiformis*	10	Yes	FAC
4			
5			
6			
7			
(50%/20% = 25 / 10)	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' radius)			
1 *Acer platanoides*	15	Yes	UPL
2 *Lindera benzoin*	7	Yes	FACW
3			
4			
5			
6			
7			
(50%/20% = 11 / 4.4)	22	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1	
FACW species		x 2	
FAC species		x 3	
FACU species		x 4	
UPL Species		x 5	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Symplocarpus foetidus*	5	Yes	OBL
2 *Pilea pumila*	1	No	FACW
3 *Ranunculus hispidus*	1	No	FAC
4			
5			
6			
7			
(50%/20% = 3.5 / 1.4)	7	= Total Cover	
Woody Vine Stratum (Plot size:)			
1			
2			
3			
4			
5			
6			
7			
(50%/20% = 0 / 0)	0	= Total Cover	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					silty muck	
8-12	2.5Y 3/1	95	10YR 3/4	5	C	M	loamy fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☑ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 81402.00 Hudson Heritage City/County: Town of Poughkeepsie, Dutchess County Sampling Date: 10/21/2015

Applicant/Owner: State: NY Sampling Point: U-D-8

Investigator(s): Richard Futyma Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): concave Slope %: 10

Subregion (LRR or MLRA): Latitude: 41.73414° N Longitude: 73.93332° W Datum: WGS 84

Soil Map Unit Name: NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☐ No ☑ Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer saccharum*	50	Yes	FACU
2 *Acer platanoides*	25	Yes	UPL
3 *Carya ovata*	15	No	FACU
4 *Liriodendron tulipifera*	10	No	FACU
5 *Carpinus caroliniana*	5	No	FAC
6			
7			
(50%/20% = 53 / 21)	105	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' radius)			
1 *Acer saccharum*	10	Yes	FACU
2			
3			
4			
5			
6			
7			
(50%/20% = 5 / 2)	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: #DIV/0! (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	x 1	0
FACW species	x 2	0
FAC species	x 3	0
FACU species	x 4	0
UPL Species	x 5	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

THE Chazen COMPANIES

Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Vinca minor*	40	Yes	NL
2 *Carya cordiformis* (seedlings)	1	No	FAC
3			
4			
5			
6			
7			
(50%/20% = 21 / 8.2)	41	= Total Cover	
Woody Vine Stratum (Plot size:)			
1			
2			
3			
4			
5			
6			
7			
(50%/20% = 0 / 0)	0	= Total Cover	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☐

Remarks:

ATTACHMENT D

Photographs of the Wetlands at the Project Site

Photo 1. View of Wetland A looking east from near Flag A1. Taken 9/4/2015.

Photo 2. View of Wetland A near Flag A16. Taken 9/4/2015.

Photo 3. View of Wetland A from near Flag A28. Taken 9/4/2015.

Photo 4. View of Wetland A looking west from near Flag A30, where a Data Point was taken. Taken 9/4/2015.

Photo 5. View of Wetland A looking east from near Flag A30, where a Data Point was taken. Taken 9/4/2015.

Photo 6. View of Wetland A near Flag A35. Taken 9/4/2015.

Photo 7. View of Wetland A looking east from near Flag A50. Taken 9/4/2015.

Photo 8. View of Wetland A looking west from near Flag A50. Taken 9/4/2015.

Photo 9. View of Wetland A from near Flag A57. Taken 9/4/2015.

Photo 10. View of Wetland A looking east from near Flag A65. Taken 9/4/2015.

Photo 11. View of Wetland A looking west from near Flag A65. Taken 9/4/2015.

Photo 12. View of Wetland A looking east from near Flag A68. Taken 9/4/2015.

Photo 13. View looking south from Flag B-1 (on right) where stream enters from the east on the left hand side of photo. Additional wetlands are located behind (north) of the photographer.

Photo 14. View northward at Flags B-23/B-24 at headwall structure where stream flows in and under railroad embankment in left side of photo. From here, stream is conveyed underground to Wetland A.

Photo 15. View of wetland datapoint from flag B-14.

Photo 16. View of upland datapoint from flag B-14.

Photo 17. View of Wetland C at Flag C-1, located in left side of photo (red circle).

Photo 18. View west from Flag D8, where data was taken of Wetland D.

Photo 19. View west of Wetland D, towards NYS Route 9.

Photo 20. View of uplands from Wetland D.