

**FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE
CATSKILL/DELAWARE UV FACILITY
METHODOLOGIES**

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3.14. NATURAL RESOURCES

3.14.1. Introduction

Natural resource parameters such as upland vegetation; wetlands, waterways, and floodplains; fish and benthic invertebrates; birds; herpetiles; mammals; and endangered, threatened, or rare plant and animal species were assessed by experienced field biologists at the Eastview Site. Existing habitats varied from impervious paved surfaces to the forested areas at the Eastview Site.

This section describes the types of resources that were assessed and when the assessments were performed. Details of the methods utilized to identify the existing conditions for each natural resource parameter can be found in the “Existing Conditions” section. In addition to identifying the existing natural resource conditions at the Eastview Site and the associated off-site work locations, the relative value of each of the natural resource parameters described below was assessed in terms of its importance in a regional context. Field surveys have been conducted by an experienced field biologist or qualified ecologist.

Wetlands, Floodplains, and Upland Vegetation. Wetland investigations were conducted at the project sites. Floodplains were also identified. Upland vegetation surveys were conducted at the project sites to assess the trees, shrubs, saplings, herbaceous vegetation, and lianas (vines) within the study area, and to identify the dominant plant species within the communities present. Where identified, wetlands were delineated in accordance with the criteria described in the “Existing Conditions” section below. Wetlands, floodplains, and upland vegetation were mapped and described in the text.

Fish and Benthic Invertebrates. The proposed UV Facility site was investigated specifically for aquatic resources because the proposed facility would have temporary impacts on aquatic habitat. The purpose of the aquatic resource investigation was to assess the principal fish and invertebrate species present and to determine the current ecological conditions of the surface waters located at the sites.

Mammals, Amphibians, Reptiles, and Bird Species. To determine the wildlife communities occupying the habitats present within the study area, on-site mammal, herpetile (reptile and amphibian), and bird surveys were conducted.

Endangered, Threatened, and Rare Species. Rare plant and animal information were collected from federal and state agencies for the proposed site. Information was obtained from the New York State Department of Environmental Conservation Natural Heritage Program, the U.S. Fish and Wildlife Service, and the National Marine Fishery Service. Field surveys were conducted to assess potential impacts to state- or federally-listed species.

3.14.2. Baseline Conditions

3.14.2.1. Existing Conditions

The techniques utilized to assess existing populations, habitats, and functions of various natural resource parameters are described below. Information sources include: Croton Water Treatment Plant Final Supplemental EIS, June 2004; U.S. Fish and Wildlife Service (USFWS), National Wetland Inventory (NWI) Maps; NYSDEC Freshwater Wetland maps; and Natural Resources Conservation Service soil maps. A topographic survey of the Eastview Site, prepared in 2000, was also examined. The limits of the land owned by the City of New York at the project sites were used in conjunction with the demarcated areas of construction disturbance to determine the extent of each field investigation. Areas of adjoining properties immediately abutting the project sites were also examined and described qualitatively. No natural steep slopes occur on the project sites.

Vegetation. To assess existing conditions in upland areas, an inventory of upland vegetation was performed. The dominant vegetative species within the upland areas to be cleared or disturbed were identified. In addition to the upland vegetation that was quantitatively surveyed as part of the wetland delineations, thorough site walkovers of all upland areas were made to determine the species composition of the dominant vegetation. The vegetative communities found on site were classified according to the New York State Natural Heritage Program's (NYSNHP) Ecological Communities of New York State, Second Edition (Reschke, et. al., 2002).

Vegetation at the project sites was assessed to determine if contiguous forest was present. Contiguous forest was identified as areas of the forest that were not divided by non-forested areas, including cleared areas, open fields, large areas of pavement, major roads, or open water. Contiguous forest included minor roadways along which the tree canopy overlapped the road. Contiguous forest was identified based on United States Geological Survey (USGS) topographic maps and published reports of forest acreage at the project sites.

The trees that would be potentially impacted were individually identified and measured. Potentially impacted trees included those trees in the construction impact area and within twenty feet of the edge of the construction impact area. The basal area of each tree was determined at diameter at breast height (dbh), the approximate four-foot height used to measure tree diameters. All trees within the potential impact area and twenty feet beyond the potential impact of construction with a dbh of equal to or greater than four inches were recorded by species and dbh. The basal area of the trees was calculated cumulatively and by species to determine the density of the trees and to characterize forest type within the wooded portions of the properties.

Professional botanists investigated appropriate habitats for the plant species of concern on the project sites. The Timed Meander Search Procedure was utilized in the heavily wooded areas at the Eastview Site only. This search method provides a structured, documentable, systematic approach for conducting floristic site examinations to determine the presence or absence of endangered and threatened plant species. The procedure has been demonstrated as a means of

discovering endangered and threatened species within a project site, and documenting a low probability of occurrence of these species when not found.

The Timed Meander Search Procedure entails sampling along a transect that meanders throughout the study area. The meandering transect may double-back over previously covered ground, follow a zigzag pattern, or take any other form so long as there is a maximum coverage of vegetative variation within the study area. Plant species are recorded over time as encountered. Typically, the search procedure is employed until a definite leveling off of the number of species encountered over time is obtained. Approximately 30 minutes was spent searching without any additional species being encountered before a search was terminated.

Wetlands, Waterways, and Floodplains. Wetland delineations were conducted to identify wetlands or regulated waters within or in the vicinity of the Eastview Site between 2000 and 2004. These wetlands could come under jurisdiction of the following legislation:

- Section 404 of the Federal Clean Water Act (33 U.S.C. 1344) - Regulates the dredging and filling of waters of the United States (including wetlands).
- State of New York Freshwater Wetlands Act of 1972 Freshwater - as amended, regulates wetland alteration.
- State of New York Protection of Waters Law - regulates waters of the State of New York, including wetlands adjacent to protected waterways.
- Chapter 64, Town of Greenburgh Code, Local Law No. 8 - Freshwater Wetlands Law of the Town of Greenburgh - Regulates wetland alteration.
- Chapter 111, The Code of the Town of Mount Pleasant, Freshwater Wetlands - Regulates wetland alteration.

All wetland areas at the Eastview Site that were depicted on the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) map or NYSDEC Freshwater Wetland Map were delineated in the field. In addition, all sites were walked to identify any wetland areas not illustrated on the USFWS, NWI, or NYSDEC Wetland Map that may be subject to any of the regulations listed above. These wetlands were also delineated in the field.

Wetland areas were delineated in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual*, the *April 1993 Corps of Engineers Performance Standards and Supplemental Definitions for Use with the 1987 Manual Technical Memorandum*, the *Freshwater Wetlands Act of 1972 (NYECL, Article 24, §24-0107)*, the *1995 New York State Freshwater Wetlands Delineation Manual*, and *Chapter 178 Freshwater Wetlands and Watercourse Protection of the Town of Yorktown, New York*. The Eastview Site was delineated in accordance with the Federal, State, and local regulations of the Town of Mount Pleasant and the Town of Greenburgh.

Wetland investigations were conducted on the Eastview Site in April and May 2000, May 2002, and March 2004. The presence and limits of wetlands were determined utilizing the "multi-parameter approach" as detailed in the USACOE Wetlands Delineation Manual, Final Report.¹ This approach generally requires a coincidence of hydric soils, positive hydrological indicators and a prevalence of hydrophytic vegetation for a determination that an area is a wetland.

To determine whether areas could be classified as wetlands under the USACOE approach, soils were examined at all sites to a depth of 24 inches for indications of hydric soil characteristics; plant species were identified and compared to the National List of Plant Species that Occur in Wetlands: Northeast (Region 1-FWS, 1988); and an evaluation of on-site hydrology was made in accordance with USACOE and U.S. Department of Agriculture (USDA) Natural Resource Conservation Service procedures. The wetland/upland boundaries were demarcated in the field by the placement of flagging on vegetation. At representative points, transects were laid out perpendicular to the wetland/upland boundary, and vegetation, soils, and hydrological components were evaluated at two plots (wetland and upland) along each transect. The percent cover of vegetation in the wetland and upland plots was estimated using concentric circular plots to identify dominant species. Trees and woody vines were assessed within a 30-foot radius plot, saplings and shrubs were assessed in a 15-foot radius plot, and the herbaceous layer was assessed in a five-foot radius plot. When the wetland boundary was identified, flags were left on-site to mark the boundary. An additional flag was placed at each turn in the boundary. These flags were alphabetically labeled A, B, C, etc. Each continuous line was given a letter (e.g. B-series) and each flag was given a number (e.g. B1, B2, B3, etc.). Wetland areas found on the sites were then surveyed.

State jurisdictional wetlands identified on the sites were classified in accordance with NYS guidelines (Part 664.5 of 6 NYCRR). The City of New York has adopted the same wetland classification system for the *CEQR Technical Manual* as defined by the NYS guidelines. This classification system describes four classes of wetlands based on ecological value as determined by the specific type and structure of vegetation, type of waterbodies on-site, soils, and placement in the landscape. Class I wetlands are considered the most valuable. They are identified as providing any of seven functions, such as providing habitat for rare or threatened species or playing a key role in flood prevention in an inhabited area. Class II wetlands are identified as containing at least one of 17 functions. These characteristics may include: it is adjacent to a tidal wetland or it supports diversity unusual for the county in which it is found, City, or borough.

According to CEQR, all freshwater wetlands within New York City are listed by the NYSDEC as either Class I or Class II wetlands because they are in an urbanized area. However Class III and IV wetlands have been defined as well because their characteristics may become an issue in a CEQR assessment. Class III wetlands possess one of 15 attributes. Characteristics of these wetlands include: it is a wetland with one of five cover types not listed for Classes I and II (including open water) or it includes regionally vulnerable species to the state. Class IV

¹ Environmental Laboratory. 1987. Corps of Engineers Wetland Delineation Manual. U. S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, MS. Technical Report Y-87-1.

wetlands are reserved for wetlands that do not meet the requirements of Class I, II, or III wetlands above.²

The vegetation, soil, and hydrology information described above was recorded on Wetland Data Sheets at each soil sampling location. The wetland perimeter was flagged and surveyed where the USACOE's parameters were met.

Utilizing information collected during the field reconnaissance and existing natural resource mapping, regulated streams and surface waterbodies present at each project site were identified. Qualitative descriptions and habitat assessments of stream corridors were made.

Fish and Benthic Macroinvertebrates. As indicated above, fish and benthic macroinvertebrate assessments were conducted at the Eastview Site (only) within the Mine Brook during May 2000. Dissolved oxygen, temperature, turbidity, and conductivity were measured at the time of the sampling field visit at each stream or river. Samples of benthic organisms were collected by aquatic kick net and preserved specimens were identified to the family level in the laboratory, using standard references. The habitat quality of the surface water was evaluated based on a visual inspection of the streambed and adjacent habitat.

Reptiles and Amphibians (Herpetiles). As indicated above, herpetile surveys were conducted at the project site(s) between 1998 and 2004. Ponds, marshes, wetlands, streambeds, and arid flatlands were searched to reveal the species or potential indications of inhabitation. Surveys were conducted during afternoon hours to identify breeding pools or stream locations. Submerged twigs, aquatic vegetation, and rocks were overturned and observed to find egg masses. When necessary, the species were captured for identification and then released. Observations of the herpetiles, including their tracks, droppings, dams, nests, and burrows were noted. Precautions were taken to prevent destruction of habitat or organisms (eggs included) during observations. The results of the surveys were summarized and the habitat conditions described. Information on herpetile species was requested from the NYSDEC Endangered Species Unit - Natural Heritage Program.

Birds. Taped vocalizations were utilized at the Eastview Site during the May 2000 night surveys of nocturnal raptors (i.e., Screech Owl, Barred Owl, and Great-Horned Owl). For the purposes of this study at the Eastview Site, sampling points were located in areas of appropriate habitat, employing three 10-second intervals of taped owl vocalizations followed by 50 to 60 seconds of silence. The tape player speaker was rotated 180 degrees between each 10-second interval, and a listening period of 5 minutes followed each tape sequence. The surveys were conducted when wind speeds were less than 8 miles per hour (mph) and when precipitation was absent.

Raptor and heron nests are substantial structures constructed of sticks that remain intact year after year. The birds commonly return to the same nest and enlarge it. In other instances, birds of another species may use the nest. These nests are extremely visible; therefore, the Eastview Site was searched for such nests through field observations taken in April and early May 2000.

² NYCDEP. 2001. The City of New York Environmental Quality Review (CEQR) Technical Manual. New York City Department of Environmental Protection. New York, NY.

For all surveyed project sites, a table of species anticipated during migratory periods was prepared based on information provided by:

- Breeding Bird Atlas of New York (Andrle and Carroll, 1988);
- Birds of New York State (Bull, 1974);
- New York State Department of Environmental Conservation/New York Natural Heritage Program; and,
- Wildlife Resources of Westchester County.

Mammals. On-site observations were used to describe the existing conditions of mammals at the Eastview Site between April and September 2000. Surveys were conducted to assess the potential and current wildlife use of the project site. Lists of species potentially occurring in the vicinity of each project site were based on field observations of mammals or their signs, the habitat at each project site, literature, and the best professional judgment of project ecologists visiting the project site. In addition, observations of mammals or their signs, such as nests, tracks, scats, and burrows, were gathered incidentally during other natural resource inventories. This survey also entailed searching for species identified as threatened, endangered, and of special concern.

Rare, Threatened, and Endangered Species. Information regarding protected species and unique habitats that may be present in the study areas was obtained from the U.S. Fish and Wildlife Service and the New York State Natural Heritage Program of the New York State Department of Environmental Conservation between 1997 and 2004.

Where necessary, surveys for threatened and endangered species at each project site followed the confirmation by these agencies that such species had been identified on-site.

3.14.2.2. Future Without the Project

The Future Without the Project conditions were developed for the anticipated peak year of construction and the anticipated year of operation for the proposed facility. The anticipated peak year of construction is based on peak truck traffic and the peak number of workers. The predictions of the future conditions at each project site were made based on existing proposals for development; interviews with owners, developers, and agency personnel; and town and city planning documents. The actual assessment of future conditions under these scenarios was determined using the same methodology as was applied to the existing conditions described above.

3.14.3. Potential Impacts

3.14.3.1. Potential Project Impacts

The potential impact area at each of the project sites was determined using site plans. Areas of wetland, floodplain, surface water, scrub-shrub and forest, and stream length that would be potentially impacted by the proposed facility were quantified. Electronic mapping created by Geographic Information Systems (GIS), aerial photographs, and on-site field surveys were

utilized to calculate the extent of these areas that would be removed by the construction of the proposed UV Facility. The upland and wetland areas lost were assessed in terms of loss or potentially impacted functions and values. The loss of each habitat type was also related to the animals identified as using that habitat, including fish, benthic invertebrates, mammals, birds, herpetiles, and rare/endangered species. Vegetation lost as a result of the proposed facility was assessed to identify potential impacts to rare plants. Potential impacts to both plants and animals were also assessed in terms of their relative importance in a regional context.

Upland vegetation losses were determined to be significant based on the regional abundance of the cover type and the ecological functions of the specific project site. Specific valuable functions that were considered included wildlife habitat, stormwater attenuation, air quality improvement, recreation, etc. that would be lost or substantially reduced as a result of the proposed facility. The loss of upland vegetation that provided many natural resource functions, based on best professional judgment, was deemed a significant impact. The significance of wetland impacts was determined based on whether ACOE regulated wetlands, NYSDEC regulated wetlands, or local wetlands would be lost. The significance of wildlife (herpetiles, birds, mammals) impacts was determined by evaluating the relative rarity of any lost habitat. Loss of wildlife habitat that was uncommon in the region and critical to the continued survival of wildlife species in the area was considered a significant impact. Finally, loss of any known state or federally protected plant or animal species, or their habitats, was deemed a significant adverse impact.

3.14.3.2. Potential Construction Impacts

The extent of potential construction impacts for each natural resource parameter was determined using the project designs. The same potential impact analysis methods used for the potential project impacts were also used for the larger areas of potential construction impacts. Potential impacts that extended beyond the potential construction impact area, such as noise and air quality impacts, were evaluated qualitatively. Potential impacts of sediment displacement and increased turbidity within Mine Brook were considered.

3.14.4. Mitigation

The project designs have avoided potential natural resource impacts wherever possible. If potential impacts were impossible to avoid, the extent of the impact areas were minimized. For example, the construction zone at the Eastview Site was selected to preserve as many mature trees as possible. Where potential impacts would be unavoidable, mitigation plans were described in the subsequent chapters for each site. In general, mitigation activities have been designed to compensate for unavoidable potential impacts after reasonable attempts have been made to avoid and minimize potential impacts.