HABITAT ASSESSMENT REPORT

Proposed New Sturgeon Pool Substation

& Transmission Line Re-route Corridor

Towns of Esopus and Rosendale, New York, 12471
Ulster County

November 2014

Prepared for:

Central Hudson Gas & Electric
284 South Avenue
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1.0 INTRODUCTION

Central Hudson Gas & Electric is proposing to construct a new Sturgeon Pool Substation in the Town of Rosendale, Ulster County, New York (Figure 1). In addition, a new Right-of-Way (ROW) is proposed to route the new interconnecting electric transmission lines (approximately 2200 feet in distance) from the new substation to the existing electric transmission line corridor. The point of interconnection is in the Town of Esopus, Ulster County, New York. This habitat assessment was prepared by Kleinfelder to evaluate the ecological resources present within the proposed project area, which would include both the new transmission line corridor and the new substation location.

On May 17th and 18th, 2012, Kleinfelder ecologists performed a preliminary site evaluation of three potential substation sites. The evaluation included the review of online databases and a habitat assessment. The purpose of the evaluation was to determine the potential environmental constraints associated with each site. Based upon the findings, CHGE determined that "Site A" was the most feasible location to construct a new substation. Site A is located immediately south of the existing substation and north of Coutant Road. Details of the investigation, as well as figures depicting the exact location of Site A, can be found in the final report, "Preliminary Site Evaluation", dated November 3rd, 2014. In this report, the relevant portions of Site A have been incorporated into the "Approximate Project Area" as shown in the attached figures.

On April 2nd and 11th, 2014, Kleinfelder ecologists conducted a habitat assessment within the proposed project area (Figure 1), which included both the proposed new substation site and proposed corridor for the new transmission lines. The project area is approximately 17 acres in size and is located within the Hudson Highlands ecoregion of New York State. The new substation site is located in the southern portion of the project area, which exists south of the Wallkill River. An existing dam, hydroelectric generating plant and substation facility abuts the southeastern portion of the project area. Maintained lawns and impervious surfaces such as a paved access road, parking area, and storage sheds occur within the adjacent project area boundary. An existing overhead electric transmission line crosses the eastern edge of the subject project area. Some of the natural areas occurring south of the Wallkill River include an Appalachian-oak hickory forest and floodplain forest, forested wetland, and a traversing perennial stream.

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The proposed new electric transmission corridor will run from the new substation to the northwest, across the Wallkill River, and up the wooded slope, turn northwest, and connect to the existing transmission line corridor. The proposed project area for the transmission corridor consists predominantly of upland hardwood forest. An existing road (Central Hudson's Rifton Training Facility Road) traverses the project area for about 200 feet, beginning to the east of the proposed new transmission line corridor, and ending at a Central Hudson Gas and Electric Corp (CHG&E) lineman training complex (outside the investigation area) to the west. This employee training and private use area is owned and operated by CHG&E, and is located to the east and west of the proposed corridor. Sturgeon Pool, a man-made lake, is approximately 800 feet east of the proposed corridor. To the west and north of the project area, wooded areas extend for more than 1000 feet before reaching residential areas.

The CHGE contact for this project is Mr. Chris DeRoberts (Environmental Coordinator) of Central Hudson Gas & Electric, who is located at 284 South Avenue, Poughkeepsie, New York 12601. The consultant contact for this project is Mr. David Tompkins (CWB) from Kleinfelder, who is located at 300 Westage Business Center, Suite 407, Fishkill, New York 12524.

2.0 PROJECT DESCRIPTION

CHGE is evaluating a proposed new substation location and associated transmission line corridor that would result in a project area of approximately 17 acres in size. The proposed new substation will be approximately 160' x 170' in size, and will be located adjacent to the existing substation associated within the hydroelectric plant. The project also includes improvement of the existing access road and site improvements to the facilities for proper storm water drainage. The proposed new transmission lines corridor is located to the west of an existing overhead electric transmission corridor. The proposed new transmission corridor ROW will be 200 feet wide. Two sets of pole structures will support two new transmission lines. The new lines will be spaced approximately 50 feet apart. There will be 75 feet clearance from each line to the edge of the ROW. The proposed new substation and associated transmission lines are part of larger upgrade of the P&MK lines in order to meet increased electrical needs of the surrounding areas as well as to improve the reliability of electric service.

3.0 METHODOLOGY

3.1 Project Area Profile

Aerial maps, USGS topographic maps, soil surveys, and other natural resources data sources were reviewed to develop a profile of the proposed project area and surrounding land uses.

3.2 Endangered, Threatened and Rare Species Review

Kleinfelder conducted an online search for endangered, threatened, or rare (ETR) species which could potentially occur within the project area. Both the New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Mapper database and the United States Fish and Wildlife Service (USFWS) database were assessed for information. During the preliminary site assessment in 2012, the NYSDEC online Nature Explorer database and USFWS database were also assessed.

Additionally, in December of 2013, the New York Natural Heritage Program (NYNHP) was contacted by David Clouser and Associates to gain additional correspondence regarding ETR species and the proposed project area (Appendix A).

3.3 Field Visits

On May 17th and 18th, 2012, Kleinfelder ecologists conducted a preliminary site evaluation of three potential substation sites. The evaluation predominantly focused on aquatic resources (e.g. wetlands, streams) and threatened and endangered species. Details of the evaluation can be found in the final report, “Preliminary Site Evaluation”, dated July 3, 2014.

On April 2, 2014 and April 11, 2014, Kleinfelder ecologists conducted a formal habitat assessment to observe project area conditions and document habitat types occurring within the proposed project area. Areas with similar vegetation compositions and structure were grouped into habitat types as defined by Edinger, *et.al*. (2014). Dominant vegetation was recorded for each habitat type encountered. Habitat characteristics that affect the suitability for wildlife were also recorded. Particular attention was paid to habitats for species listed on the NYNHP

database which are known to occur within two miles of the proposed project area, as well as the USFWS species list for Ulster County, New York. During the course of this work, the proposed project area and surrounding land uses were evaluated for hydrology, soils, rock outcrops, vegetation, and other unique features, as well as evaluating the degree of environmental degradation present, if any. Photographs were taken to document the occurrence of vegetation, geomorphic features and general appearance of plant communities. All wildlife observed was recorded.

Due to the results of the online database search and habitat assessments, which indicated several rare plant species could be present, a formal plant survey was conducted on June 30th, 2014 within the proposed project area by Kleinfelder ecologists. A presence/absence survey was conducted within suitable habitat types for two plant species: cut-leaved-evening-primrose (*Oenothera laciniata*) and large twayblade (*Liparis liliifolia*). The plant survey report is provided as a separate document in Appendix B.

4.0 RESULTS AND DISCUSSION

4.1 Project Area Profile

Topography

The Rosendale New York USGS 7.5' Topographic Quadrangle (Figure 1) indicates that the least amount of elevation gain occurs to the south of the Wallkill River. This area, which is the proposed location of the new substation, ranges from approximately 50 feet above mean sea level (MSL) to 10 feet above MSL. The terrain is relatively flat, gently sloping to the west where it meets a floodplain forest that is associated with the Wallkill River. The project area north of the Wallkill River consists of a small summit, which is along the existing transmission line to the east. The summit gently slopes to the west and more steeply to the south. Down gradient from the summit, the terrain is relatively flat and gently slopes to the west and south to where it meets the Wallkill River. The elevation ranges from approximately 20 feet mean sea level (MSL) to over 200 feet above MSL.

Soils

The project area is mapped in the Soil Survey of Ulster County, New York (Version 11, December 15, 2013) with the following 6 soils: Alluvial land, Bath-Nassau-rock outcrop complex hilly, Bath-Nassau-rock outcrop complex very steep, Plainfield-Riverhead complex moderately steep, Scio silt loam, and Williamson silt loam, 3 to 8 percent slopes (Figure 3). Alluvial soils are formed from frequent flooding and texture varies widely within a short distance. The soils are deep unconsolidated alluvium, and drainage is excessive to very poor. Bath soils are formed in loamy till derived from gray and brown siltstone, sandstone and shale. The soils are relatively shallow and depth to bedrock is at about 48 inches, and well drained. Nassau soils are formed in till, derived from slate or shale. This soil type is very shallow to bedrock (10 to 16 inches) and is somewhat excessively drained. Plainfield-Riverhead soils are deep soils that formed in water laid sandy deposits on the faces of and dissected areas of deltas and outwash basins. The excessively drained Plainfield soils are relatively deep and depth to bedrock is at about 58 inches. Riverhead soils are well drained and also relatively deep with a depth to bedrock of greater than 62 inches. Scio soils are formed of water material high in silt and very fine sand on terraces above floodplains. The soils are deep and moderately well drained. Williamson soils are formed in wind or water silt, very fine sand, and some clay. The soils are relatively deep and depth to bedrock is typically greater than 52 inches, and the soils are moderately well drained. This soil is known to have hydric inclusions of Raynham soil that is somewhat poorly drained, Tornes (1979).

4.2 Endangered, Threatened and Rare Species Review

On May 4th, 2012, the USFWS online database was assessed during the preliminary substation site evaluation. The online resource indicated that three federally threatened and endangered species have been identified in Ulster County, including northern wild monkshood (*Aconitum noveboracense*), Indiana bat (*Myotis sodalis*), and bog turtle (*Clemmys muhlenbergii*).

On May 22nd, 2012, the NYSDEC Nature Explorer was assessed during the preliminary substation site evaluation. This online resource indicated that cut-leaved evening-primrose, a state-listed endangered species, had the potential to exist onsite.

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In April of 2014, the NYSDEC Environmental Resource Mapper indicated that rare flora and fauna may be located within the vicinity of the project area. Two plant species were identified as having “historic or potential records” within or near the project area (Appendix A, Table 1). No rare natural communities were listed as occurring within a 1-mile radius of the proposed project area.

David Clouser and Associates submitted a letter to NYNHP in December of 2013, which requested a list of rare, threatened, or endangered species, areas of special concern, and location descriptions for any species or habitats occurring within the proposed project area. A response was received on January 14th, 2014 (Appendix A, Table 2). According to the review, nesting pairs of bald eagles (*Haliaeetus leucocephalus*), which are listed as threatened in New York State, have been documented within a 1-mile radius of the project area. Additionally, the letter indicated that an Indiana Bat (*Myotis sodalis*) hibernaculum has been documented within a 2.5-mile radius of the project area. This species is state and federally listed as endangered. One vascular plant, Cut-leaved Evening-primrose (*Oenothera laciniata*), is also known to potentially occur within the area. This species is listed as endangered in New York State.

In April of 2014, the USFWS database indicated that four species were listed in Ulster County (Appendix A, Table 3). Habitat summaries presented below are from the NYNHP Species Conservation Guides (2011).

All of the species identified during the recent database search are identified in Tables 1 through 3. Agency correspondence and online results are provided in Appendix A.

Table 1: NYSDEC Environmental Resource Mapper – Old or Potential ETR Species

Common Name	Scientific Name	Habitat Description
Cut-leaved evening-primrose	*Oenothera laciniata*	successional old fields, disturbed area, sandy open ground
Large twayblade	*Liparis liliifolia*	rich woods, mixed woods

Table 2: NYNHP Response Letter, dated January 14, 2014 – ETR Species		
Common Name	**Scientific Name**	**Habitat Description**
Cut-leaved evening-primrose	*Oenothera laciniata*	successional old fields, disturbed area, sandy open ground
Bald eagle	*Haliaeetus leucocephalus*	living, dying and dead trees with exfoliating bark or snags

Table 3: USFWS Federally Listed Endangered, Threatened, and Candidate Species		
Common Name	**Scientific Name**	**Habitat Description**
Bog turtle	*Glyptemys muhlenbergii*	open wet meadows and fens
Indiana bat (Summer)	*Myotis sodalis*	living, dying and dead trees with exfoliating bark or snags
Northern long-eared bat	*Myotis septentrionalis*	living, dying and dead trees with exfoliating bark or snags
Northern wild monkshood	*Aconitum noveboracense*	cold streambeds, talus, rich woods

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4.3 Field Visits

A preliminary site assessment was conducted on May 17th and 18th, 2012, in which the habitats and conditions of three potential substation sites were evaluated. As previously discussed, Site A has been initially selected for the proposed substation. The relevant portion of this site has now been incorporated into the proposed project area as shown in the attached figures. All surveys conducted within the proposed project area therefore include the previously assessed Site A. The habitat assessment was conducted on April 2, 2014 and April 11, 2014 to observe conditions in the proposed project area and to document available habitat. A plant survey was conducted on June 30th, 2014 to confirm that no rare flora was present.

As a result of the three field visits, one ETR species was observed within the project area. A transient immature bald eagle (*Haliaeetus leucocephalus*) was observed over the Wallkill Creek. The bald eagle is currently listed as threatened in New York State. Although the bald eagle was federally delisted in 2007, the species is still protected under two federal acts, including the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA).

The plant survey report is provided in Appendix B. Photographs along the proposed project area are presented in Appendix C. A complete species list of all wildlife species observed during the three visits is provided in Appendix D. Plant species observed during this habitat assessment are present in Appendix E.

Vegetative Communities

The vegetative communities that were observed within the project area are discussed below and are shown on Figure 2. The community classifications are based on the NYNHP Ecological Communities of New York State (Edinger *et al*., 2014).

Forest Types

Appalachian oak-hickory forest

The proposed project area is surrounded by forested land that is classified as *Appalachian oak-hickory forest.* This habitat type describes all forested areas of the project area due to the dominance of red oak (*Ouercus rubra*) and white oak (*Quercus alba*). The overstory was a mix

of red oak, white oak red maple (*Acer rubrum*), shagbark hickory (*Carya ovata*), tulip poplar (*Liriodendron tulipifera*), black cherry (*Prunus serotina*), American beech (*Fagus grandifolia*), and white ash (*Fraxinus americana*). The shrub layer was sparse and dominated by multiflora rose (*Rosa multiflora*). The herbaceous layer observed in early-April was comprised of New York fern *(Thelypteris noveboracensis*), Christmas fern *(Polystichum acrostichoides*), partridgeberry *(Mitchella repens*), Japanese barberry (*Berberis thunbergii*), and garlic mustard (*Alliaria petiolata*).

Pine Plantation

A small *Pine Plantation* habitat was found within the central portion of the project area. This habitat is dominated by eastern white pine (*Pinus strobus*). The sapling/shrub layer was also dominated by eastern white pine with black birch saplings and multiflora rose. The herbaceous layer was comprised of garlic mustard and poison ivy (*Toxicodendron radicans*).

Disturbed Areas

The proposed project area includes an access road from State Route 213 that leads to a fallow landscaped area that contains power poles and transmission related training equipment. Ecological communities occurring within these previously developed areas include *Mowed Roadside/Pathway*, *Mowed Lawn*, and *Successional shrubland (ROW)* habitat.

Mowed Roadside/Pathway

The *Mowed Roadside/Pathway* begins near the middle of the project area and crosses it east to west. It is bordered by *Appalachian oak-hickory forest and pine plantation* habitat. The *Mowed Roadside/Pathway* occurs immediately adjacent to the existing access road that bisects the Project area but starts outside project boundaries. The roadside vegetation included multiflora rose (*Rosa multiflora*), garlic mustard, wine raspberry, American red raspberry, Japanese barberry, autumn olive (*Elaeagnus umbellata*) and sensitive fern.

Mowed Lawn

A regularly maintained lawn occurs as a feature of the existing hydroelectric dam and substation facility located near the southeastern portion of the proposed project area. It is bordered to the east by Appalachian oak-hickory forest to the east and south, while the western and northern boundaries abruptly transition into an impervious surface (e.g. paved roads and parking lots).

The species observed included red clover (*Trifolium pratense*) and white clover (*Trifolium repens*), common cinquefoil (*Potentilla simplex*), common yarrow (*Achillea millefolium*), and Nepalese browntop (*Microstegium vimineum*).

Successional shrubland (ROW)

The northeast corner of the project area is within an existing electric transmission corridor. The corridor is regularly maintained using standard vegetation practices and kept in an early successional state. Plant species include wine raspberry, American red raspberry, multiflora rose, honeysuckle (*Lonicera tatarica*), Oriental bittersweet (*Celastrus orbiculatus*), garlic mustard, common mullein (*Verbascum thapsus*), and Canada goldenrod (*Solidago altissima*). The existing corridor is bordered by *Appalachian-oak hickory forest*.

Palustrine Communities

Red Maple Hardwood Swamp:

Red Maple Hardwood Swamp habitats exist within the project area. These wetlands are dominated by red maple, with some green ash, and shrub understory of multiflora rose. Emergent species in the understory included spotted jewelweed, arrowleaf tearthumb (*Polygonum sagittatum*), sphagnum moss (*Sphagnum* spp.), sensitive fern (*Onoclea sensibilis*), Nepalese browntop (*Microstegium vimineum*) and sedges (*Carex* spp.).

Floodplain Forest:

Floodplain Forest wetland habitats exist within the project area on the western bank of the Wallkill River. These wetlands are dominated by eastern cottonwood (*Populus deltoides*) and green ash, and shrub understory of multiflora rose and silky dogwood (*Cornus amomum*). Emergent species in the understory included spotted jewelweed, arrowleaf tearthumb (*Polygonum sagittatum*), sensitive fern (*Onoclea sensibilis*), Nepalese browntop (*Microstegium vimineum*) and sedges (*Carex* spp.).

Intermittent Stream:

One intermittent stream was observed within the project area and was situated within the *Appalachain-oak hickory forest* habitat that dominated the project area.

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Perennial streams:

Two perennial streams were observed being the *Confined River* of the Wallkill River and *Marsh Headwater Stream*. Stream 1 flows through the *Floodplain Forest* on the west side of the Wallkill River.

Endangered, Threatened, and Rare Flora and Fauna

Flora

In May of 2012, the NYSDEC Nature Server indicated that one plant species, cut-leaved evening-primrose, had the potential of occurring within the project area. The assessment of the NYSDEC Environmental Resource Map yielded similar results in April of 2014, indicating two listed plant species, cut-leaved evening-primrose and large twayblade, as having historical or potential records within the project area. The NYNHP response letter, received January 14th, 2014, indicated that cut-leaved evening primrose could potentially occur within or near the project area.

Potentially suitable habitat is present for both cut-leaved evening primrose and large twayblade, as the primrose is found in disturbed areas and the twayblade has been found in mixed hardwoods. A plant survey between June and July, which is the flowering period of these species, was recommended to determine whether or not these species are present within the project area.

On June 30th, 2014, a plant survey was conducted within the proposed project area. The survey was conducted to determine presence/absence of said plant species. The results of the plant survey suggest that these species do not exist within the project area. The plant report is provided in Appendix B.

One species, northern wild monkshood, was the only species listed by the USFWS as having the potential to occur within the project area. The suitable habitat for this species includes rich woods with talus. The forested areas found within the project area are underlain with siltstone, sandstone, or shale (Mitchell and Sheviak 1983).This species also does not exist on the project site.

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A complete list of the herbaceous species observed during the plant survey is provided as an attachment within Appendix B. A list of the species observed during the habitat assessment is provided in Appendix E.

Fauna

Indiana bat and Northern long-eared bat

The review of the USFWS database indicated that both the Indiana bat and northern long-eared bat (*Myotis septentrionalis*) are known to occur in Ulster County. Additionally, the NYNHP response letter identified that an Indiana bat hibernaculum exists within a 2.5-mile radius of the proposed corridor (Appendix A).

Indiana bats and Northern long-eared bats typically roost under bark or in tree crevices in the spring, summer, and fall (USFWS, 2004). Suitable potential roosting habitat is characterized by trees (dead, dying, or alive) greater than five (5) inches diameter at breast height (DBH) that possess exfoliating or defoliating bark, cracks, or crevices. Specifically, shagbark hickory is often the dominant forest tree that provides prime roosting habitat.

The project area contains mature forest, dominated by red oak and white oak, with a mixture of shagbark hickory, pignut hickory, sugar maple, and green ash. Several areas on the project area are comprised of forest with shagbark hickory present.

The dominant tree species found within the forest areas are not typically associated with proper roosting habitat as they lack exfoliating bark that bats can roost under. However, one area within the proposed corridor contained shagbark hickories and white oaks with exfoliating bark. Based on a review of the project area plans, this area would be impacted by the new corridor. In other areas minimal dead tree snags and dying branches were observed that would provide crevices for bats to utilize. No caves are present within the project area. Caves are present in Rosendale, which could provide winter hibernating habitat. This area is a documented hibernaculum. The potential habitat area, which is labeled as “Potential Bat Roosting Area” on Figure 2, is on a south facing slope approximately 400 feet from Wallkill River and less than one acre in size. To avoid potentially impacting Indiana bats, tree clearing should take place during the species hibernation timeframe between September 30 and April 1, or roost count and/or acoustic surveys should be performed to confirm presence/absence from the project area.

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Bog Turtle

The review of the USFWS database indicated that the bog turtle (*Glyptemys muhlenbergii*) is known to occur in Ulster County (Appendix A).

Bog turtles occur in New York in open-canopy wetlands, primarily meadows with calcareous substrate (NYNHP, 2011). The marshes and swamps that occur within the project area would not provide habitat for bog turtles, as they lack a calcareous substrate, lack suitable spring fed hydrology, and lack the low and connected hummock topography that bog turtles prefer for nesting. Therefore, the project area does not provide suitable bog turtle habitat.

Bald Eagle

The NYNHP response letter indicated that breeding bald eagles are known to occur with a 1-mile radius of the proposed corridor (Appendix A). During the time of the field investigation, one immature bald eagle was observed in flight over the Wallkill River. The eagle continued southwest towards the Wallkill River and Rondout Creek confluence.

Bald eagles are known to occur in many habitat types throughout New York State. Bald eagles prefer nesting in undisturbed forested areas that occur along or near large lakes, reservoirs, marshes and swamps, and large river. This species prefers nesting within the largest tree associated with *floodplain forest*, *Appalachian oak-hickory forest*, or a *pine plantation*, among others. Bald eagles prefer open water areas for preying on fish and piscivorous mammals. One large stream, the Wallkill River, travels through the proposed corridor. This stream travels over a hydroelectric dam before crossing through the Project area. Hydroelectric dams are known to provide excellent wintering habitat for bald eagles. Sturgeon Pool, which is a man-made lake that feeds the Wallkill River on its last journey to the Rondout Creek, provides additional hunting habitat for bald eagles. The forested habitat present to the east and west of the Wallkill River is composed of *floodplain forest* and *Appalachian oak-hickory forest*. A *pine plantation* exists towards the central portion of the proposed corridor. With the exception of the *pine plantation*, the trees located in these areas are not large enough to support bald eagle nests. The white pine trees located within the *pine plantation* are large enough to support nesting bald eagles, however no nests were observed at the time of the field investigation.

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This species is listed as threatened in New York State and is federally protected under the Eagle Act and the MBTA. The state designation and federal acts essentially prohibit the "taking" of a bald eagle. A "take" can be defined as an activity such as pursuit, shooting, poisoning, wounding, molesting, or disturbing. According to the USFWS National Bald Eagle Management Guidelines, a minimum buffer of 660 feet is required around a bald eagle nest. Although no nests were observed within the proposed corridor, the actual location of the nest is unknown. The nest could be located outside of the project area but within the 660 foot buffer. Additionally, should the nest be located within the projects 660 foot buffer, clear cutting should be limited to outside of the breeding season, which is mid-December to June in the northeast. The mitigation would therefore be "seasonal restriction", occurring July through November.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Kleinfelder ecologists conducted three field events, including a preliminary site assessment of three potential substation sites in 2012, a habitat assessment of the proposed corridor and selected substation site (Site A) and plant survey in 2014. Based upon agency correspondence (Appendix A) and results of the field visits, Kleinfelder provides the following conclusions and recommendations:

Correspondence from the NYSDEC and NYNHP indicated that two state-listed species, cut-leaved evening primrose and large twayblade, had the potential to exist within the project area (Appendix A). These species were not observed during the preliminary site evaluation in 2012 or the habitat assessment in 2014. Based upon the results of the online reviews and the vegetative communities documented during the habitat assessment, additional plant surveys were recommended. On June 30th, 2014, a plant survey was conducted to determine whether these species were present within the project area. The survey suggests that these species are not present within the proposed project area. The plant survey report is provided in Appendix B. Suitable habitat for the rare flora, northern wild monkshood, which was noted by the USFWS, was not located within the proposed project area; therefore no additional surveys are recommended.

Suitable bog turtle habitat does not occur within the proposed project area; therefore no additional surveys are recommended.

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One area of potentially suitable Indiana and Northern long-eared bat roosting habitat exists where a small pocket of shagbark hickory trees are found on a south facing slope (Figure 2, Photograph 8) If tree clearing is proposed before September 30, roost counts or acoustic surveys could be required for a USFWS determination of no impact.

A juvenile bald eagle was observed flying over the Wallkill River during the habitat assessment. Although no nests were observed within the proposed project area, the NYNHP letter indicated that a breeding pair of bald eagles has been documented within a 1-mile radius of the project area. The exact location and distance from the proposed corridor is unknown. The nest could be located outside of the project area but within the 660 foot buffer. Should the nest be located within the projects 660 foot buffer, a seasonal restriction on clear cutting may be required. Further discussion with the NYDEC and NYNHP is required to determine the location of the nest or nests, proximity to the proposed corridor, and determination of possible mitigation measures.

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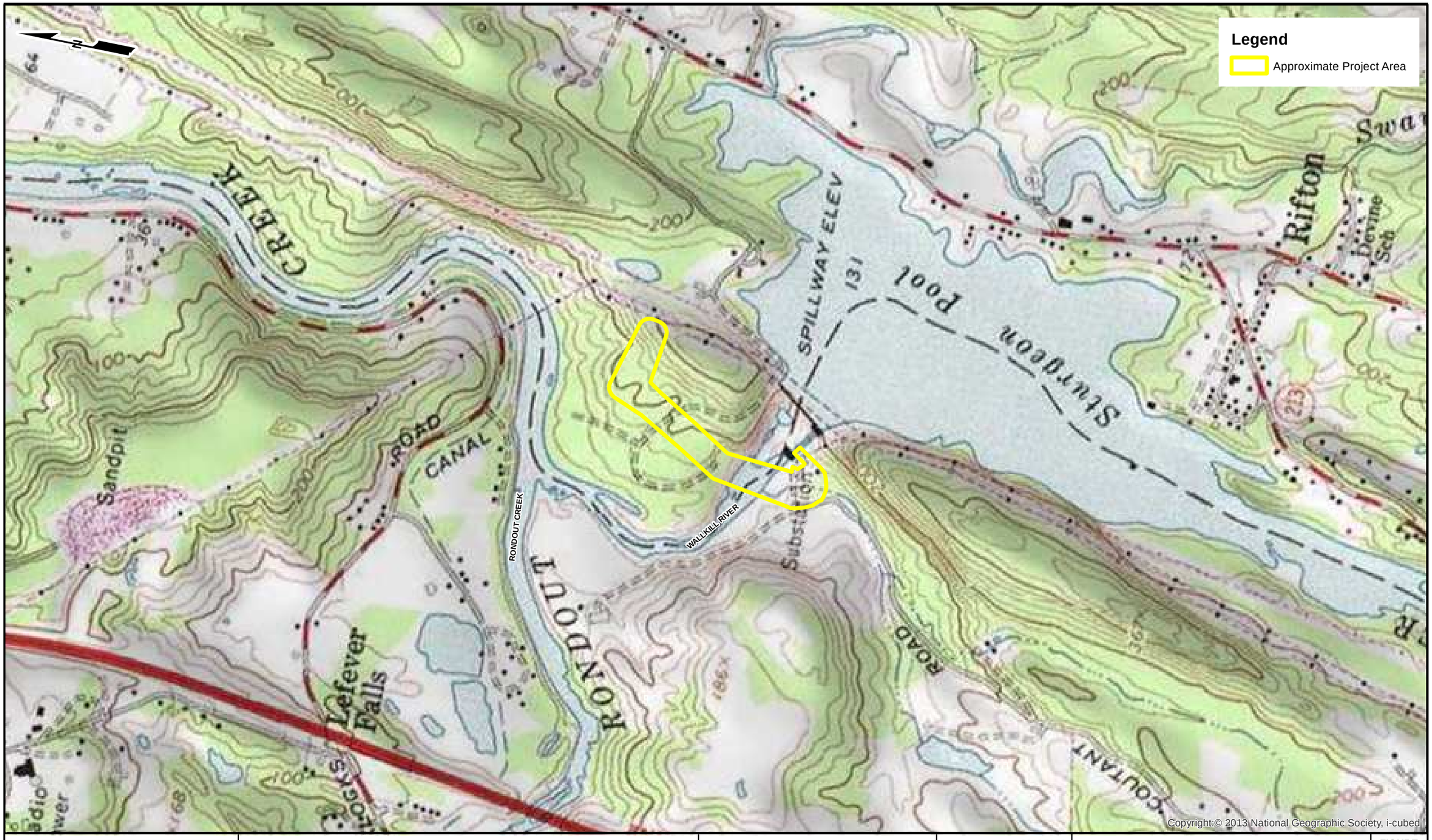
Figures



0 400 800 1,600

APPROXIMATE SCALE (feet)

1 in = 800 ft

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PROJECT NO.	00127079
DRAWN:	04/15/2014
DRAWN BY:	JR
CHECKED BY:	CT
FILE NAME:	Aerial_Map.mxd

PROPOSED NEW STURGEON POOL SUBSTATION AND TRANSMISSION LINE RE-ROUTE CORRIDOR TOPOGRAPHIC MAP OF PROJECT LOCATION

CENTRAL HUDSON GAS & ELECTRIC
284 SOUTH AVENUE
POUGHKEEPSIE, NEW YORK 12601

FIGURE

1

Legend

- Existing Utility Pole Locations
- Existing Overhead Lines
- Approximate Corridor
- Approximate Proposed Overhead Lines
- Roads
- Field Delineated Streams
- Approximate Project Area
- Stream Area
- Field Delineated Wetland

RMHS	RED MAPLE HARDWOOD SWAMP
AOHF	APPALACHIAN-OAK-HICKORY-FOREST
PP	PINE PLANTATION
PS	PERENIAL STREAM
MRP	MOWED ROADSIDE PATHWAY,
SSR	SUCCESSIONAL SHRUBLAND (ROW)
FF	FLOODPLAIN FOREST
IS	INTERMITTENT STREAM
MW	MOWED LAWN

0 100 200 400

APPROXIMATE SCALE (feet)

1 in = 200 ft

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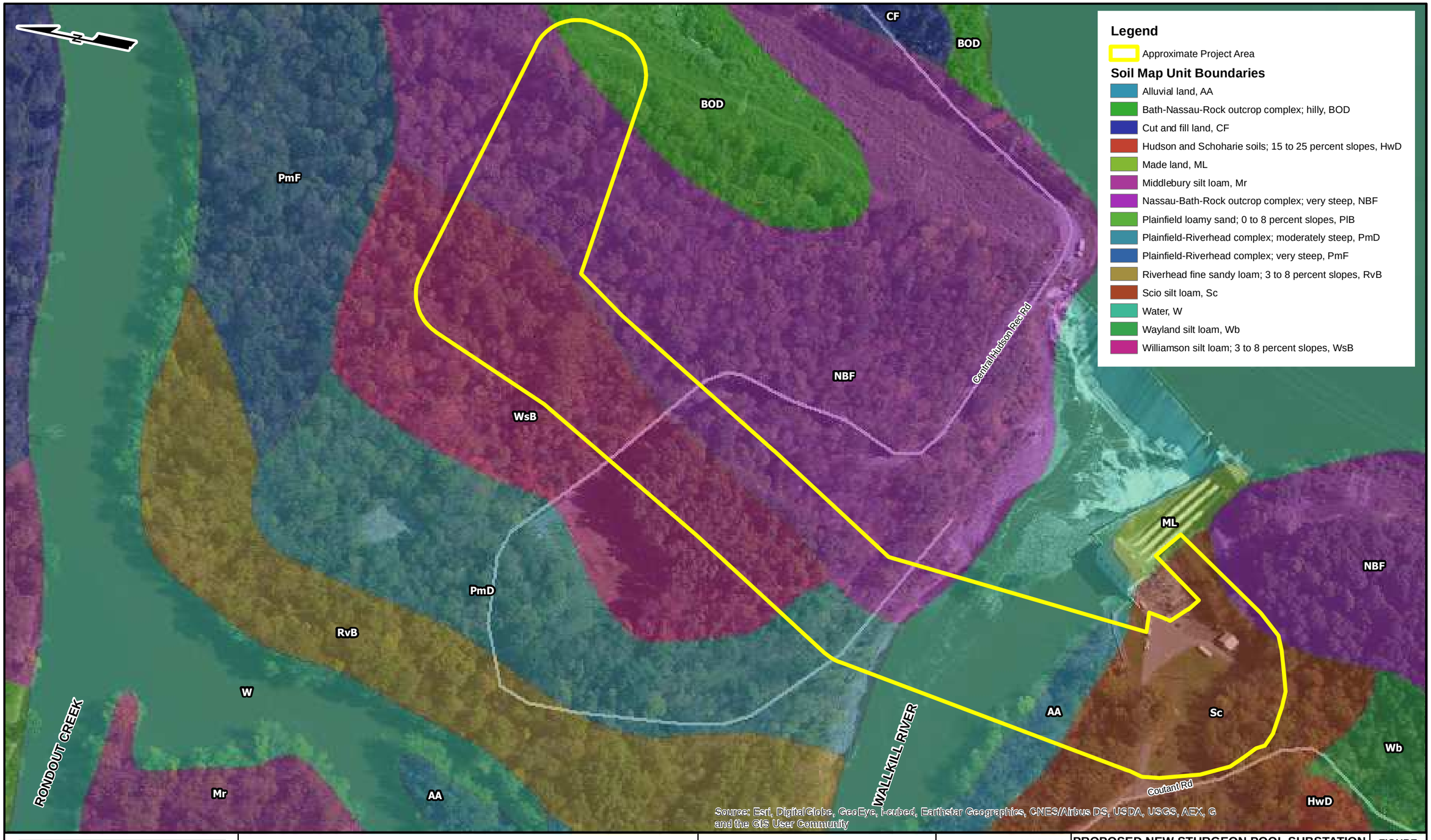
www.kleinfelder.com

PROJECT NO.	00127079
DRAWN:	09/019/2014
DRAWN BY:	JR
CHECKED BY:	CT
FILE NAME:	Vegetative_Cover.mxd

PROPOSED NEW STURGEON POOL SUBSTATION AND TRANSMISSION LINE RE-ROUTE CORRIDOR VEGETATIVE COVER MAP

CENTRAL HUDSON GAS & ELECTRIC
284 SOUTH AVENUE
POUGHKEEPSIE, NEW YORK 12601

FIGURE 2



0 105 210 420

APPROXIMATE SCALE (feet)

1 in = 200 ft

KLEINFELDER
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www.kleinfelder.com

PROJECT NO.	00127079
DRAWN:	04/15/2014
DRAWN BY:	JR
CHECKED BY:	CT
FILE NAME:	NRCS_Soils_Map.mxd

PROPOSED NEW STURGEON POOL SUBSTATION AND TRANSMISSION LINE RE-ROUTE CORRIDOR NATURAL RESOURCES CONSERVATION SERVICE (NRCS) SOILS MAP

CENTRAL HUDSON GAS & ELECTRIC
284 SOUTH AVENUE
POUGHKEEPSIE, NEW YORK 12601

FIGURE
3

Appendices

Appendix A

Agency Correspondence

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

January 14, 2014

David B. Clouser, PE, LS
David Clouser & Associates
1 Paradies Lane, Suite 200
New Paltz, NY 12561

Re: Central Hudson Sturgeon Pool Substation Project
Town/City: Rosendale. County: Ulster.

Dear David B. Clouser, PE, LS :

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, which our databases indicate 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 databases. 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 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.

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,

Nancy A. Davis

Nancy Davis-Ricci
Environmental Review Specialist
New York Natural Heritage Program

1216

RECEIVED
1-17-14
70064.01

The following state-listed animals have been documented at your project site, or in its vicinity.

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. The list may also include significant natural communities that can serve as habitat for Endangered or Threatened animals, and/or other rare animals and rare plants found at these habitats.

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 within 1 mi. Individual animals may travel 1 mi from documented locations.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Birds				
Bald Eagle *Breeding*	*Haliaeetus leucocephalus*	Threatened		11628

The following species have been documented within 2.5 mi. Individual animals may travel 2.5 mi from documented locations.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Mammals				
Indiana Bat *Hibernaculum*	*Myotis sodalis*	Endangered	Endangered	13600

This report only includes records from the NY Natural Heritage databases. 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 http://www.dec.ny.gov/animals/7494.html.

Information about many of the rare plants and animals, and natural community types, in New York are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NatureServe Explorer at http://www.natureserve.org/explorer.

New York Natural Heritage Program

Report on Historical Records of Rare Animals, Rare Plants, and Natural Communities

The following rare plants and rare animals have historical records at your project site, or in its vicinity.

The following rare plants and animals were documented in the vicinity of the project site at one time, but have not been documented there since 1979 or earlier, and/or there is uncertainty regarding their continued presence. There is no recent information on these plants and animals in the vicinity of the project site and their current status there is unknown. In most cases the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown.

If suitable habitat for these plants or animals is present in the vicinity of the project site, it is possible that they may still occur there. We recommend that any field surveys to the site include a search for these species, particularly at sites that are currently undeveloped and may still contain suitable habitat.

COMMON NAME	*SCIENTIFIC NAME*	*NYS LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Cut-leaved Evening-primrose 1961-08-17: Tillson.	*Oenothera laciniata*	Endangered	Critically Imperiled in NYS 4247

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

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[print page] [close window]

The Coordinates of the point you clicked on are:

NYTM	E : 579142	Longitude/Latitude	W : 74.046
	N : 4633511		N : 41.849

Rare Plants and Rare Animals

This location is in the vicinity of one or more :
Rare Animals and/or Rare Plants

Old or Potential Records (these records are not displayed on the map)

Common Name	Scientific Name	Date Last Documented	Location	Habitat Where Last Seen	Animal, Plant, or other	NYS Protected Status
Cut-leaved Evening-primrose	Oenothera laciniata	1961-08-17	Tillson		Rare Plant	Endangered
Large Twayblade	Liparis liliifolia	1933-06-04	Esopus	A swamp.	Rare Plant	Endangered

USGS Quadrangle

If your project or action is within or near an area with a rare animal, a permit may be required if the species is listed as endangered or threatened and the department determines the action may be harmful to the species or its habitat.

If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

The presence of a unique geological feature or landform near a project, unto itself, does not trigger a requirement for a NYS DEC permit. Readers are advised, however, that there is the chance that a unique feature may also show in another data layer (ie. a wetland) and thus be subject to permit jurisdiction.

Please refer to the "Need a Permit?" tab for permit information or other authorizations regarding these natural resources.

Disclaimer:If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.

Species By County Report

The following report contains Species that are known to or are believed to occur in this county. Species with range unrefined past the state level are now excluded from this report. If you are looking for the Section 7 range (for Section 7 Consultations), please visit the IPaC application.

County: Ulster, NY

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Action Status	Recovery Plan Stage
Flowering Plants	Northern wild monkshood (*Aconitum noveboracense*)		Threatened	Green Bay Ecological Services Field Office	Northern Monkshood	View Implementation Progress	Final
Mammals	Indiana bat (*Myotis sodalis*)	Entire	Endangered	Bloomington Ecological Services Field Office	Indiana Bat (Myotis sodalis) Draft Recovery Plan: First Revision	View Implementation Progress	Draft Revision 1
	Northern Long-Eared Bat (*Myotis septentrionalis*)		Proposed Endangered	Green Bay Ecological Services Field Office	-	-	-
Reptiles	Bog (=Muhlenberg) turtle (*Clemmys muhlenbergii*)	northern	Threatened	Assistant Regional Director-ecological Services	Recovery Plan for the Bog Turtle, Northern Population	View Implementation Progress	Final

Appendix B

Plant Survey Report

July 18, 2014

Mr. Chris DeRoberts
Central Hudson Gas & Electric Corporation
284 South Avenue
Poughkeepsie, New York 12601

RE: Proposed New Sturgeon Pool Substation and Transmission Line Re-Route Corridor – Plant Survey
Kleinfelder Project #00127079.000A

Dear Mr. DeRoberts,

Central Hudson Gas & Electric (CHGE) is evaluating an approximate 2,300 foot long area for a proposed electrical transmission line corridor (Figure 1). The proposed corridor would extend from an existing transmission facility to a proposed new substation. The proposed transmission line corridor and substation facility encompasses approximately 17 acres. As part of the evaluation process, Kleinfelder performed desktop and field reviews for threatened and endangered species.

The New York Natural Heritage Program (NYNHP) response letter, dated January 14th, 2014, indicated that several listed species had the potential of occurring within the project area. One herbaceous species was included in the letter, cut-leaved evening-primrose (*Oenothera laciniata*). This species was also identified during a review of the New York State Department of Conservation (NYSDEC) online Environmental Resource Mapper. This review identified another herbaceous species, large twayblade (*Liparis liliifolia*), as having the potential to occur within the project area as well. A review of the United States Fish and Wildlife Services (USFWS) online resource mapper indicated that the listed species, wild monkshood (*Aconitum noveboracense*), had the potential to exist within the project area. Agency correspondence is provided as an attachment to this letter.

On April 2nd, 2014 and April 11th, 2014, Kleinfelder ecologist conducted a habitat assessment to determine the plant community structure within the project area. The habitat assessment revealed that many community types existed within the project area, including Appalachian oak-hickory forest, pine plantation, mowed roadside/pathway, successional shrubland, red maple hardwood swamp, floodplain forest, and mowed lawn. Habitats were defined based upon the NYNHP Community Guides (2014).

KLEINFELDER 300 Westage Business Center, Suite 407 Fishkill, NY 12524 p | 845.231.2500 f | 845.897.2636

Based upon the habitat assessment and detailed habitat suitability information provided by the NYNHP Species Conservation Guides (2011), potential habitat existed for two of the listed plant species. Cut-leaved evening-primrose prefers well disturbed sites. Although disturbed areas are minimally present onsite, they do exist in the form of roadside plant communities (mowed roadside/pathway) and existing corridor (successional shrubland). The large twayblade has the potential to occupy a wide array of habitat types, including red maple swamps, thickets, dry mixed hardwoods, floodplains and pine plantations, among others. Based upon this species habitat variability, much of the project area would be considered potential habitat for this species.

Rich woods with talus slopes are a habitat requirement of the northern wild monkshood. The habitat assessment determined that the forested areas found onsite are underlain with siltstone, sandstone, and/or shale (Mitchell and Sheviak, 1983); therefore hillslopes with talus are not present. No habitat exists for this species onsite.

Although cut-leaved evening-primrose and large twayblade were not observed during the habitat assessment, a detailed plant survey was recommended to ensure that these species were not present onsite. These species are most identifiable in June and July; therefore a plant survey was scheduled to occur within this timeframe.

Survey Methodology

On June 30th, 2014, Kleinfelder ecologists conducted a review of the plant communities within the project area. An inventory of the plant species present within each habitat type (with the exception of mowed lawn) was completed. The search areas were traversed in a transect-like pattern, identifying all species that were encountered as best as could be accomplished given the available identifiable features (e.g. flowers, fruits). Species that were not readily recognized were identified utilizing standard field guides.

Results

The plant survey determined that neither cut-leaved evening primrose, large twayblade, nor any other rare, threatened, nor endangered flora exists within the project area. A detailed list of plant species observed within each habitat type is provided as an attachment to this letter. All

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nomenclature follows the United States Department of Agriculture Plants Database. Additionally, each habitat type was photographed to document the plant community at the time of the survey. These photographs are also present as an attachment to this letter.

Conclusions

As a result of the work conducted by Kleinfelder, no known protected herbaceous species occur within the proposed project area. If the current project area changes, further survey of those areas may be necessary.

We trust you will find this information useful in your review of this project. If you have any questions or require additional information regarding this, please feel free to contact us at 845.231.2500.

Sincerely,
Kleinfelder, Inc.

Casey M. Tompkins, CAE
Ecologist

David B. Tompkins, CWB, PWS
Environmental Program Manager

300 Westage Business Center, Suite 407 Fishkill, NY 12524 p | 845.231.2500 f | 845.897.2636

0 100 200 400

APPROXIMATE SCALE (feet)

1 in = 200 ft

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO.	00127079
DRAWN:	07/02/2014
DRAWN BY:	JR
CHECKED BY:	CT
FILE NAME:	Wetland_Stream_Map.mxd

PROPOSED NEW STURGEON POOL SUBSTATION AND TRANSMISSION LINE RE-ROUTE CORRIDOR PLANT SURVEY AREA

CENTRAL HUDSON GAS & ELECTRIC
284 SOUTH AVENUE
POUGHKEEPSIE, NEW YORK 12601

FIGURE

1

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

January 14, 2014

David B. Clouser, PE, LS
David Clouser & Associates
1 Paradies Lane, Suite 200
New Paltz, NY 12561

Re: Central Hudson Sturgeon Pool Substation Project
Town/City: Rosendale. County: Ulster.

Dear David B. Clouser, PE, LS :

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Sincerely,

Nancy A. Davis

Nancy Davis-Ricci
Environmental Review Specialist
New York Natural Heritage Program

1216

RECEIVED
1-17-14
70064.01

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COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
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The following species have been documented within 2.5 mi. Individual animals may travel 2.5 mi from documented locations.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
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Vascular Plants			
Cut-leaved Evening-primrose 1961-08-17: Tillson.	*Oenothera laciniata*	Endangered	Critically Imperiled in NYS 4247

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[print page] [close window]

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Rare Animals and/or Rare Plants

Old or Potential Records (these records are not displayed on the map)

Common Name	Scientific Name	Date Last Documented	Location	Habitat Where Last Seen	Animal, Plant, or other	NYS Protected Status
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USGS Quadrangle

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County: Ulster, NY

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Action Status	Recovery Plan Stage
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Mammals	Indiana bat (*Myotis sodalis*)	Entire	Endangered	Bloomington Ecological Services Field Office	Indiana Bat (Myotis sodalis) Draft Recovery Plan: First Revision	View Implementation Progress	Draft Revision 1
	Northern Long-Eared Bat (*Myotis septentrionalis*)		Proposed Endangered	Green Bay Ecological Services Field Office	-	-	-
Reptiles	Bog (=Muhlenberg) turtle (*Clemmys muhlenbergii*)	northern	Threatened	Assistant Regional Director-ecological Services	Recovery Plan for the Bog Turtle, Northern Population	View Implementation Progress	Final

SPECIES COMPOSITION OF PLANT COVER TYPES			
APPALACHIAN OAK-HICKORY FOREST (AOHF)			
STRATUM	**SCIENTIFIC NAME**	**COMMON NAME**	**LEGAL STATUS**
TREE	*Acer rubrum**	Red maple	NL
	Acer pensylvanicum	Striped maple	NL
	*Acer saccharum**	Sugar maple	NL
	Ailanthus altissima	Tree of heaven	NL
	Betula alleghaniensis	Yellow birch	NL
	Betula lenta	Black birch	NL
	Betula populifolia	Gray birch	NL
	Carpinus caroliniana	Ironwood	NL
	Carya glabra	Pignut hickory	NL
	*Carya ovata***	Shagbark hickory	NL
	Fagus grandifolia	American beech	NL
	*Fraxinus caroliniana***	White ash	NL
	Fraxinus pennsylvanica	Green ash	NL
	Liriodendron tulipifera	Tulip tree	NL
	Ostrya virginiana	American hornbeam	NL
	Pinus strobus	White pine	NL
	Platanus occidentalis	American sycamore	NL
	Populus deltoides	Eastern cottonwood	NL
	Populus tremuloides	Quaking aspen	NL
	Prunus serotina	Black cherry	NL
	Quercus alba	White oak	NL
	*Quercus rubra**	Red oak	NL
	Tsuga canadensis	Eastern hemlock	NL
	Ulmus americana	American elm	NL
SHRUB	*Berberis thunbergii**	Japanese barberry	NL
	Callicarpa americana	Beautyberry	NL
	Cornus amomum	Silky dogwood	NL
	Elaeagnus umbellata	Autumn olive	NL
	Euonymus alatus	Burning bush	NL
	Hamamelis virginiana	Witchhazel	NL
	Ilex verticillata	Winterberry	Exploitably Vulnerable
	Rhus typhina	Staghorn sumac	NL
	*Rosa multiflora**	Multiflora rose	NL
	*Rubus allegheniensis***	Allegheny blackberry	NL
	Rubus idaeus	American red raspberry	NL
	Rubus phoenicolasius	Wine raspberry	NL
	Vaccinium angustifolium	lowbush blueberry	NL
	Vaccinium corymbosum	Highbush blueberry	NL
	Viburnum acerifolium	Mapleleaf viburnum	NL
	Viburnum lentago	Nannyberry	NL

* Dominant Species
** Subdominant Species
NL - Not Listed

APPALACHIAN OAK-HICKORY FOREST (AOHF) Continued			
STRATUM	**SCIENTIFIC NAME**	**COMMON NAME**	**LEGAL STATUS**
HERBACEOUS	*Adiantum pedatum*	Northern maidenhair-fern	Exploitably Vulnerable
	Alliaria petiolata	garlic mustard	NL
	Amphicarpaea bracteata	American hogpeanut	NL
	Anthoxanthum odoratum	Sweet vernal grass	NL
	Arisaema triphyllum	Common jack-in-the-pulpit	NL
	Carex gracillima	Graceful sedge	NL
	Carex intumescens	bladder sedge	NL
	Carex stricta	tussock sedge	NL
	Dennstaedtia punctilobula	Eastern hayscented fern	NL
	Dryopteris intermedia	Intermediate woodfern	Exploitably Vulnerable
	Dryopteris marginalis	Marginal woodfern	Exploitably Vulnerable
	Equisetum arvense	Field horsetail	NL
	Eurybia divaricata	White wood aster	NL
	Euthamia graminifolia	flat-topped goldenrod	NL
	Fragaria vesca	Woodland strawberry	NL
	Fragaria virginiana	Virginia stawberry	NL
	Galium aparine	Cleavers	NL
	Impatiens capensis	Spotted jewelweed	NL
	Leersia oryzoides	Rice cutgrass	NL
	Maianthemum canadense	Canada mayflower	NL
	Matteuccia struthiopteris	Ostrich fern	NL
	*Microstegium vimineum**	Japanese stiltgrass	NL
	Mitchella repens	partridgeberry	NL
	*Onoclea sensibilis***	Sensitive fern	NL
	Osmunda cinnamomea	Cinnamon fern	Exploitably Vulnerable
	Oxalis dillenii	Slender yellow wood-sorrel	NL
	Oxalis montana	Montain wood-sorrel	NL
	Persicaria sagittatum	arrowleaf tearthum	NL
	Polystichum acrostichoides	Christmas fern	Exploitably Vulnerable
	Rumex acetosella	Sheep sorrel	NL
	Rumex crispus	Curly dock	NL
	Solidago altissima	Canada goldenrod	NL
	Solidago gigantea	Giant goldenrod	NL
	Symplocarpus foetidus	Skunk cabbage	NL
	Taraxacum officinale	Common dandelion	NL
	Thelypteris noveboracensis	New York fern	Exploitably Vulnerable
	Toxicondendron radicans	Eastern poison ivy	NL
	Tussilago farfara	Coltsfoot	NL
	Verbascum thapsus	Common mullein	NL
	Viola sp.	Violet	NA
VINE	*Celastrus orbiculatus**	Oriental bittersweet	NL
	Pathenocissus quinquefolia	Virginia creeper	NL

* Dominant Species

** Subdominant Species

NL - Not Listed

SPECIES COMPOSITION OF PLANT COVER TYPES			
FLOODPLAIN FOREST (FF)			
STRATUM	**SCIENTIFIC NAME**	**COMMON NAME**	**LEGAL STATUS**
TREE	*Acer saccharinum*	Silver maple	NL
	*Acer rubrum**	Red maple	NL
	Acer saccharum	Sugar maple	NL
	Ailanthus altissima	Tree of heaven	NL
	Fraxinus pennsylvanica	Green ash	NL
	Platanus occidentalis	American sycamore	NL
	*Populus deltoides**	Eastern cottonwood	NL
	Populus tremuloides	Quaking aspen	NL
	Quercus rubra	Red oak	NL
	Robinia pseudoacacia	Black locust	NL
	Tilia americana	American basswood	NL
SHRUB	*Callicarpa americana*	Beautyberry	NL
	Cephalanthus occidentalis	Buttonbush	NL
	*Cornus amomum**	Silky dogwood	NL
	Cornus sericea	Red oiser dogwood	NL
	Elaeagnus umbellata	Autumn olive	NL
	Hamamelis virginiana	Witchhazel	NL
	*Rosa multiflora***	Multiflora rose	NL
	Vaccinium corymbosum	Highbush blueberry	NL
	Viburnum acerifolium	Mapleleaf viburnum	NL
HERBACEOUS	*Anemone americana*	Round-leaved liverleaf	NL
	Anthoxanthum odoratum	Sweet vernal grass	NL
	Apocynum cannabinum	Clasping-leaved dogbane	NL
	Asclepias syriaca	Common milkweed	NL
	Baptisia australis	Blue false indigo	NL
	Berberis thunbergii	Japanese barberry	NL
	Boehmeria cylindrica	Smallspike false nettle	NL
	Carex intumescens	Bladder sedge	NL
	Carex stipata	owlfruit sedge	NL
	Coreopsis grandiflora	Large-flowered tickseed	NL
	Equisetum arvense	Field horsetail	NL
	Equisetum variegatum	Variegated scouringrush	NL
	Eupatorium perfoliatum	Common boneset	NL
	Fragaria vesca	Woodland strawberry	NL
	Fragaria virginiana	Virginia strawberry	NL
	Galium mollugo	White bedstraw	NL
	Geum canadense	White avens	NL
	Hylotelephium telephium	Witch's moneybags	NL
	Impatiens capensis	Jewelweed	NL
	Iris versicolor	Harlequin blueflag	NL
	Juncus effusus	Common rush	NL
	Juncus tenuis	Path rush	NL
	Leersia oryzoides	Rice cutgrass	NL
	Lysimachia nummularia	Creeping Jenny	NL
	Maianthemum racemosa	Feathery false lily of the valley	NL

FLOODPLAIN FOREST (FF)			
	SCIENTIFIC NAME	**COMMON NAME**	**LEGAL STATUS**
HERBACEOUS	*Microstegium vimineum*	Nepalese browntop	NL
	Onoclea sensibilis	Sensitive fern	NL
	Persicaria pensylvanica	Pennsylvania smartweed	NL
	Phragmites australis	Common Reed	NL
	Phytolacca americana	American pokeweed	NL
	*Polygonum persicaria**	Spotted lady's thumb	NL
	Pteridium aquilinum	Eastern bracken fern	NL
	Rudbeckia hirta	Black-eyed Susan	NL
	Scirpus cyperinus	Woolgrass	NL
	Solanum dulcamara	climbing nightshade	NL
	Symplocarpus foetidus	Skunk cabbage	NL
	Toxicondendron radicans	Eastern poison ivy	NL
VINE	*Celastrus orbiculatus**	Oriental bittersweet	NL
	Pathenocissus quinquefolia	Virginia creeper	NL
	Vitis aestivalis	Summer grape	NL

* Dominant Species
** Subdominant Species
NL - Not Listed

SPECIES COMPOSITION OF PLANT COVER TYPES

MOWED ROADSIDE PATHWAY (MRP)

STRATUM	SCIENTIFIC NAME	COMMON NAME	LEGAL STATUS
TREE	*Fraxinus americana*	White ash	NL
	Picea glauca	White spruce	NL
	Pinus strobus	White pine	NL
	*Quercus rubra**	Red oak	NL
SHRUB	*Berberis thunbergii*	Japanese barberry	NL
	Callicarpa americana	Beautyberry	NL
	Cornus amomum	Silky dogwood	NL
	Elaeagnus umbellata	Autumn olive	NL
	Lonicera japonica	Japanese honeysuckle	NL
	*Rosa multiflora**	Multiflora rose	NL
	Rubus allegheniensis	Allegheny blackberry	NL
HERBACEOUS	*Alliaria petiolata*	Garlic mustard	NL
	Alopecurus pratensis	Meadow foxtail	NL
	Ambrosia artemisiifolia	Annual ragweed	NL
	Amphicarpaea bracteata	American hogpeanut	NL
	*Anthoxanthum odoratus***	Sweet vernal grass	NL
	Apocynum cannabinum	Clasping-leaved dogbane	NL
	Asclepias syriaca	Common milkweed	NL
	Carex gracillima	Graceful sedge	NL
	Carex intumescens	Bladder sedge	NL
	Carex stipata	Owlfruit sedge	NL
	Carex stricta	Tussock sedge	NL
	Carex vulpinoidea	Fox sedge	NL
	Cirsium arvense	Canada thistle	NL
	Dennstaedtia punctilobula	Eastern hayscented fern	NL
	Dianthus armeria	Deptford pink	NL
	Equisetum arvense	Field horsetail	NL
	Matteuccia struthiopteris	Ostrich fern	NL
	*Onoclea sensibilis**	Sensitive fern	NL
	Osmunda cinnamomea	Cinnamon fern	Exploitably Vulnerable
	Oxalis dillenii	Slender yellow wood-sorrel	NL
	Phleum pratense	timothy	NL
	Phragmites australis	Common reed	NL
	Phytolacca americana	American pokeweed	NL
	Plantago major	Nipple-seeded plantain	NL
	Potentilla simplex	Common cinquefoil	NL
	Setaria viridis	Green bristle grass	NL
	Solidago altissima	Canada goldenrod	NL
	Solidago flexicaulis	Zig-zag goldenrod	NL
	Solidago gigantea	Giant goldenrod	NL
	Solidago rugosa	Wrinkleaf goldenrod	NL
	Taraxacum officinale	Common dandelion	NL
	Toxicondendron radicans	Eastern poison ivy	NL
	Trifolium aureum	Yellow clover	NL
	Trifolium repens	White clover	NL
VINE	*Celastrus orbiculatus**	Oriental bittersweet	NL
	Parthenocissus quinquefolia	Virginia creeper	NL

* Dominant Species
** Subdominant Species
NL - Not Listed

SPECIES COMPOSITION OF PLANT COVER TYPES			
PINE PLANTATION (PP)			
STRATUM	**SCIENTIFIC NAME**	**COMMON NAME**	**LEGAL STATUS**
	Acer rubrum	Red maple	NL
	Acer saccharum	Sugar maple	NL
	*Betula lenta***	Black birch	NL
	Carya ovata	Shagbark hickory	NL
	*Pinus strobus**	White pine	NL
SHRUB	*Berberis thunbergii*	Japanese barberry	NL
	Callicarpa americana	Beautyberry	NL
	Cornus amomum	Silky dogwood	NL
	Rubus allegheniensis	Allegheny blackberry	NL
	Rubus idaeus	American red raspberry	NL
	Vaccinium corymbosum	Highbush blueberry	NL
	Viburnum lentago	Nannyberry	NL
HERBACEOUS	*Arisaema triphyllum*	Common jack-in-the-pulpit	NL
	Amphicarpaea bracteata	American hogpeanut	NL
	Carex gracillima	Graceful sedge	NL
	Dennstaedtia punctilobula	Eastern hayscented fern	NL
	Dryopteris intermedia	Intermediate woodfern	Exploitably Vulnerable
	Dryopteris marginalis	Marginal woodfern	Exploitably Vulnerable
	Fragaria vesca	Woodland strawberry	NL
	Galium mollugo	White bedstraw	NL
	Impatiens capensis	Spotted jewelweed	NL
	Oxalis dillenii	Slender yellow wood-sorrel	NL
	Polystichum acrostichoides	Christmas fern	Exploitably Vulnerable
	Potentilla simplex	Common cinquefoil	NL
	Pteridium aquilinum	Eastern bracken fern	NL
	Ruta graveolens	Common rue	NL
	Solidago altissima	Canada goldenrod	NL
	Solidago hispida	Hairy goldenrod	NL
	Toxicondendron radicans	Eastern poison ivy	NL
	Vicia americana	American vetch	NL
VINE	*Celastrus orbiculatus**	Oriental bittersweet	NL
	Parthenocissus quinquefolia	Virginia creeper	NL

* Dominant Species
** Subdominant Species
NL - Not Listed

SPECIES COMPOSITION OF PLANT COVER TYPES			
RED MAPLE HARDWOOD SWAMP (RMHS)			
STRATUM	**SCIENTIFIC NAME**	**COMMON NAME**	**LEGAL STATUS**
TREE	*Acer saccharum***	Sugar maple	NL
	*Acer rubrum**	Red maple	NL
	Fraxinus pennsylvanica	Green ash	NL
	Liriodendron tulipifera	Tulip tree	NL
	Tilia americana	American basswood	NL
	Ulmus americana	American elm	NL
SHRUB	*Berberis thunbergii*	Japanese barberry	NL
	Callicarpa americana	Beautyberry	NL
	Cornus amomum	Silky dogwood	NL
	Lindera benzoin	Northern spicebush	NL
	*Rosa multiflora**	Multiflora rose	NL
	*Rubus allegheniensis***	Allegheny blackberry	NL
	Rubus occidentalis	Black raspberry	NL
HERBACEOUS	*Amphicarpaea bracteata*	American hogpeanut	NL
	Carex intumescens	bladder sedge	NL
	Carex stricta	tussock sedge	NL
	Carex vulpinoidea	Fox sedge	NL
	Equisetum arvense	Field horsetail	NL
	Fragaria vesca	Woodland strawberry	NL
	Galium aparine	Cleavers	NL
	Impatiens capensis	Spotted jewelweed	NL
	*Microstegium vimineum**	Nepalese browntop	NL
	Juncus effusus	Common softrush	NL
	*Onoclea sensibilis***	Sensitive fern	NL
	Osmunda cinnamomea	Cinnamon fern	Exploitably Vulnerable
	Osmunda claytoniana	Interrupted fern	Exploitably Vulnerable
	Osmunda regalis	Royal fern	Exploitably Vulnerable
	Persicaria sagittatum	arrowleaf tearthum	NL
	Polystichum acrostichoides	Christmas fern	Exploitably Vulnerable
	Ruta graveolens	Common rue	NL
	Solidago rugosa	Wrinkle-leaf goldenrod	NL
	Thelypteris noveboracensis	New York fern	Exploitably Vulnerable
	Toxicondendron radicans	Eastern poison ivy	NL
VINE	*Celastrus orbiculatus**	Oriental bittersweet	NL
	Parthenocissus quinquefolia	Virginia creeper	NL

* Dominant Species
** Subdominant Species
NL - Not Listed

SPECIES COMPOSITION OF PLANT COVER TYPES			
SUCCESIONAL SHRUBLAND (SS)			
STRATUM	**SCIENTIFIC NAME**	**COMMON NAME**	**LEGAL STATUS**
SHRUB	*Berberis thunbergii*	Japanese barberry	NL
	Cornus amomum	Silky dogwood	NL
	*Elaeagnus umbellata**	Autumn olive	NL
	Lonicera japonica	Japanese honeysuckle	NL
	Rosa multiflora	Multiflora rose	NL
	*Rubus allegheniensis***	Allegheny blackberry	NL
	Rubus occidentalis	Black raspberry	NL
	Rubus odoratus	Purple flowering raspberry	NL
HERBACEOUS	*Achillea millefolium*	Common yarrow	NL
	Agrostis gigantea	black bentgrass	NL
	Ambrosia artemisiifolia	Annual ragweed	NL
	*Anthoxanthum odoratum**	Sweet vernal grass	NL
	Apocynum cannabinum	Clasping-leaved dogbane	NL
	Boehmeria cylindrica	Manyspike false nettle	NL
	Carex intumescens	Bladder sedge	NL
	Carex stipata	owlfruit sedge	NL
	Carex vulpinoidea	Fox sedge	NL
	Dianthus armeria	Deptford pink	NL
	*Dichanthelium clandestinum***	deertongue	NL
	Eragrostis minor	Little lovegrass	NL
	Erigeron annuus	White-topped fleabane	NL
	Fragaria vesca	Woodland strawberry	NL
	Galium aparine	Cleavers	NL
	Hieracium lachenalii	Common hawkweed	NL
	Leucanthemum vulgare	Oxeye daisy	NL
	Onoclea sensibilis	Sensitive fern	NL
	Phleum pratense	timothy	NL
	Potentilla simplex	Common cinquefoil	NL
	Schizachyrium scoparium	Little bluestem	NL
	Setaria viridis	Green bristle grass	NL
	Solidago flexicaulis	Zig-zag goldenrod	NL
	Solidago rugosa	Wrinkle-leaf goldenrod	NL
	Toxicondendron radicans	Eastern poison ivy	NL
	Trifolium campestre	Field clover	NL
	Veronia noveboracensis	New York ironweed	NL
VINE	*Celastrus orbiculatus**	Oriental bittersweet	NL
	*Pathenocissus quinquefolia***	Virginia creeper	NL
	Vitis aestivalis	Summer grape	NL
	Vitis riparia	Riverbank grape	NL

* Dominant Species
** Subdominant Species
NL - Not Listed

Picture 1: View west of an existing transmission line corridor, which is composed of plant species indicative of a successional shrubland habitat.

Picture 2: View east of an existing transmission line corridor, which is composed of plant species indicative of a successional shrubland habitat.

Picture 3: View north of an existing transmission line corridor, which is composed of plant species indicative of a successional shrubland habitat.

Picture 4: View south of the Appalachian oak-hickory forest.

Picture 5: View south of the Appalachian oak-hickory forest.

Picture 6: View east of a red maple hardwood swamp (Wetland D) that is predominantly composed of stiltgrass (*Microstegium vimineum*), a state exotic species.

Picture 7: View south of the ecotone between a red maple hardwood swamp (Wetland D) and the Appalachian oak-hickory forest.

Picture 8: View southeast of the Appalachian oak-hickory forest.

Picture 9: View northwest at the sparse herbaceous layer of the Appalachian oak-hickory forest.

Picture 10: View south at the plant community along the road that traverses the project area.

Picture 11: View north at the plant community along the road that traverses the project area.

Picture 12: View south at the plant community along the road that traverses the project area.

Picture 13: View southwest at the predominance of stiltgrass within a red maple hardwood swamp (Wetland G).

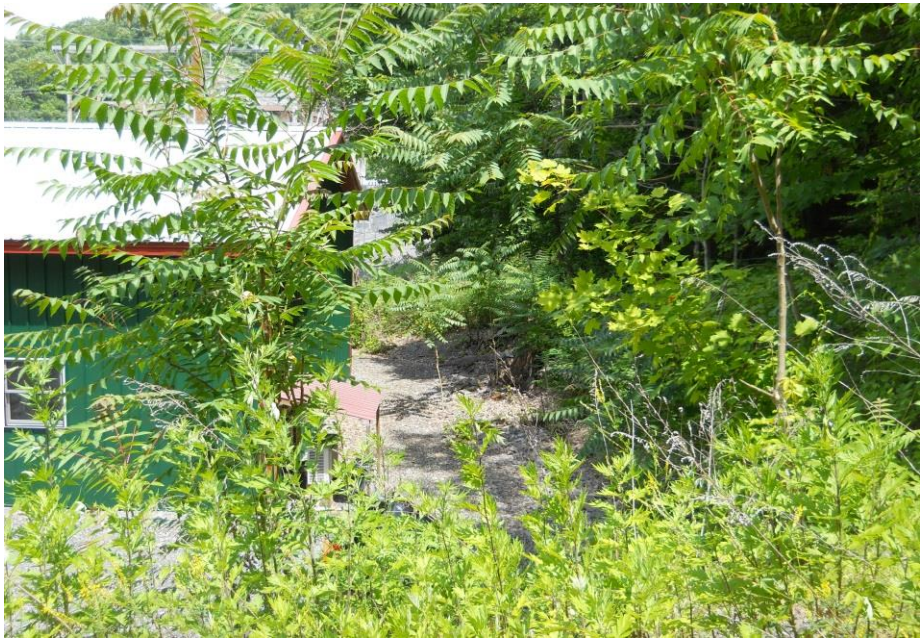
Picture 14: View east of the ecotone between a red maple hardwood swamp (Wetland G) and the Appalachian oak-hickory forest.

Picture 15: View east of sparse groundcover and tree fall within the pine plantation.

Picture 16: View west of sparse groundcover and tree fall within the pine plantation.

Picture 17: View east of the Wallkill River (Stream 5), which separates an Appalachian oak-hickory forest and a floodplain forest.

Picture 18: View southwest of the habitat present along the west side of the Wallkill River.



Picture 19: View northwest at the storage building and existing substation, as well as the Appalachian oak-hickory forest to the east.

Picture 20: View southeast at the ecotone between the improved lawn/maintenance area and the Appalachian oak-hickory forest.

Picture 21: View south-southwest at the Appalachian oak-hickory forest that occurs to the north of Coutant Road.

Picture 22: View west at the Appalachian oak-hickory forest and traversing perennial stream (Stream 1).

Appendix C

Project Area Photographs

Photograph 1 – View west of the *Red Maple-Hardwood Swamp* located on the east side of the Site. The wetland is bordered by *Appalachian-oak hickory Forest* habitat.

Photograph 2 – View of the *Appalachian-oak hickory Forest* habitat in the northeastern portion of the Site. This habitat contains mostly oaks and maples with some hickory interspersed.

Photograph 3 – View of the *Floodplain forest* habitat located on the south side of the Wallkill River with evidence of past beaver activity.

Photograph 4 – View of the *Pine Plantation* habitat that occurs on the southwest portion north of the Wallkill River.

Photograph 5 – View south, of the *Successional Shrubland* habitat that occurs at the northeastern section of the site. This habitat is maintained in an early successional state due to vegetation management.

Photograph 7 – View east, of the *Confined River* habitat that occurs at the southeastern section of the site. The electric transmission lines would cross over this feature.

Photograph 6 – View east, of the *Marsh Headwater Stream* habitat that occurs on the south side of the Wallkill River. This stream flows through a *floodplain forest* into Wallkill River.

Photograph 8 – View east, of the *Appalachian-oak hickory forest* habitat that occurs at the southeastern section on the north side of the Wallkill River. This habitat consists of shagbark hickory trees and some white oaks that could provide potential Indiana bat habitat.

Appendix D

Wildlife Observations

WILDLIFE OBSERVATIONS	
COMMON NAME	**SCIENTIFIC NAME**
Avian	
Great blue heron	*Ardea herodias*
American crow	*Corvus brachyrhynchos*
Blue jay	Cyanocitta cristata
Pileated woodpecker	*Dryocopus pileatus*
Bald eagle	*Haliaeetus leucocephalus*
Eastern phoebe	*Sayornis phoebe*
Eastern bluebird	*Sialia sialis*
American robin	*Turdus migratorious*
Mammalian	
Coyote (scat)	*Canis latrans*
Beaver (tree damage)	*Castor canadensis*
White tailed deer (tracks)	Odocoileus virginianus
Gray squirrel	Sciurus carolinensis
Amphibian	
Spring peeper (call)	*Pseudacris crucifer*
Wood frog (call)	*Rana sylvatica*

Appendix E

Plant Species Observed

PLANT SPECIES LIST		
STRATUM	**COMMON NAME**	**SCIENTIFIC NAME**
Tree	red maple	*Acer rubrum*
	sugar maple	*Acer saccharum*
	black birch	*Betual lenta*
	American hornbeam	*Carpinus caroliniana*
	pignut hickory	*Carya glabra*
	shagbark hickory	*Carya ovata*
	American beech	*Fagus americana*
	white ash	*Fraxinus americana*
	green ash	*Fraxinus pennsylvanica*
	tulip poplar	*Liriodendron tulipifera*
	eastern white pine	*Pinus strobus*
	eastern cottonwood	*Populus deltoides*
	quaking aspen	*Populus tremuloides*
	northern red oak	*Quercus rubra*
	white oak	*Quercus alba*
	black cherry	*Prunus serotina*
Shubs and Vines	Japanese barberry	*Berberis thunbergii*
	Oriental bittersweet	*Celastrus orbiculatus*
	silky dogwood	*Cornus amomum*
	autumn olive	*Elaeagnus umbellata*
	burningbush	*Euonymus alatus*
	forsythia	*Forsythia* spp.
	Japanese honeysuckle	*Lonicera japonica*
	Virginia creeper	*Parthenocissus quinquefolia*
	common cinquefoil	*Potentilla simplex*
	multiflora rose	*Rosa multiflora*
	American red raspberry	*Rubus idaeus*
	wine raspberry	*Rubus phoenicolasius*
	black raspberry	*Rubus occidentalis*
	poison ivy	*Toxicodendron radicans*
	lowbush blueberry	*Vaccinium angustifolium*
Herbs	common yarrow	*Achillea millefolium*
	garlic mustard	*Alliaria petiolata*
	white wood aster	*Eurybia divaricata*
	flat topped goldentop	*Euthamia graminifolia*
	Virginia strawberry	*Fragaria virginiana*
	spotted jewelweed	*Impatiens capensis*
	creeping jenny	*Lysimachia nummularia*
	Canada mayflower	*Maianthemum canadense*
	Ostrich fern*	*Matteuccia struthiopteris*
	partridgeberry	*Mitchella repens*
	sensitive fern	*Onoclea sensibilis*
	Cinnamon fern	*Osmunda cinnamomea*
	arrow leaved tearthumb	*Persicaria sagittatum*
	Christmas fern	*Polystichum acrostichoides*
	Japanese knotweed	*Polygonum cuspidatum*
	arrowleaf tearthumb	*Polygonum sagittatum*
	American wintergreen	*Pyrola americana*

PLANT SPECIES LIST (Continued)		
STRATUM	**COMMON NAME**	**SCIENTIFIC NAME**
Herbs	goldenrods	*Solidago (* altissima, gigantea)
	skunk cabbage	*Symplocarpus foetidus*
	New York fern	*Thelypteris noveboracensis*
	common dandelion	*Taraxacum officinale*
	coltsfoot	*Tussilago farfara*
	common mullein	*Verbascum thapsus*
Graminoids	lurid sedge	*Carex lurida*
	tussock sedge	*Carex stricta*
	Rice cutgrass	*Leersia oryoides*
	Nepalese browntop	*Microstegium vimineum*
	sphagnum moss	*Sphagnum* spp.
This plant list was derived from the habitat assessment performed on April 2 and April 11, 2014.		

*Exploitably Vulnerable