Appendix C

Natural Resources Appendices

Appendix C

Natural Resources Report Supporting Documentation

This appendix contains the previous natural resources assessment for the Charleston Mixed Use Development Site, the 2013 wetland delineation report, and agency correspondence that were referenced in Chapter 4.8 Natural Resources. Materials within this appendix consist of following three attachments:

- Attachment A – Final Report: Natural Resources Assessment at Charleston, Staten Island
- Attachment B – Wetland Delineation Report
- Attachment C – Vernal Pool Survey
- Attachment D – Agency Correspondence

ATTACHMENT A

FINAL REPORT: NATURAL RESOURCES ASSESSMENT AT CHARLESTON, STATEN ISLAND

Natural Resources Glossary of Terms

TERM	DEFINITION
Anaerobic	The absence of oxygen.
Desiccate	To dry out.
Emergent	Non-woody, soft-stemmed plants
Game Camera	A camera designed to operate independently without a human operator. Game cameras can collect photo throughout a 24-hour period
Herptofauna	Reptiles and amphibians
Hydric Soil	A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.
Lithic	Consisting of or relating to stone or rock.
Red Parent Material	Red colored soils that are usually derived from Triassic/Jurassic age lithic materials. Red parent materials often obscure hydric features.
Successional	A term to describe a community that is changing relatively quickly as new species replace the existing species that were initially established after a site is disturbed.
Track Plates	A flat board used to passively obtain animal prints.
Vernal Pool	Vernal pools are intermittently to ephemerally ponded, small, shallow depressions usually located within an upland forest. They are typically flooded in spring or after a heavy rainfall, but are usually dry during summer. Many vernal pools are filled again in autumn. The substrate is dense leaf litter over hydric soils. Vernal pools typically occupy a confined basin (i.e., a standing waterbody without a flowing outlet), but may have an intermittent stream flowing out of it during high water. Since vernal pools cannot support fish populations, there is no threat of fish predation on amphibian eggs or invertebrate larvae (NYNHP, 2013a).

Citation: NYNHP 2013a. Website accessed August 29, 2013

http://www.acris.nynhp.org/guide.php?id=9902&part=3

FINAL REPORT:
NATURAL RESOURCES ASSESSMENT AT CHARLESTON, STATEN ISLAND (OCTOBER 2007-DECEMBER 2008)

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Table of Contents

A. EXECUTIVE SUMMARY

A Natural Resources Assessment was conducted by AKRF at a City-owned project site (approximately 88 arces) in Charleston, Staten Island between October 2007 and December 2008. The primary purposes of this field investigation were to: (1) describe existing natural resources within the boundaries of the project site; (2) identify and document any sensitive species that may be present within the project site; and (3) describe the extent of connectivity between the project site and adjacent natural areas.

Findings include the following:

- FEMA data indicates that most of the project site is outside the 100-year and 500-year floodplain.
- No tidal wetlands were noted within the project site. Freshwater wetlands along, and continuous with, the Englewood Avenue corridor were delineated, including three isolated and three continuous wetland areas. Several potential freshwater wetland areas occurring outside of the Englewood Avenue corridor were noted.
- Upland forest and meadow communities were dominant within the project site. No habitat communities listed as rare, special concern, threatened or endangered in New York State were observed within the project site. One S1-ranked habitat community, a variant of Red Maple-Sweetgum Swamp Forest, occurred within the project site.
- Of approximately 239 plant species observed on the project site, AKRF confirmed eleven S1, S2 and S3 ranked species within the project site.
- The New York State special concern Eastern Box Turtle was observed within the project site. No other state or federally-listed reptiles or amphibians were observed within the project site, although potential habitat may exist for nesting or overwintering Eastern Mud Turtles.
- Of approximately 174 bird species observed at the project site, 10 New York State-listed species were observed. Two of these species, Cooper's Hawk (special concern), Northern Harrier (threatened) and Peregrine Falcon (endangered) were observed during periodic foraging activities within the project site, though no breeding for these three species occured. The remaining species were observed either while in-transit over the site (Common Tern, Osprey) or during brief periods of migratory or wintering seasons (Common Nighthawk, Horned Lark).
- No state or federally-listed mammals were observed on the project site. Reproduction and foraging by White-tailed Deer and Woodchuck was observed on the project site.
- One New York State-listed dragonfly, Comet Darner (S2), was observed on the project site, although habitats that may support populations state-listed species, including the Yellow-sided and Bar-winged Skimmer, are present within the project site.

Sensitive areas within the project site, and recommendations on potential future effort required to assess impacts to natural resources as a result of a proposed project, are discussed below.

B. INTRODUCTION

This report summarizes a natural resources field investigation of several City-owned parcels ("project site") within the Charleston section of Staten Island, New York (Richmond County). On behalf of the NYC Economic Development Corporation (EDC), AKRF, Inc. conducted a five-season natural resources survey of the project site between October 2007 and December 2008. The project site has been proposed as a mixed residential, commercial and recreational development, although no site plan has been advanced for review as of the date of this document. The parameters of this survey were initially described in the Charleston Natural Resources Scope of Work (AKRF 2007) and the Charleston Natural Resources Survey Methodology (AKRF 2008).

The project site is located in proximity to biologically diverse habitat communities, and the presence of several state-listed plant species (including Torrey's Mountain Mint) have been previously documented within the vicinity of the project site. An in-depth examination of natural resources was required to document any sensitive flora, fauna and habitat communities existing within the project site boundary, in conjunction with future efforts to assess potential impacts to natural resources that would occur as a result of proposed site plans.

The primary purposes of this field investigation were to: (1) describe existing natural resources within the boundaries of the project site; (2) identify and document any sensitive species that may be present within the project site; and (3) describe the extent of connectivity between the project site and adjacent natural areas. This final report details the existing conditions of the project site and offers recommendations on sensitive areas present within the project site.

C. PROJECT SITE

PROJECT SITE

The approximately 88 acre project site (Figures 1 and 2) is bounded to the north by Englewood Avenue, to the east and south by Veterans Road West, and to the west by Arthur Kill Road. The project site includes approximately 43.9 acres of NYC Department of Parks and Recreation property (defined by a conservation area and the proposed Fairview Park), in addition to approximately 41 acres of other City-owned property. Site photographs are located in Appendix A.

For the purposes of this study, the project site included several City-owned parcels, including areas slated for conservation under any future plan. The acreages and uses presented below were proposed in a previous site plan (EDC 2007) and were used as an initial template to determine the boundaries of the project site; these uses and dimensions are subject to change pending approval of a proposed site plan design:

- NYC Department of Parks and Recreation property (i.e., the proposed 23 acre Fairview Park and a 20.9 acre conservation area);
- a 10.9 acre site, previously proposed for an NYC Department of Education school site;
- a 12.3 acre site, previously proposed for the construction of affordable senior housing by the NYC Department of Housing;
- 9.7 acres, previously proposed for the construction of a commercial garden center;

- the proposed extension of Englewood Avenue, representing the northern boundary of the project (currently represented by a paved road and an unpaved path); and
- additional road developments to extend south from Englewood Avenue and connect with the existing Bricktown Way.

The project site includes lower elevations to the west and south and is highest at the former Balthazar Kreischer estate (see below). Site topography varies from approximately 50 to 130 feet above sea level (Figure 3).

Several previous examinations of natural resources have occurred within and adjacent to the project site, including the Bricktown Centre at Charleston Final Environmental Impact Statement (Office of the Deputy Mayor for Economic Development and Rebuilding [ODMEDR] 2002), the Bricktown Centre at Charleston Environmental Assessment (ODMEDR 2004) the Charleston Site Vegetation Sampling Report (AKRF 2003), and the Fairview Park Modified EAS (NYCDPR 2005).

SITE HISTORY

The project site is located within the Charleston (formerly Kreischerville) section of Staten Island. In terms of the prehistoric period, there is evidence of a Native American presence within the vicinity of the project site prior to European settlement of the project area in the 1600's. Important Paleo-Indian sites have been documented at the Port Mobil site to the north, and archaeological findings on the project site also give credence to this suggestion (ODMEDR 2002). By the 1800's, the project site was divided among several large (<50 acre) lots, and the western portion of the project site was the location of the Balthazar Kreischer estate ("Fairview", Figures 4 and 5), which was constructed in the mid-1800s and destroyed by fire in 1931. Historic aerials and maps indicate the presence of paved and unpaved roads and informal paths and some residential and agricultural structures (e.g., barns) within the project site over the past 150 years.

Between 1854 and 1927, the Kreischer Brick Works was active along the Arthur Kill shoreline to the west. Clay extraction to provide brick-making material for the Kreischer Brick Works was prevalent throughout this portion of Staten Island; it is likely that related land disturbing activities occurred within the project site, including the creation of temporary roads and paths, embankments and excavated areas (Schneider 1977, Trust For Public Land 1986, Rossi et al. undated). Additional land uses of the presently undeveloped habitats within the project site also likely included agriculture, pasture land for livestock and other subsistence-level uses.

Over the past 50 years, residential and commercial structures have been constructed along the paved, western end of Englewood Avenue in the vicinity of Arthur Kill Road, including single family dwellings, a horse stable, parking areas for construction and other vehicle staging, warehouses, commercial buildings, a firing range and other types (AKRF 2000).

Presently, much of the project site is used informally for recreation, including hiking and horseback riding associated with trails from Clay Pit Ponds Park Preserve that enter the project site from the north, and as informal sports fields. An extensive, informally maintained trail system is present throughout the project site; these areas are used primarily for horseback riding, hiking, mountain biking and perhaps infrequently by all-terrain vehicles.

Fire has, and continues, to shape the habitat communities that are present within the project site. A large fire that burned a substantial portion of the project site was documented in the mid 1960's, and evidence of occasional, smaller fires (including one in the southwestern portion of the project site in spring 2009) is also present.

In addition to informal trail clearing that has occurred within the project site, other land clearing activities have occurred within the project site within the past five years. A central, cleared area is present within the north-central portion of the project site, relating to initial site-clearing for the proposed Fairview Park in 2004 [VERIFY DATE]. Due to the discovery of sensitive flora within the project site area (including Torrey's Mountain Mint) and other factors, a Comprehensive Environmental Assessment Statement was required. A subsequent Modified EAS was prepared by NYCDPR for the Fairview Park project in February 2005, although no further development has occurred within the project site since this time [VERIFY STATEMENT].

STUDY AREA

Areas beyond the approximately 88-acre project site that were examined during the course of this study are referred to as the "study area." This included developed sites, sites under construction and natural areas.

In termed of developed or under-construction sites, the project site is located immediately north of the Bricktown Centre at Charleston commercial development (ODMEDR 2002 and 2004), which was completed in 2006 [VERIFY DATE], and east of the Tides at Charleston residential development (Rampulla Associates Architects 2005). Presently, an approximately 10 acre parcel along the western boundary of the project site is currently being development as the New York City Transit's Charleston Bus Annex (New York City Transit 2007).

Several distinctive natural areas are present in the vicinity of the project site, some of which form a vegetated corridor linking to the project site (Figure 6). The study area included the following locations, which were visited at least once over the course of the survey period:

- a section of Clay Pit Ponds State Park Preserve and privately owned wooded parcels south of Sharrotts Road and along the northern boundary of the project site;
- residential areas to the west and northwest of the project site along the existing paved portion of Englewood Avenue and Arthur Kill Road;
- a preservation area for Torrey's Mountain Mint (*Pycnanthemum torrei)* south of Bricktown Centre at Charleston;
- a wooded parcel southeast of Bricktown Centre owned by NYCDPR and private entities;
- a NYC Transit parcel west of the project site for the Charleston Bus Annex; and
- the Arthur Kill shoreline west of the project site.

The above areas were not part of the repeated sampling effort used within the project site, though observations were made to generally describe existing conditions at the sites above where access was permitted.

D. METHODS

Repeated sampling for flora and fauna was conducted within thirty 1000-square-foot plots (Figure 7) chosen at random within the project site boundary. Time-restricted searches for

flora and fauna were conducted throughout the remainder of the project site. Incidental observations occurring while in transit through the project site were also recorded.

In order to select sampling plots, a grid system (NAD 1983 State Plane Coordinate System, New York Long Island FIPS 3104 Feet) was applied to the entire project site, dividing it into 1000 square-foot plots. Thirty (30) plots were chosen at random in ArcMap using Hawth's Analysis Tools (http://www.spatialecology.com/htools/overview.php). A stratified-random sampling method (ASTM 2008) was used to select plots with a minimum distance between plots of 100 feet. In February/March 2008, the thirty plot centerpoints were located in the field using a Trimble GeoXT unit and marked at the center and north, south, east and west corners with orange flag stakes clearly marked with each plot's alphanumeric code. A handheld GPS unit (Garmin GPSmap 60CSx) was used to relocate plots on subsequent surveys, and to mark the locations of flora, fauna and depressional wetlands within the project site. The thirty sampling plots were used for all primary vegetation sampling and wildlife surveys. Sampling efforts were focused within the randomly selected plots, and time-restricted searches and incidental observations were also conducted within the entire project site.

Data was recorded on standard data sheets and field notebooks for vegetation surveys, wetlands delineation, bird point counts, wildlife cover and track boards, time-restricted searches and incidental observations. Site conditions (including temperature, precipitation, cloud cover, and wind speed and direction) were recorded at the beginning and end of each survey date. Photographic records of all sensitive species encountered, when photographs were possible, were maintained.

AKRF's survey team consisted of natural resources staff experienced in the identification of flora and fauna expected to occur within the study area, and in wetlands delineation following the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE 1987). Two person teams conducted the majority of the field observations (with the exception of bird surveys, which were generally conducted by one experienced observer). Seasonal habitat surveys required two teams to cover all sampling plots. NYCDPR's Natural Resources Group (NRG) staff participated in wetlands delineation activity, insect surveys and time-restricted searches.

Preliminary site visits were conducted by a two-person team on 17, 18 and 25 October 2007. These site visits were used to inform the sampling protocol for the full survey, which was conducted on a total of 27 days between February and December 2008, as follows.

1. Habitat surveys

Habitat surveys included vegetation surveys at 30 sampling plots, wetlands verification and delineation, and an exhaustive search for rare, special concern, threatened and endangered flora and habitat communities. Four AKRF natural resources staff, working in teams of two, conducted these three to four day surveys in early spring (3-4 March 2008), early summer (18 June – 2 July 2008) and early fall (17 -24 September 2008) to detect seasonal changes in vegetation.

a. Vegetation/habitat community sampling

Within the 30 sampling plots, vegetation was sampled following methods similar to those described in the Charleston Site Vegetation Sampling report (AKRF 2003). Within

each plot, species from each of four vegetative strata were recorded: canopy (>20 feet), subcanopy (8-20 feet), shrub/vine (woody species from 2-8 feet), and herbaceous/ground cover (all non-woody vegetation). Subsampling within the larger plots allowed for a reasonable description of forest and herbaceous cover (Peet et al. 1998). Three randomly selected 100 square-foot plots within each of the 30 sampling plots were sampled for canopy, subcanopy, and shrub/vine species. An additional six randomly selected 9 square-foot (~1 meter) subplots were sampled for herbaceous species; plots were selected by casting out plot markers on each visit if the site is sufficiently open, or randomly selecting plot locations when ground cover encountered (i.e., greenbrier) was prohibitively dense. From these efforts, habitat community structure could be derived; habitats present on the site follow nomenclature from Edinger et al. (2002 Draft).

b. Rare, Special Concern, Threatened and Endangered Flora

Numerous sensitive plant species (including *Pycnanthemum torrei, Eleocharis obtusa* var. *ovata, Eupatorium hyssopifolium* var. *laciniatum,* and several others) were known to occur at or near the project site from previous efforts. During plot sampling work, during time-restricted searches outside of plots, and during transit between plots along transects, a concerted effort was be made to identify all state and federally listed species. Prior to field efforts, survey teams examined diagnostic features of sensitive plant species noted by the NY Natural Heritage Program as potentially existing on either the project site or Clay Pit Ponds State Park Preserve.

2. Wetlands delineation

AKRF natural resources staff members experienced in wetlands ecology identified the location, type, and approximate dimensions of wetlands previously mapped by the National Wetlands Inventory (NWI) and NYSDEC, and noted within Bricktown Centre at Charleston FEIS (2002). In addition, the wetlands along Englewood Avenue were delineated (18 August to 2 October 2008) and clearly flagged in accordance with the US Army Corps of Engineers (USACE) 1987 Delineation Manual. NYCDPR-NRG staff accompanied AKRF field survey teams during two of these surveys in August and October 2008. A licensed surveyor (Control Point Associates, Inc.) was retained by the EDC for surveying and final mapping of the flagged wetland delineations along the proposed Englewood Avenue (Control Point Associates, Inc. 2008).

3. Reptile and Amphibian Surveys

In order to describe the diversity of reptile and amphibian activity that may occur on the site, several methods were employed.

a. Visual Encounter Survey

Time-constrained searches were conducted within 15 of 30 sampling plots to identify the presence of reptile and amphibian species. We conducted time-constrained searching within each of the selected plots on two non-consecutive spring (22 April and 20 May 2008) and two non-consecutive summer (11 and 23 June 2008) days occurring within 1-3 days of significant rain event (> 0.1 inch). These surveys involved turning cover objects (i.e., rocks, logs, debris) and visually searching for animals. Any animals revealed by these methods were identified to species and photographed when

possible. Turtle nest sites were also documented. Details of the above methods are discussed in 'Multiple Species Inventory and Monitoring Protocol Technical Guide' (Manley et al. 2005).

b. Nocturnal Auditory Amphibian Counts

Following the evening visual encounter surveys, nocturnal surveys for vocalizing amphibians (see North American Amphibian Monitoring Program protocols for details) were conducted on two non-consecutive spring and summer nights (22 April, 20 May, 10 June, 23 June and 2 July 2008) within 1-3 days of significant rain event (> 0.1 inch).

c. Aquatic turtle sampling

As described in the EEA, Inc. report 'Bricktown Retail Centre Herpetological Survey for Eastern Mud Turtle (*Kinosternon subrubum*) And Other Incidental Species' (2001), two wetlands within the project site were suggested to support eastern mud turtles or other aquatic turtle species (a small freshwater pond in the southwest portion of the project site and a palustrine forested wetland along the proposed Englewood Avenue). Initial site surveys conducted in October and November 2007 suggested the presence of suitable hydrology in support of these species. However, standing water was not present at suitable levels within these wetland areas after early March, and thus no aquatic turtle traps were used.

d. Cover boards

In ten randomly selected plots (see Figure 7 for plots), three cover boards were randomly placed within each 1000 square foot plot boundary and examined each time the plot was visited for the presence of reptiles and amphibians.

4. Bird surveys

Point counts are a standardized method used to sample bird populations in order to estimate densities and trends in local areas (Ralph et al. 1995). Point counts on the project site were conducted from the center point of each of the 30 randomly selected sampling plots. These points were monitored over 12 sessions (4 and 18 March, 22 April, 20 May, 10 and 23 June, 2, 16 and 31 July, 21 and 28 August, 18 September, 22 October, 10 November and 29 December 2008). One experienced observer conducted all point counts.

Surveys started 30 minutes before local sunrise and were completed within 4-5 hours; all thirty plots could be sampled during this time. At each point, the observers waited for five minutes, and recorded species, distance from the observer, behavior, and any breeding evidence for all birds seen or heard within a 100 foot radius. Counts were conducted on clear, calm days with little to no precipitation.

5. Mammal Surveys

Mammal surveys were conducted concurrently with habitat surveys and wetlands delineation activity (12 total days from March to October 2008). The primary method for mammal detection was visual observation of individuals, tracks, or scat. During habitat surveys, AKRF field teams conducted visual searches of mammals at each sampling plot.

In ten randomly selected plots (see Figure 7), three cover boards and one baited track board (see Carey and Witt (1991) and Raphael et al. (1986) for design) were randomly placed within the 1000-square-foot plot boundary and examined each time the plot is visited.

During night auditory surveys for amphibians (described above), any nocturnal mammal observations were noted, and any incidental mammal observations while in transit within the project site were noted.

6. Insect Surveys

Insect surveys were conducted concurrently with habitat surveys (12 total days from March to October 2008). These surveys focused primarily on visual observation of rare, special concern, threatened and endangered species, particularly those taxa noted by the NYNHP (i.e., odonates, lepidopterans, etc.). During habitat surveys, AKRF field teams conducted visual searches of each sampling plot and noted the occurrence of insect species when encountered. Additionally, all insect taxa noted within sampling plots or along transects were identified to the lowest possible taxonomic level.

7. Rare, Special Concern, Threatened and Endangered Fauna

Numerous sensitive wildlife species (Eastern Mud Turtle, Eastern Box Turtle, Yellow-sided Skimmer, Northern Harrier) were known to occur at or near the project site from previous efforts. During plot sampling work, during time-restricted searches outside of plots, and during transit between plots along transects, a concerted effort was be made to identify all state and federally listed species.

E. EXISTING CONDITIONS

FLOODPLAINS

Figure 8 denotes the 100-year and 500-year floodplains in the vicinity of the project site. FEMA data indicates that most of the project site is outside the 100-year and 500-year floodplain. On the southeastern portion of the project site, the 100-year floodplain appears to reach a substantial portion of the Mill Creek watershed as had formerly occurred within the project site. The construction of Bricktown Centre at Charleston has substantially re-engineered this watershed within the project site boundary, and a system of culverts and retaining walls would likely prevent any 100-year or 500-year storm from flooding any built portion of the project site.

WETLANDS

TIDAL WETLANDS

Figures 9 and 10 indicate tidal wetlands mapped by the US Fish and Wildlife Services National Wetlands Inventory (NWI) and the NYSDEC, respectively. As indicated, there are no tidal wetlands on the project site. Tidal waters of the Arthur Kill are located to the west of the project site.

FRESHWATER WETLANDS

Two NWI-mapped freshwater wetlands are indicated within the project site in Figure 9; a saturated, palustrine forested wetland with broad-leaved deciduous vegetation (PFO1B) in the

western portion of the project site, and a permanently flooded palustrine wetland with and unconsolidated bottom (PUBH). Wetlands mapped by the NYSDEC on-site indicate the presence of two wetland systems (AR-11 and AR-27) as existing within the eastern portion of the project site (see Appendix B, Figure B-2). While gaps are shown to exist between these two systems, and recent development has further altered hydrologic flow between wetlands in the Clay Pit Ponds State Park Preserve and the Mill Creek watershed, there appears to be a remnant hydrologic connection within the project site that periodically links wetlands to the north (Clay Pits) and to the south (Mill Creek). This is elaborated upon in the following section, and in the wetlands delineation report provided in Appendix B.

FRESHWATER WETLANDS DELINEATION

AKRF's wetland inspection targeted the Englewood Avenue corridor, located along the northern boundary of the project site. The wetland inspection extended along Englewood Avenue southwards into the project site a distance of 80 feet. Wetland areas identified within this zone (Wetlands A-D, F and G; Figure 11) were identified and flagged in accordance with the US Army Corps of Engineers' (USACE) Wetland Delineation Methodology (1987). The flagging of the identified wetlands was extended southwards into the project site until positive wetland indicators were no longer present. This resulted in the flagging of several wetland areas beyond the footprint of Englewood Avenue – most notably, the wetland system comprised of Wetlands "C", "D", and "F". This wetland system extends southwards well into the subject parcel following the path of surface drainage tributary to Mill Creek. The other three wetland areas, Wetlands "A", "B", and "G", are located in closer proximity to the mapped portion of Englewood Avenue. The full wetlands report is located in Appendix B.

The wetland delineation effort performed by AKRF flagged only those wetlands contiguous with Englewood Avenue. As part of AKRF's ongoing ecological work onsite, numerous additional wetland areas and potential wetland areas were identified outside of the Englewood Avenue investigation area. These additional wetland areas were not flagged, but are documented in Figure 12. These include one wetland under federal jurisdiction (the permanently flooded, palustrine wetland located on the southwestern portion of the site) and several wet depressions that had suitable hydrology, vegetation (woolgrass, soft rush, etc.) and/or wildlife activity (amphibian breeding activity) during the course of this study.

FLORA

HABITATS

Figure 13 indicates habitat communities identified within the project site, following terminology found in Edinger et al. (2002 Draft) and relating to a previous habitat community survey conducted for the Fairview Park Modified Environmental Assessment Statement (February 2005). They are as follows:

Native Uplands:

Coastal Oak-Hickory Variant I

This habitat community was prevalent on the eastern edge of the project site within the NYCDPR conservation area. It consists primarily of various oak species (White, Pin, Black, Red and Scarlet) and Mockernut and Pignut hickories from 5-25 inches in diameter at breast height (dbh). Subcanopy trees include Sassafrass, Gray Birch, Black Gum and some sparse Black-jack

Oak saplings. Understory species include Highbush Blueberry and Canada Mayflower. The easternmost edge has a strong American Beech component, with Hay-scented Fern and Round-leaved Pyrola common in the understory. Common Greenbrier has sparsely colonized this habitat community, far less than was apparent in the Fragmented Coastal Oak Variants discussed below. White-tailed Deer activity was prevalent in this area, as was the presence of some forest-breeding birds (Eastern Wood Pewee, Wood Thrush). Cooper's and Red-tailed Hawks were noted foraging within this area on several occasions.

Coastal Oak-Hickory Variant II

This habitat was similar in most respects to Variant I, although is now separated from the above habitat area by the eastern entrance to Bricktown Centre at Charleston. As a result, several invasive species (including Japanese Honeysuckle and Asiatic Bittersweet) have colonized the eastern and northern edges of this parcel.

Fragmented Coastal Oak Variant (>20 years)

This coastal oak forest variant appears to have a more mature component of oaks (White, Pin, Red, Black) in comparison to the other coastal oak communities within the project site. It appears to be a somewhat diverse secondary growth community that may have developed following a 1963 wildfire that removed vegetation from most of the area. Canopy species include mature oaks (White, Pin, Red, Black) and aspens (Big-toothed, Quaking), with Sassafrass, Black Cherry, Black Locust, Eastern Cottonwood and Mulberry in the subcanopy. The entire area is substantially colonized by Common Greenbrier in the understory, from 20-80% through most of the community. Wildlife observed within this community included edge (Eastern Towhee, Northern Cardinal, common Yellowthroat, Indigo Bunting) and forest-breeding bird species (Black-capped Chickadee, Tufted Titmouse, Northern Flicker), White-tailed Deer, Woodchuck, Eastern Gray Squirrel, and numerous other species.

Subsets of this habitat type were also observed within the project site – these included:

Fragmented Coastal Oak Variant I (<20 years)

This habitat community was most prevalent within the project site, and was similar in most respects to the primary coastal oak variant community, though with an overall younger composition of oak species. Common Greenbrier was a dominant component of the understory within much of this community type, though only occasionally as dense as observed within Variant II. Several "clay barren" areas with a sparse mature oak overstory were observed within this habitat type, and were dominated by ericaceous species, forbs grasses in the understory (various blueberry and goldenrod species, Broom Sedge), a substantial coverage of mosses (including Reindeer Moss) and aspen saplings and young trees. These may represent areas that have been substantially burned during fires in previous years. This habitat was traversed by a system of periodically maintained, informal trails between five and ten feet wide; there appears to be substantial traffic along these paths, mostly as a result of their use as informal horse trails.

Fragmented Coastal Oak Variant II (<20 years)

This habitat was similar in description to the primary coastal oak variant, but possessed an overall younger composition of oaks, and had 60-100% coverage with Common

Greenbrier within the herbaceous to subcanopy layers. Minimal growth of other herbaceous species was found within this habitat type. The site was fragmented by a Successional Old Field drainage swale/slope formerly used as a golf driving range. Additionally development of the NYCT Charleston Bus Annex had occurred along the northern border of this community.

Fragmented Coastal Oak Variant III (<10 years)

This habitat was markedly similar to Variant II in terms of species composition and size, although with substantially more Gray Birch (1-5 inches dbh) in the canopy and subcanopy and Common Greenbrier dominant in the understory. This habitat type was located adjacent to Successional Old Field IV, suggesting that previous construction activity may have terminated here. Wildlife observed included principally edge species (Eastern Towhee, Gray Catbird, Northern Cardinal); one Red-eyed Vireo nest was located within this habitat type. Spring Peepers were actively calling both within and north of this habitat type, suggesting that some seasonal wet depressions may be located within the area.

Red Maple Sweetgum Swamp Forest Variant

A drainage swale (Wetland C) with mature Red Maples and Sweetgum (7-20 inches dbh) was observed within the western portion of the NYCDPR conservation area, leading southward from freshwater wetlands (including Sharrott's Pond) to a large culvert and retaining wall of the Bricktown Centre at Charleston development. American Holly, Sassafrass, Black Gum and Pin Oak were also present in the understory, and Arrow-wood, Common Elderberry and numerous herbaceous species were also present. Common Greenbrier coverage within this swale was relatively sparse, although the eastern, western and southern edges were thickly colonized by this species. The northern edge of this swale is marked by the unpaved Englewood Avenue Path; a similar swamp forest and seasonally flooded freshwater wetland was found within NYSDEC property on the northern side of the path. Wildlife species included forest-breeding birds (Downy Woodpecker, Great-crested Flycatcher, American Crow, Blue-Gray Gnatcatcher, Tufted Titmouse), White-tailed Deer, Woodchuck, Spring Peeper and other species.

Successional Old Field I

This is the first of several old field areas located in the central part of the project site. While this field has been kept clear for decades for informal recreation (a baseball field, horse riding), similar herbaceous, shrub and young tree species are presently located in all of the central old fields. These sites were cleared in 2005 for the early stages of the Fairview Park development. The majority of plants in this area are grasses and herbaceous species; this part of the central field appears to be maintained informally for horse riding (with various jumps present), and horse grazing activity is also substantial. Characteristic species include common herbaceous and grass species, including Chicory, Pilewort, Broomsedge, Crabgrass spp., Queen Anne's Lace, with pioneering Gray Birch and Black Cherry saplings. A substantial amount of Late-flowering Boneset and small aggregations of Orangegrass was present. This was a common location for wildlife to forage, including Red and Big Brown Bats; Barn, Tree and Northern Rough-winged Swallows; and a substantial number of sparrows during the fall and winter months were present feeding in the field (American Tree Sparrow, Savannah Sparrow, White-throated and White-crowned Sparrows and one Lincoln's Sparrow). Indigo Buntings and Field Sparrows

nested within this portion of the site (~2-3 pairs each). Wetlands A and B were noted in this area within 80 feet south of Englewood Avenue.

Successional Old Field II

This comprises the majority of the successional old field habitat within the central clearing area. A substantial population of Late-flowering Boneset exists in the southern portion of this clearing, along with numerous specimens of Hyssop-leaved Boneset, Fringed Boneset, Rough Boneset and Round-leaf Boneset. Broom Sedge, Switchgrass spp. and numerous Solidago species were present in the herb layer, with pioneering shrub and tree species such as Big-toothed Aspen, Gray Birch, Groundsel Bush and blackberry species. This was also one of the few locations where Tall Reed was observed, growing out of mounds of decayed brush and woody material that appear to be remnants from the clearing of Fairview Park. Indigo Bunting, American Woodcock, Killdeer and other species found in open habitats bred in this area. Wild Turkey may have attempted to nest, as a female flushed from the southeastern corner several times in late April and early May. During migration, numerous areas of standing water were present throughout this site (suggesting that wetlands delineation activity should occur here); shorebirds such as Wilson's Snipe, Least Sandpiper and Solitary Sandpiper were observed along the edges of standing water areas. Under coverboards, White-footed Mouse and Short-tailed Shrew were present, with the former establishing nests under two separate coverboards in mid to late spring 2008. DeKay's Snake and several Spring Peepers were observed in this area, and an Eastern Box Turtle (only one of two individuals observed during this study) was observed dispersing north along the path that formed the eastern edge of the clearing in early July 2008.

Successional Old Field III

This site was also heavily manipulated during construction of Bricktown Centre – a 2005 aerial image shows exposed sand covering the majority of this former golf driving range. Several groundhog burrows observed in the slope confirmed that fine, white sands of unknown origin underlie this old field. The site is similar in plant community to Old Field I; with a mix of common herbaceous and grass species and some listed species (including Late-Flowering Boneset and at least one specimen of Torrey's Mountain-mint). White-tailed Deer frequently used the area in fall and winter 2007/2008; up two 18 deer were observed foraging and bedding on a single occasion, including yearlings and adult males and females. In June 2008, two young fawns (1-2 weeks old) were observed bedded down along the top of the berm, suggesting that local reproduction by deer populations is occurring. In October 2007, a Northern Harrier (adult female) was observed foraging over this large open area, into the adjacent Charleston Bus Annex site and eastward into the central clearing within the project site. The woodland edge of the old field berm was also heavily used by migrating warblers in the spring (including Kentucky, Mourning and Hooded Warblers and Yellow-breasted Chat) and fall (including Tennessee, Nashville and Blackburnian Warblers).

Successional Old Field IV

This area was cleared of all vegetation during the construction of Bricktown Center, and is defined on its southern and eastern borders by a chain-link fence, with Fragmented Coastal Oak Variant III to the north. While it is likely that many of the grasses present were planted for erosion control (principally Fescue spp.), there is a surprising diversity of sensitive herbaceous species present, including Hyssop-leaved Boneset, Fringed Boneset, Late-flowering Boneset

and one specimen of Serrate Round-leaf Boneset. This was also one of only two sites where Torrey's Mountain-mint was located during the course of this study – approximately 22 stems, many of them flowering, were observed along the berm in spring and summer 2008.

Non-native Uplands:

Exotic Forested Upland I

These two parcels represent the former grounds of the Balthazar Kreischer Estate, and likely represent naturalized ornamental planting from the estate. The sites are composed of mature Tree-of-Heaven, Royal Paulownia, American Basswood and other species with Chinese Wisteria threaded through the canopy and sub-canopy, some ornamental shrubs (Eastern Sweetshrub, Mock Orange, Deutzia) and an understory of Japanese Knotweed, Common Greenbrier, Japanese Honeysuckle and some native vines and herbaceous species. The two sites are separated by a wide, well maintained path with a horse jump. The ruins of the former estate and various outbuildings, which were razed by fire in 1931, are present throughout these areas. The bricks in these sites were some of the few locations on the project site occupied by Red-backed Salamanders.

Exotic Forested Upland II

Described as "brushy cleared land" in NYCDPR (2005), this area has been colonized by numerous exotic or invasive species (Multiflora Rose, Callery Pear, Chinese Wisteria, Japanese Knotweed) in the intervening years, as well as native sub-canopy, herbaceous and early successional species (Gray Birch, Black Cherry, various Solidago species). It appears that certain invasives, particularly Japanese Knotweed and Multiflora Rose, are beginning to colonize the adjacent Coastal Oak-Hickory Variant woodlands to the south and west; interestingly, there was a substantial amount of browsing activity on young Japanese Knotweed shoots in early summer by White-tailed Deer.

Terrestrial Cultural:

Paved Road

This represents the paved portion of Englewood Avenue extending eastward from Arthur Kill Road, terminating in a substantial barrier gate. Single family homes, a horse stable and several automobile and construction-related businesses, some with mowed lawns and ornamental vegetation, is present along the northern edge of Englewood Avenue. Along the south side, a mature hardwood forest (see Fragmented Coastal Oak Variant above) dominated by Red and Black Oak, Sweetgum and other species. Common Greenbrier forms a thick mat in the understory, with 100% coverage in the understory in some areas. Several businesses and a south-directed paved road are located along the south side of Englewood near Arthur Kill Road, with little ornamental vegetation present.

Unpaved Path I

This small area is a gravel pad that was likely placed as a staging area for vehicles working on the Fairview Park project. It is a small (200 square foot) unvegetated area immediately north and west of Wetland A.

Unpaved Path II

This represents the unbuilt portion of Englewood Avenue, and varies between sandy and loamy soil substrates as it extends eastward from the paved portion of Englewood. As it is fairly narrow along most of its course, and passes along old successional field and hardwood forests, and terminates at a road barrier at Veterans Road West and the parking lot for the West Shore Motel. Several state-listed species (Tall Lespedeza (*L. stuevei*), River Birch) were observed along the edges of the path, as well as numerous native and invasive herbaceous species. Reptiles and amphibians, including painted turtle and red-eared slider, were observed laying eggs within the roadway in early July 2008; several of these nests were preyed upon by raccoons and possibly feral cats within days of egg-laying. This site was also used by reptiles and amphibians in transit heading both north (Eastern Box Turtle) and south (Painted Turtle, Spring Peeper), suggesting that the unbuilt roadway functions as a corridor between Clay Pit Ponds State Park Preserve and the NYCDPR conservation area. This is discussed further in Section E.

Roadcut Slope

East of the Home Depot within Bricktown Centre, which was constructed on a large berm, a steep sloping area descends eastward towards a remnant Coastal Oak-Hickory Variant and the area delineated as Wetland F. It consists of a steep slope, along a paved parking lot and access road, which was created by digging during road construction.

Terrestrial Cultural/Stormwater Retention Pond

This stormwater retention pond was constructed to accept stormwater from the Bricktown Centre parking lots and streets. The pond itself is lined with riprap along the shore. It is present within the NYCDPR conservation area, and has been planted and/or colonized around the edges with mainly native species (Pasture Rose, Red Maple, Sweetgum, Canadian Goldenrod, Virginia Creeper) and is being used by a variety of wildlife (e.g., Green Heron and Mallard nested off of the northern shore.

Urban Vacant Lot

This site, on the southwestern corner of the study area, is predominantly used as a staging area for construction vehicles for development projects occurring in the vicinity of the project site. It has been colonized by invasive herbaceous species (Mugwort, Japanese Knotweed) and other species. The site appears to be heavily impacted by human use, and few woody species are present.

VEGETATION

As noted in Table 1, approximately 239 plant species were observed both within plots during detailed vegetation surveys (188 species, 78% of the total observed) and outside of plots during time-restricted searches and incidental observations (51 species, 22% of the total observed). These included 5 fern species, 44 graminoids, 97 herb/forb species, 2 saprophytes, 29 shrub, 51 tree and 10 vine species.

In the canopy, tree species in mature forested uplands varied from principally oak species (White, Red, Black; 10-29 inches in diameter at breast height[dbh]) in the southern and western portion of the Fragmented Coastal Oak Variant habitats, where the most common understory species was Common Greenbrier (14 of 18 plots had 60-100% greenbrier in the herb, shrub and subcanopy layers). Various species of blueberries were also found within these

habitats; in the south central portion of this habitat, several unique "clay barren" habitats were found, with substantial coverage of mosses and lichens (including Reindeer Moss), blueberries and other ericaceous species.

Hickory (Mockernut, Pignut; 3-24 inches dbh) and American Beech (1-29 inches dbh) were largely restricted to the eastern, Coastal Oak-Hickory Variant habitats, where a vastly more open understory community was present, comprised of shrubs (Arrow-wood), ferns (Hay-scented), and other shade-tolerant herbaceous and ground cover (Round-leaf Pyrola) species. In both habitats, small numbers of American Chestnut, American Elm and hybrid oaks (Rudkin's Oak) were observed; hybrid oaks are highly likely to occur throughout the forested uplands of the project site (Mike Feller, NYCDPR-NRG, pers. comm.). After a thorough search, however, no habitats meeting the post oak-blackjack oak sand barren criteria were located; only a few Black-jack Oak adults were located, as discussed below.

On the northwestern portion of the site, a remnant population of naturalized ornamental trees (American Basswood, Royal Paulownia), old vines (Chinese Wisteria) with little native understory was present.

As discussed above, the old successional field areas were principally colonized by grasses (*Agrostis* spp., *Panicum* spp.), herbs such as *Solidago* and *Eupatorium* spp., and areas of early successional (mostly native) shrubs and trees (Gray Birch, Sweetgum, Black Cherry, Big-toothed and Quaking Aspen).

Human and domesticated animal-dominated habitats varied in their species composition; in general, however, there were relatively few invasive exotic species colonizing these habitats. In some areas of New York City, cleared fields might be colonized with mainly invasive herbs (Mugwort), vines (Asiatic Bittersweet) and trees (Callery Pear). Site history, soil type and the existing seed bank all have major roles in site colonization following disturbances (either by fire or short-term human activities such as clearing, as exhibited within the central successional old field).

RARE, SPECIAL CONCERN, THREATENED AND ENDANGERED SPECIES

No federally listed flora was observed during this study.

For state or federally listed flora, approximately 52 species have been previously identified in the vicinity of the project site, including Clay Pit Ponds State Park Preserve (Table 6). AKRF confirmed eleven S1, S2 and S3 ranked species within the project site, including the Englewood Avenue corridor. Species of primary concern that were noted during the proposed Fairview Park project (e.g., Torrey's Mountain-mint, Fringed Boneset, etc.) were observed within the project site.

In terms of NY state-listed significant plant communities, both the S1-ranked Post Oak-Blackjack Oak Barrens and the S1-ranked Red Maple-Sweetgum Swamp are known from the adjacent Clay Pit Ponds State Park Preserve area. As noted earlier, no Post Oak-Blackjack Oak Barrens were observed within the project site, although individual Blackjack Oaks were observed in several areas of the project site, and a small stand of these oaks were found in the southern-central portion of the project site. A Red Maple-Sweetgum Swamp Forest variant habitat was present in a narrow corridor within the central portion of the project site.

The following flora listed as rare, special concern, threatened or endangered in New York State was observed on the project site:

American Strawberry-bush *Euonymys americana*. Specimens were located within the Coastal Oak-Hickory Variant habitat only, within two sampling plots.

Torrey's Mountain-mint *Pycnanthemum torrei*. Approximately 23 stems were found in old successional field habitats, including one sampling plot, along the southern and western border of the project site; these areas are closest to the existing Torrey's Mountain-mint conservation area (on Veterans Road at Tyrellan Avenue).

Fringed Boneset *Eupatorium hyssopifolium var. laciniatum*. Roughly 20 specimens were identified within three plots in the southern and central portion of the project site. Another 20-30 specimens were observed in the central successional old field.

Serrate Round-leaf Boneset *Eupatorium rotundifolium var. ovatum*. One specimen was located along the south-central portion of the project site adjacent to Bricktown Centre at Charleston. Other individuals may exist in open areas within the project site.

Round-leaf Boneset *Eupatorium rotundifolium var. rotundifolium*. Three examples were observed outside of plots within the western and central portion of the project site.

Late-flowering Boneset *Eupatorium serotinum*. This species was common in every part of the site not marked by human activity or

Tall Lespedeza *Lespedeza stuevei*. One plant was observed along the eastern end of the unbuilt portion of Englewood Avenue.

The following species were noted in NYNHP agency contact letters for previous examinations within the project area. These include:

Black-jack Oak *Quercus marilandica*. Mature specimens occurred in two plots, and saplings in three additional plots, all within the Fragmented Coastal Oak Variant habitats. No sign of pine barren communities populated by Black-jack and Post oaks were present within the project site.

Rudkin's Oak *Quercus rudkinii* (*phellos* x *marilandica*). Noted at two plots within the southeastern portion of the site, within the Coastal Oak-Hickory Variant habitat. Special attention should be paid to the study of potentially rare or unusual hybrid oaks within this project site, both within the conservation area and less accessible (i.e., greenbrier-dominated) coastal oak habitats.

American Chestnut *Castanea dentata*. While several specimens were located on three southeastern plots, *no* flowering specimens were present within the project site, as had been previously observed at the Bricktown Centre at Charleston site (Harrington and Schwanof 2004). The observed new growth southeast of plot K-36 appears to be in the same location as a young flowering individual present on the site in 2004. This individual was removed during construction of the roadway entering Bricktown Centre from the east. This new chestnut growth and other individuals observed (in plots D-35 and O-36) are located within the City's designated conservation area, which is not slated for future development.

Shortleaf Pine *Pinus echinata*. One individual was located near the eastern entrance to Bricktown Centre at Charleston. This specimen appears to have been planted. NYCDPR-NRG noted that this individual was moved prior to construction of Bricktown Centre into the City's designated conservation area, which is not slated for further development.

Virginia Pine *Pinus virginiana*. One mature specimen was located east of the Red Maple-Sweetgum Swamp Variant forest. It was substantially covered with Common Greenbrier, and will likely be permanently damaged if intervening measures are not taken.

Hyssop-leaved Boneset *Eupatorium hyssopifolium var. hyssopifolium*. This species was located within four sampling plots, and in both forested upland and successional old field areas throughout the project site.

American Elm *Ulmus americana*. One specimen showing signs of disease was located on the western portion of the project site near Arthur Kill Road.

Orangegrass *Hypericum gentianoides*. Several populations were observed along paths within the central old field and in the "clay barren" areas within the southern portion of the project site.

Two native fern species present on the site, Cinnamon Fern *Osmunda cinnamomea* and New York Fern *Thelypteris noveboracensis*, are also listed as protected by NYS. They were present within two plots, but were otherwise rarely observed within the project site.

Regarding the above species, further discussed is provided below in Section E "Conclusions and Recommendations." As the precise location of listed species is sensitive information, a map of generally sensitive areas within the project site is presented in this report, focusing on areas where AKRF observed sensitive flora and fauna.

FAUNA

REPTILES AND AMPHIBIANS

Figure 14 denotes the date and location of all reptile and amphibian sightings on the project site. Fifteen (15) species of reptiles and amphibians were observed within the project site from Mar-Dec 2008 (Table 2). All individuals were observed during time-restricted searches and incidental observations in upland and wetland habitats; no individuals were located under cover boards. Aquatic trapping effort was proposed as a sampling method for turtles in the Methodology (15 Feb 2008), although this method was not used during this study. The only open water area suitable for such traps (i.e., the pond on the southwestern portion of the site adjacent to plot K-12) was too shallow by early spring for this method to be effective.

Two salamander species (Red-backed Salamander and Northern Two-lined Salamander) were observed within the project site. Red-backed Salamanders were principally observed from May-Oct 2008 under bricks in surrounding ruins of the Balthazar Kreischer's 'Fairview' estate (located on the western edge of the project site). One Northern Two-lined Salamander was observed under wood debris along the shoreline of a pond in the south-western portion of the site.

Of the five frog species observed on the site, Spring Peeper was the most commonly encountered. It was present in wet areas throughout the entire site during spring, and was most often detected by vocalization. Other species included American and Fowler's toads, American Bullfrog and Northern Green Frog.

Four turtle species were observed on the project site, including Snapping Turtle, Eastern Box Turtle, Red-eared Slider and Painted Turtle. Individuals were observed during movement and egg laying. Nesting activity was confirmed for each of the above species; egg laying was most commonly observed along exposed soil trails that are located throughout the site, although one painted turtle was observed constructing a nest within the open area proposed as Fairview Park.

Of the four species of snakes observed on the site, Eastern Gartersnake was the most commonly encountered. DeKay's Brownsnake, Eastern Racer and Milksnake were encountered on one occasion each. No hibernacula or breeding activities were observed within the project site.

Several NY state special concern, threatened and endangered reptiles and amphibian species are known from the vicinity of the project site, including Eastern Mud Turtle (endangered) and Fence Lizard (threatened), Spotted Turtle and Wood Turtle. Eastern Box Turtle (special concern) was observed within the project site (2 occasions) – one moving south from Clay Pit Ponds State Park Preserve into the Fairview Park clearing, the other moving north toward Clay Pits from the central old field area, suggesting some movement to and from the project site. Although no Eastern Mud Turtles were observed within the project site, areas within the conservation area and successional old fields appear to offer suitable foraging and hibernation habitat for this species.

BIRDS

Over the study period, 174 bird species were noted within the project site during point counts and through incidental observations. Of these, 53 species were probable or confirmed breeders, and an additional 12 species were observed infrequently during the breeding season only (Table 3).

In general, the majority of breeding birds observed on the project site were consistent with those inhabiting forested, edge and open habitats in the NYC area. Notable exceptions included Indigo Bunting (a minimum of four nests within the Fairview Park clearing area), Red-eyed Vireo (two confirmed nests in woodland areas) and Field Sparrow (three nests within the Fairview Park clearing area).

No federally listed threatened or endangered species or candidate species were noted within the site. Several NYS listed species were observed within the project site, although no breeding activity was noted. For the following species, AKRF observed foraging activity within and/or flights over the project site during breeding, migratory or winter periods: Peregrine Falcon (endangered), Northern Harrier (threatened), Common Tern (threatened) , Sharp-shinned Hawk (special concern), Cooper's Hawk (special concern), Black Skimmer (special concern), Common Nighthawk (special concern), Horned Lark (special concern), and Yellow-breasted Chat (special concern).

Ospreys (special concern) were observed in transit over the site on numerous occasions in early and mid summer; a nest was confirmed in May 2008 on a scuttled barge in the Arthur Kill in the Port Mobil vicinity, suggesting that foraging flights may have been occurring to the Raritan during a portion of the breeding season (Bernick and Craig 2008).

MAMMALS

Twenty (20) mammal species were observed within the project site from October 2007 to December 2008 (Table 4). These included common species for natural areas in NYC (Eastern Gray Squirrel, Eastern Chipmunk, Eastern Cottontail), feral dogs and cats, and uncommon species for the City (White-tailed Deer) and Staten Island (Striped Skunk, two observations).

Two bat species were observed during evening hours in the spring and summer, Little and Big Brown Bats. Red Bats were identified by observation through binoculars on two occasions in fall 2007/2008. Exposed foundations of the 'Fairview' estate may function as subsurface 'cave' habitat used for shelter by bats, although none were observed entering or exiting them during the survey period.

Breeding activity for White-footed Mouse was noted under cover boards placed in woodland and edge habitats, and Short-tailed Shrew and Eastern Mole were noted on one occasion each under cover boards. Track boards confirmed the presence of common species only, and were most frequently visited by Raccoon and feral cats.

The project site was frequently used by White-tailed Deer, for reproduction (two newborn fawn was observed in June 2008), foraging and shelter. High counts for this species included 18 individuals (7 male, 11 female) on a single date in fall 2008; deer were observed during the majority of site visited throughout the entire study period. Additionally, Woodchuck burrows were observed within 22 of 30 sampling plots, and activity for this species is prevalent throughout the project site.

No federal or state-listed mammals were observed within the project site during the natural resources surveys, although available habitat may exist within the project site to support migrating Indiana Bat.

INSECTS

Approximately 71 species of insects, primarily lepidopterans (butterflies, moths), odonates (dragonflies, damselflies) and dipterans (flies), were observed within the project site from March-November 2008 (Table 5). Insects were predominantly observed during time-restricted searches or during the course of other surveys, although odonate species were also observed during site visits with Ellen Pehek and Susan Stanley of NYCDPR-NRG in July 2008, including the S2 ranked Comet Darner (*Anax longipes)*.

None of the state-listed insect species previously noted at or near the project site were observed during AKRF's survey, including the Bar-winged and Yellow-sided Skimmers and the Tawny Emperor Butterfly. Several wetland and old field locations, however, were observed to support odonates during the summer months after periods of sustained rainfall, and meet the habitat requirements of these listed species.

RARE, SPECIAL CONCERN, THREATENED AND ENDANGERED SPECIES

No federally listed fauna was observed during this study.

The following fauna listed as rare, special concern, threatened or endangered in New York State was observed on the project site, as discussed above.

Reptiles: Eastern Box Turtle (special concern)

Birds: Peregrine Falcon (endangered), Northern Harrier (threatened), Common Tern (threatened), Sharp-shinned Hawk (special concern), Cooper's Hawk (special concern), Black Skimmer (special concern), Common Nighthawk (special concern), Horned Lark (special concern), Osprey (special concern) and Yellow-breasted Chat (special concern).

Comet Darner *Anax longipes*. Although presently unlisted in New York State, one individual of this S2-ranked dragonfly species was observed in early July 2008 in the "permanently flooded" palustrine wetland on the southwestern portion of the project site.

F. CONCLUSIONS AND RECOMMENDATIONS

In summary, this study revealed the presence of rare, special concern, threatened and endangered flora and fauna species: 11 plant species (including Torrey's Mountain-mint) and 12 wildlife species (including Eastern Box Turtle).

DISCUSSION OF SENSITIVE AREAS (FLORA AND FAUNA)

Areas of sensitivity for flora and fauna, as illustrated in Figure 15, are as follows:

1. Sensitive flora and wildlife corridor, Englewood Avenue Unpaved Path:

The connectivity between the project site, particularly the segment of ecological communities, flora and fauna observed within the section of Clay Pit Ponds State Park Preserve to the north of the project site were closely aligned with those within the NYCDPR conservation land within the eastern end of the project site. Reptile and amphibian breeding activity was noted within a seasonally flooded red maple swamp adjacent Englewood Avenue; AKRF observed both northward and southward movement of amphibians between the Clay Pit Ponds State Park Preserve property and the project site in June and July 2008. It is likely that reptiles, amphibians, birds and other wildlife species inhabiting the project site travel through the larger forested and wetland corridor connection to the 260 acre Clay Pit Ponds State Park Preserve. A build-out of Englewood Avenue would likely curtail wildlife movement (and reduce the habitat value of the NYCDPR conservation area for ground-dwelling species. In the worst case, significant mortality due to road crossing may occur; wildlife corridors under roadways are one method to avoid such mortality. Further study of reptile and amphibian populations, using a more rigorous field protocol targeted at NY State listed species, is discussed below. Development plans that preserve the relatively unfragmented corridor between Clay Pits and the NYCDPR conservation area, have benefits for wildlife populations, and for preserving the ecosystem services and biodiversity provided by larger contiguous areas of forested cover.

In addition, several state-listed species (Tall Lespedeza, River Birch) are present within the current unbuilt portion of Englewood Avenue.

2. Sensitive plant species, Successional Old Field II:

As noted about, several state-listed *Eupatorium* species are present within this parcel. Any future project should consider the impacts to the conditions of this unusual meadow habitat; areas that are colonized by largely native species are relatively unique for the New York City.

At the very least, the abiotic and biotic conditions that allow this process to occur should be examined. If development is unavoidable in this area, and segments of the existing landscape cannot be retained in-situ, then efforts to retain plant material and seed stock should be implemented. Additionally, it would be useful to retain any topsoil from this site for use in local restoration projects – as past human use of this site has been relatively light (no known industrial uses of the site that would raise concerns over contamination), this would represent an effective and relatively inexpensive source of soil stock.

3. Sensitive plant species, Red Maple-Sweet Gum Swamp Variant

American Strawberry-bush and Virginia Pine are located in these areas; as this is within the conservation area, no development is planned.

4. Sensitive Plant Species, Coastal Oak-Hickory Variant

American Chestnut and Shortleaf Pine area are located in these areas; as this is within the conservation area, no development is planned.

5. Sensitive plant species, Successional Old Field IV:

Hyssop-leaved Boneset, Fringed Boneset, Late-flowering Boneset, one specimen of Serrate Round-leaf Boneset, and Torrey's Mountain-mint (22 stems, many fruiting) were all located during the course of this study. Consideration should be given to future development plans that avoid construction on this berm; discussion with NYCDPR and NYSDEC should be a precursor to any development plans. If avoidance is untenable, it would be worthwhile to consider these sensitive plant populations into the current Torrey's Mountain Mint conservation plan.

6. Sensitive odonate (dragonfly & damselfly) species, possible USACE jurisdictional wetland:

One S2 ranked dragonfly, the Comet Darner, was observed at this site on a single survey date. Two state listed species, Bar-winged Skimmer and Yellow-sided skimmer, are known from either the project site or the study area – this pond exhibits suitable habitat for these species, and further investigation should be conducted. Odonates and other organisms are sensitive to degradation of water quality and associated vegetative cover. Consideration should be given to provide an adequate buffer in accordance with recent discussions in the PlaNYC report 'New York City's Wetlands: Regulatory Gaps and Other Threats (January 2009)' and the 2007 Wetland Transfer Task Force report.

7. Sensitive Plant Species, Successional Old Field III:

Torrey's Mountain-mint (at least 1 fruiting stem) was located within this area. Consideration should be given to future development plans that avoid construction within this area; discussion with NYCDPR and NYSDEC should be a precursor to any development plans. If avoidance is untenable, it would be worthwhile to consider these sensitive plant populations into the current Torrey's Mountain Mint conservation plan.

A detailed discussion of wetlands on the project site is provided in Appendix B "Charleston Wetlands Report." Additional areas for investigation are noted in Figure 12, and discussed above.

ADDITIONAL ACTION ITEMS

The following action items should be considered for investigation as part of the natural resources impacts assessment of any proposed site plan for the project site.

1. **Coordination with USACE on wetland delineations performed within the Englewood Avenue corridor.** NYCEDC should request a Jurisdictional Determination (JD) Site Inspection from the USACE to confirm the boundaries of those freshwater wetlands delineated and described in this report. Although a wetlands delineation was conducted within the project site during a previous investigation (Bricktown Centre at Charleston) and field determinations were carried out by the USACE and NYSDEC to clarify the regulatory status of some wetlands within the project site, over nine years have passed since some of these delineations were conducted (EEA 2003), and five years since the most recent correspondence with regulatory agencies (Vollmuth and Brush 2004). Additionally, based on the present effort, wetland boundaries for several depressional wetlands within the Englewood Avenue corridor appear to have changed since they were delineated in 2000, possibly due to the land-clearing activities that occurred within the north-central portion of the project site in previous years. It is also possible that the clearing revealed additional wetlands that were not previously visible within the extremely dense understory vegetation that was present at the time of the prior delineation efforts.

   In addition to potential structural changes, recent reports on City wetlands (PlaNYC 2009, Wetlands Transfer Task Force 2007) have focused on maintaining the critical ecological functions of freshwater wetlands within the City, and stressed the importance of detailed, lot-level mapping of the City's wetlands and a review of upland buffer setbacks surrounding the City's freshwater wetlands. A U.S. Supreme Court ruling on wetlands regulations (RAPANOS et ux., et al. *v.* UNITED STATES, 2006) and subsequent agency guidance in interpreting the ruling has further altered the regulatory definition of "isolated" wetlands that appear to predominate within the project site.

   As a result of potential physical changes to wetlands within the Englewood Avenue corridor and a changing regulatory context on City, state and federal levels, coordination with the USACE is recommended. This may also require coordination with NYSDEC, if more precise mapping leads to the state taking jurisdiction over freshwater wetlands parcels beyond those appearing on current wetland maps. NYCDPR-NRG has requested involvement in any wetlands issues involved within the project site, and should be included in any wetlands-related activities. As red-parent material soils are prevalent throughout the project site, additional coordination with the NYC Soil and Water Conservation District's NYC Soil Survey would also be advisable. The NYCSWCD's Staten Island office is currently updating the initial soils map of Staten Island, although the project site had not been examined by the end of this field study (December 2008).

2. **Coordination with USACE on wetlands delineation within the remainder of the project site.** Only wetlands within the Englewood Avenue Corridor were delineated. Additional wetland areas are present throughout the project site; some occur in isolated depressions or qualify as wetlands based solely on soil parameters specific to red parent material. As such, the USACE may not take jurisdiction of these potential wetland areas. Before proceeding on a lengthy delineation of the entire property, complicated by highly variable

site conditions, we recommend getting primary input from USACE, and additional input from NYSDEC regarding freshwater wetlands within New York City.

3. **Contact with NYSDEC-NYNHP and other agencies on sensitive species populations within the project site.** Previously published species lists and reports on rare, special concern, threatened and endangered species were used as the basis for known or potential species occurrences at or near the project site during this field effory. Once a proposed site plan has been presented and an impacts assessment is being conducted, it is recommended that: 1) NYSDEC be contacted for up-to-date information on listed species occurrences at or in the vicinity of the project site; 2) official sighting forms for sensitive species documented on the project site are submitted to NYNHP; and 3) the proposed construction of Englewood Avenue, which is situated along the southeastern boundary of Clay Pit Ponds State Park Preserve, is discussed with NYSDEC.

4. **The preservation area for Torrey's Mountain-mint (*Pycnanthemum torrei)* south of Bricktown Centre at Charleston**. Between June and Novermber 2008, the Torrey's Mountain-mint preservation area at Veterans Road West and Tyrellan Avenue was visited on several occasions. From beyond the protective fence, AKRF observed numerous (50+) stems of Torrey's Mountain Mint within this site. A substantial amount of invasive species growth (e.g., Japanese honeysuckle) was observed within the fenced area, partially covering some of the Torrey's Mountain-mint stems. While this did not appear to be greatly inhibiting growth, maintenance of the preservation area may be appropriate during subsequent growing seasons.

5. **Additional reptile and amphibian surveys.** In the present study, reptile and amphibian use of the project site was determined through visual observation during time-restricted searches, incidental observations, and cover board observation. These methods had two major advantages (simplicity and cost-effective effort), and 15 reptile and amphibian species were observed within the project site. While no New York State-endangered Eastern Mud Turtles were observed during these efforts, both foraging and hibernating habitat appeared to be present within the project site. If more in-depth sampling is required to determine the potential use of the project site by Eastern Mud Turtles, trapping during seasonal dispersal events may be an effective method to sample for this species and other reptiles and amphibians. AKRF (2008) described two additional methods to sample reptiles and amphibians, including the use of (1) drift fences to direct organisms into modified funnel traps and (2) pitfall traps to temporarily capture organisms. Efforts to determine the presence of snake hibernacula may also be worthwhile, as several black racer hibernacula have been uncovered during land clearing activities at adjacent sites. It is important to note that such efforts would require additional funding for trap materials and staff to install and operate traps, and licenses for scientific research involving trapping of state-endangered species would be required.

6. **Preserving native genotypes of relatively "old-growth" oak forests, including hybrid oaks.** If a development plan moves forward for this site, it would be of great value to establish a plan involving seed collection and rescue of small to moderately sized specimen trees of single or hybrid ancestry (1-10 inches dbh). Since the Charleston are represents one of the last historic, native coastal oak forests on Staten Island, it would be worthwhile to preserve local genotypic diversity through such a plan.

CHANGES TO THE PROJECT SITE AND STUDY AREA, OCTOBER 2007 TO THE PRESENT

Several events occurred within the project site and study area that occurred between October 2007 and the present, including the following:

- A parcel on the western boundary of the property was being developed as the NYCT Charleston Bus Annex during the course of the survey period; this site was gated and locked, and surveys within this site were not possible. The site was cleared to bare soil by Mar 2008 and the frames of future structures and perimeter sheet piling was installed as of Dec 2008.
- On the southwestern edge of the site, earth moving activities occurred on adjacent private property formerly used as a driving range at some point between 15 November and 29 December 2008; this earth moving activity covered over a small wet depression with some wetland indicator plants (*Juncus effusus, Echinochloa muricata*) noted during field surveys on 16 Sep 2008.
- The Arthur Kill shoreline in the vicinity of the project site includes pilings, debris and historic remnants of the former Kreischer Brick Works, areas of *Spartina alterniflora*, and transitional mud and sand banks extending to mudflats along the Arthur Kill. A permit for a stormwater outfall discharging at Allentown Lane for the NYCT Charleston Bus Annex has been recently submitted to NYSDEC.
- At the northern edge of the project site, AKRF field staff noted in late summer 2008 that trees along the southern edge of the paved portion of Englewood Avenue were marked with orange spray paint, and survey flagging and orange spray paint were noted within the Englewood Avenue corridor at the southwest boundary of the adjacent Clay Pits Pond State Park Preserve. AKRF did not learn the purpose of these survey markings, although no tree clearing or construction occurred in these areas as of the final survey date of 29 Dec 2008.
- Between January and May 2009, a fire burned several acres of Fragmented Coastal Oak Variant Forest the southwestern portion of the project site, east of the NYCT Charleston Bus Annex site.

G. LITERATURE CITED

AKRF, Inc. 2000. Charleston Retail Project Site: Phase I Environmental Site Assessment Report. Appendix B: Historical Sanborn Maps and Historical Aerial Photographs. Prepared for the Blumenfeld Development Group, Ltd. February 2000.

AKRF, Inc. 2003. Charleston Site Vegetation Sampling. Submitted to NYCEDC and NYCDEP. March 2003. 56pp.

AKRF, Inc. 2007. Scope of Work for Natural Resource Surveys, Charleston, Staten Island. Presented to NYCEDC on 16 October 2007.

AKRF, Inc. 2008. Methodology for Natural Resources Surveys, Charleston, Staten Island. Presented to NYCEDC on 15 February 2008.

Anzelone, M. 2004. Memo from Marielle Anzelone, NYC Department of Parks and Recreation to Judy Barr, New York City Economic Development Corporation, regarding Torrey's Mountain Mint at Kreischer Hill, Staten Island, NY. March 5, 2004. 2pp.

Control Point Associates, Inc. 2008. Wetlands Delineation Sketch, Charleston Development Project, Englewood Avenue Corridor. October 29, 2008.

EEA, Inc. 2001. Bricktown Retail Centre herpetological survey for Eastern Mud Turtle (Kinosternon subrubrum) and other incidental species. August 2001. 25 pp.

Evans, D.J., P. Novak and T. Weldy. 2002. Rare species and ecological communities of Clay Pit Ponds State Park. Prepared for NYS Office of Parks, Recreation and Historic Preservation. New York Natural Heritage Program. March 29, 2002. 50pp.

Greller, A. 2004. Letter from Dr. Andrew M. Greller, Torrey Botanical Society to Michael Bloomberg, Mayor of The City of New York, regarding Torrey's Mountain Mint at Kreischer Hill, Staten Island, NY. February 13, 2004. 2pp.

Harrington, D. and L. Schwanof. 2004. Memo from Denise Harrington and Laura Schwanof, EEA to John Neill and Ed Applebome, AKRF, Inc. regarding fruiting American chestnut identified on the Bricktown at Charleston Project Site, Staten Island, NY. August 9, 2004. 6pp.

Lyons, T. 2002. Letter from Thomas B. Lyons, NYS Office of Parks, Recreation and Historic Preservation to Jennifer Wallin, AKRF, Inc. regarding inventory information on Clay Pit Ponds State Park Preserve, Staten Island, NY. October 24, 2002. 70pp.

New York City Department of Parks and Recreation – Natural Resources Group. 2004. Draft plan for the preservation and propagation of Torrey's Mountainmint (*Pycnanthemum torrei*) and other associated species found on Kreischer Hill, Staten Island. NY. June 18, 2004. 6pp.

New York City Department of Parks and Recreation. 2005. Fairview Park: Modified Environmental Impact Statement. CEQR No. 04DPR005R. February 2005.

New York City Transit. 2007. Charleston Bus Annex Environmental Assessment.

New York State Department of Environmental Conservation. 2005. Environmental Notice Bulletin regarding Negative Declaration on Fairview Park, Staten Island, NY. Accessed January 18, 2008 from <http://www.dec.ny.gov/enb2005/20050309/not2.html>

Office of the Deputy Mayor for Economic Development and Rebuilding. 2002. Bricktown Centre at Charleston, Final Environmental Impact Statement. CEQR No. 96-DME001R. May 16, 2002.

Office of the Deputy Mayor for Economic Development and Rebuilding. 2004. Bricktown Centre at Charleston. Environmental Assessment Statement, Part I. Regarding site plan modification to previously approved project (CEQR No. 96DME001R). Prepared by AKRF, Inc. June 25, 2004. 21pp.

PlaNYC. 2009. New York City wetlands: Regulatory gaps and other threats. City of New York, NY. January 2009. 44pp. Accessed on May 12, 2009 at <http://www.nyc.gov/html/om/pdf/2009/pr050-09.pdf>

Schneider, G. 1977. A cool and pleasant retreat but a hungry soil: The Clay Pit Pond Area, Staten Island, NY. Staten Island Institute of Arts and Sciences. 36pp.

Trust for Public Land. 1986. Clay Pit Ponds State Park Preserve management plan: Final Environmental Impact Statement. The Office of Parks, Recreation & Historic Preservation, State of New York. 128 pp.

Rampulla Associates Architects. 2005. The Tides at Charleston: Technical Memorandum II. CEQR No. 95DCP058R. September 22, 2005. 18pp.

Rossi, M. and P. Gentile and the Preservation League of Staten Island. Undated. Kreischerville: A walk into the past. A walking tour of Kreischerville/Charleston, Staten Island, New York. Clay Pit Ponds State Park Preserve, NYS Office of Parks, Recreation and Historic Preservation. 11pp.

United States Army Corps of Engineers (USACE) - Environmental Laboratory (1987). Corps of Engineers wetlands delineation manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A176 912.

Young, S. (Ed.). 2008. New York Natural Heritage Program Rare Plant Status Lists, June 2008. New York Natural Heritage Program, Albany, NY. 129pp.

FIGURES

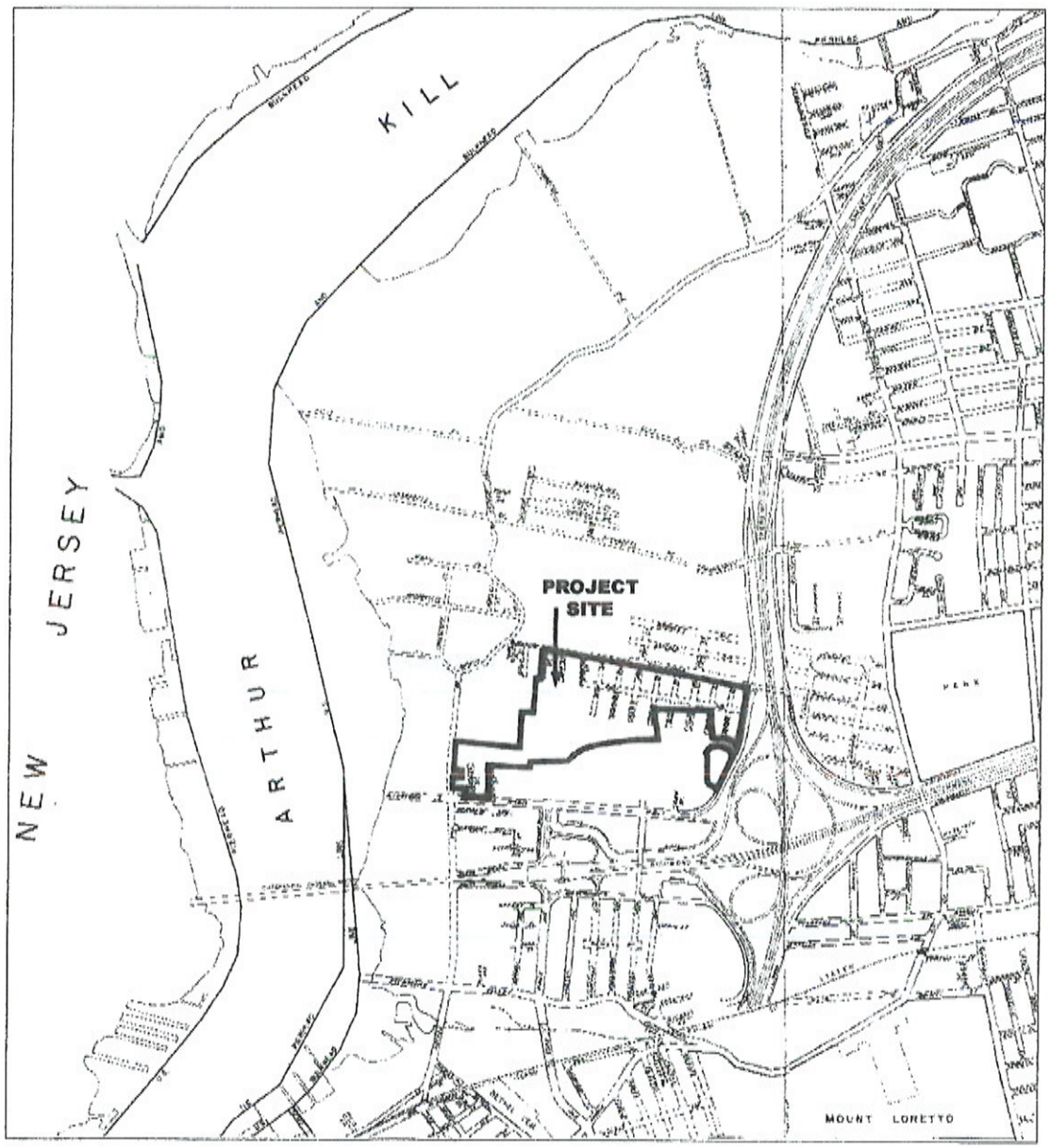


Figure 1: Project site boundary for Charleston Natural Resources Survey and surrounding area, Charleston, Staten Island, NY (Richmond County.) Source: NYC Economic Development Corporation.

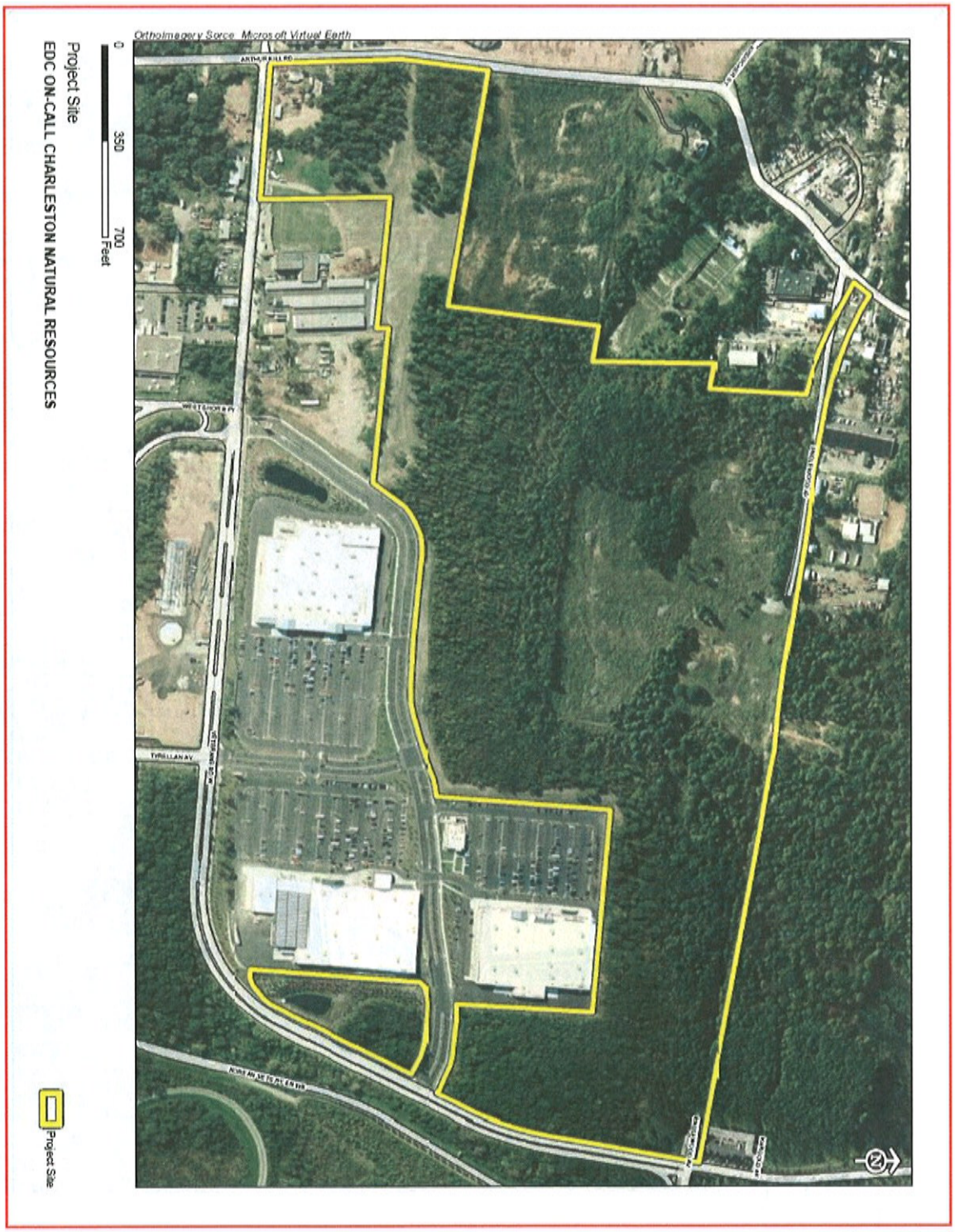


Figure 2: Project site boundary for Charleston Natural Resources Survey, Charleston, Staten Island, NY (Richmond County.)

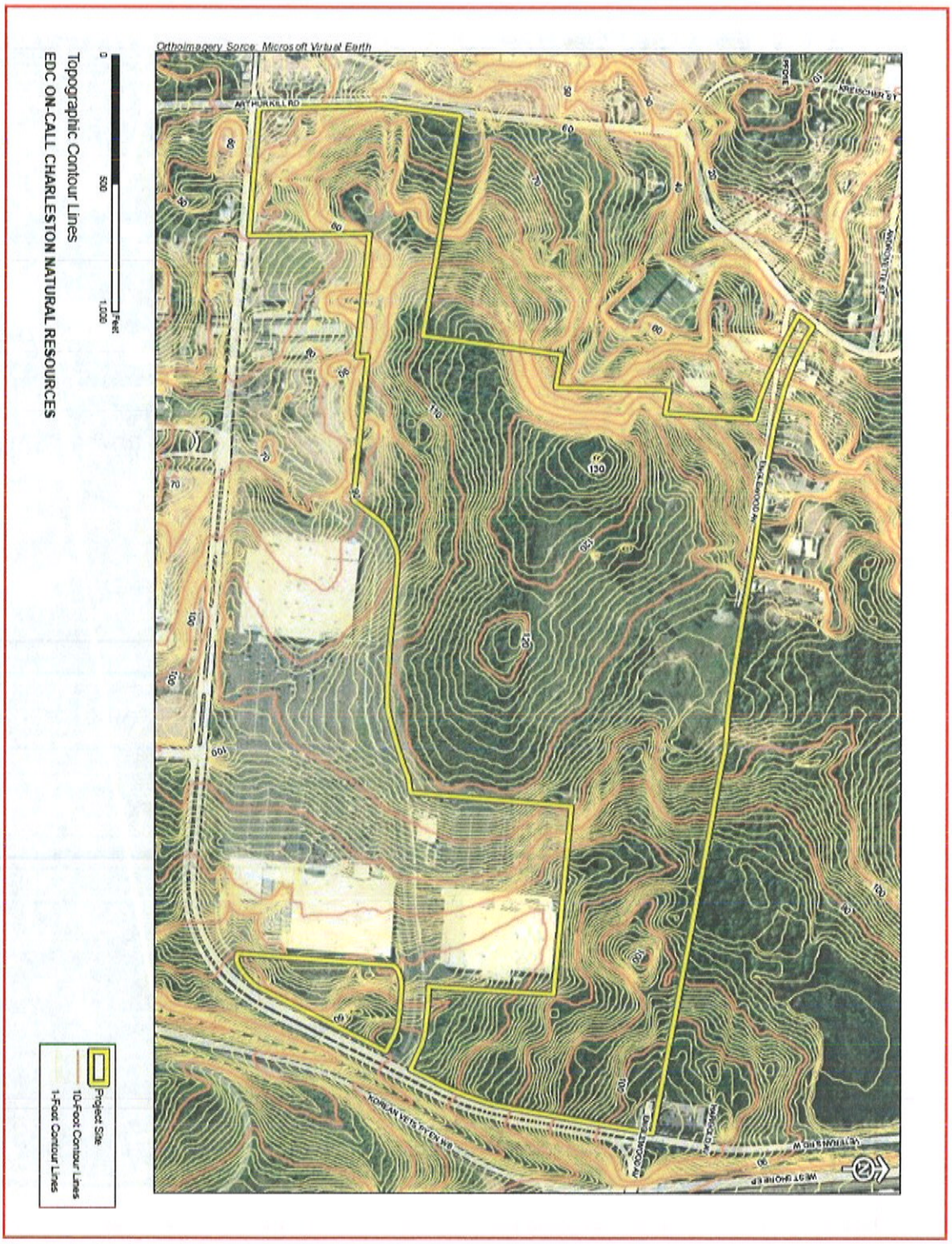


Figure 3: Project site topography.

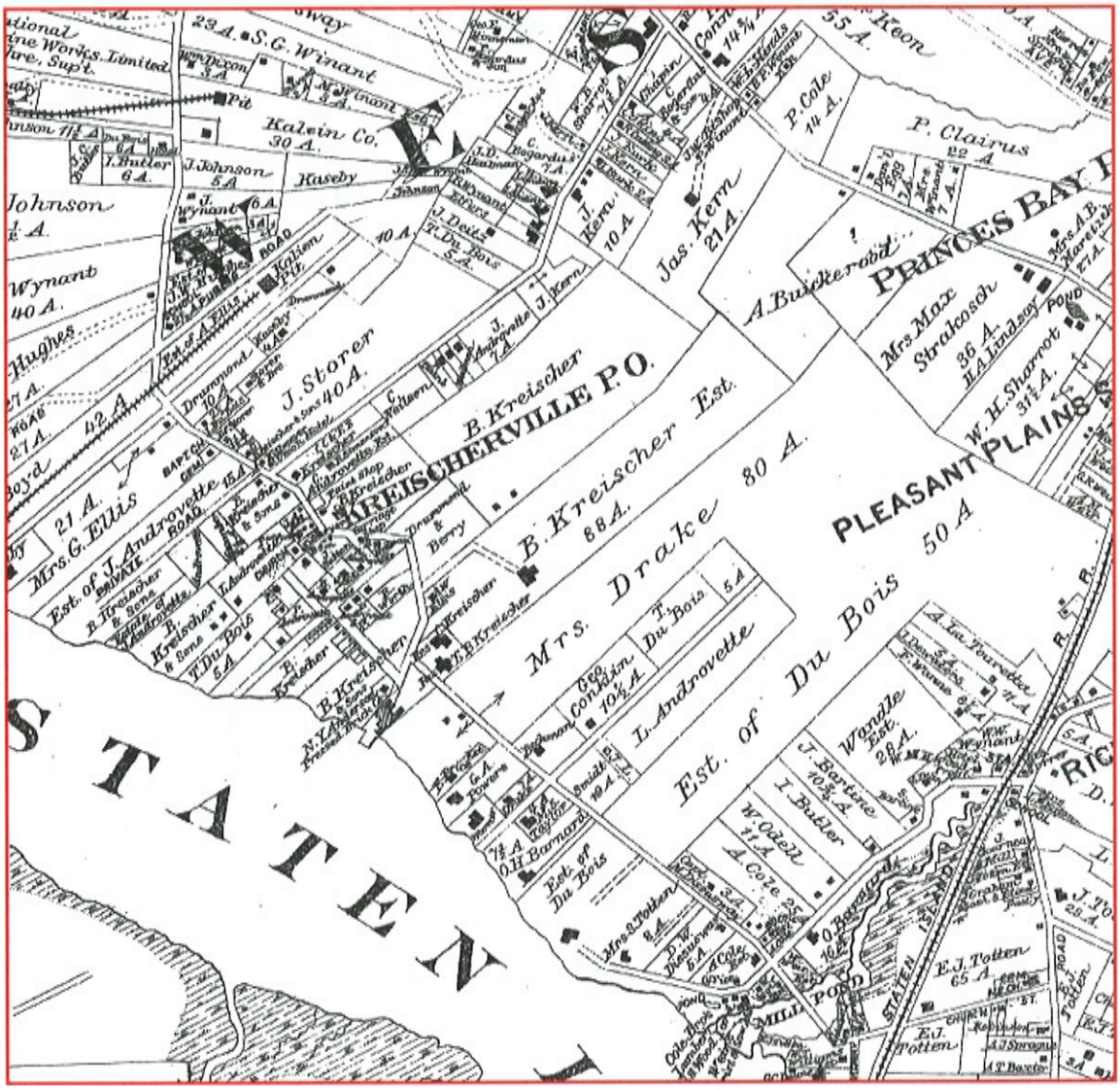


Figure 4: Beers Atlas of Staten Island, Richmond County, New York (1887); detail featuring the Charleston (Kreischerville) area of Staten Island.

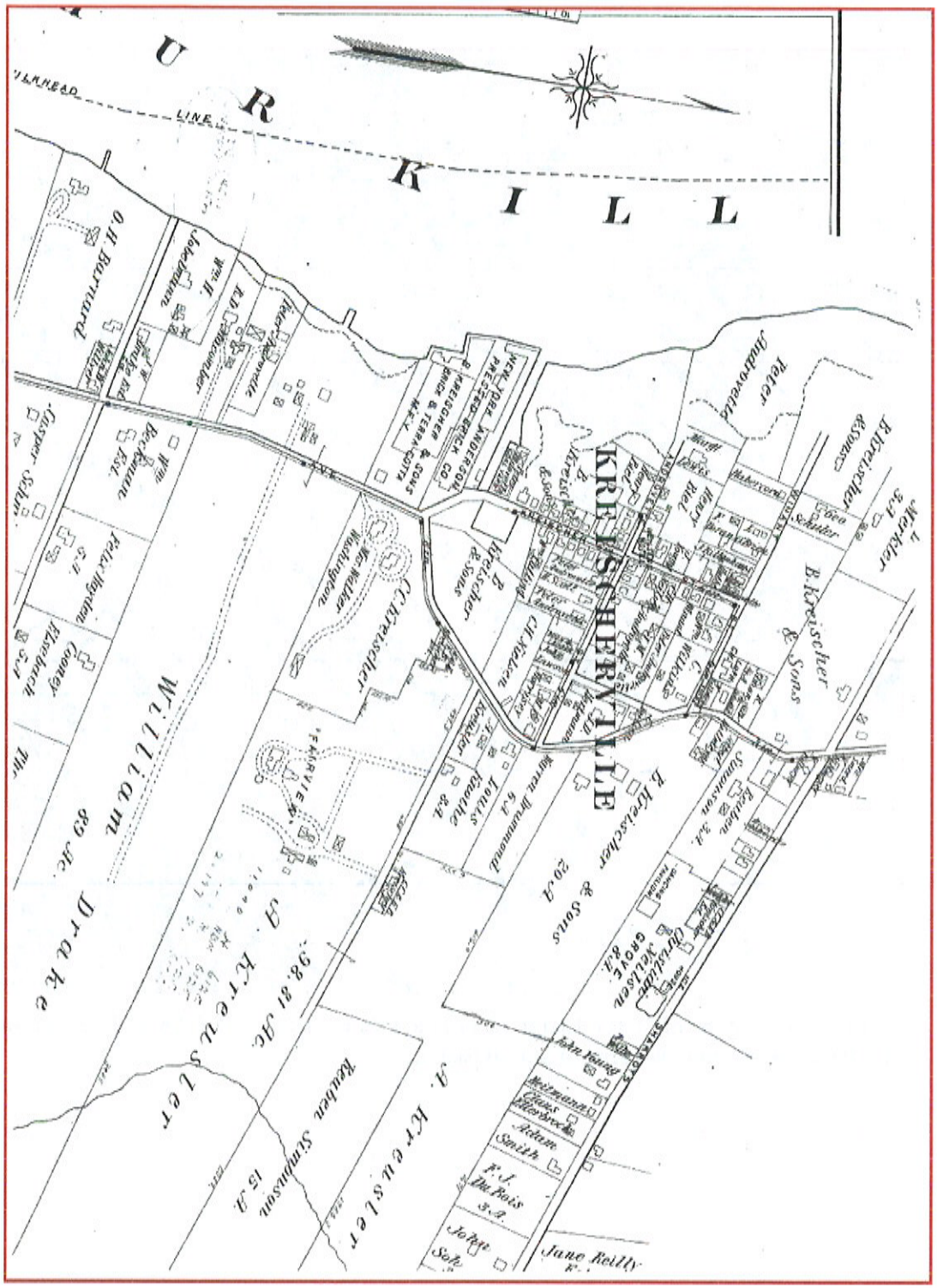


Figure 5: Robinson's Atlas of the City of New York (1898); detail featuring the Charleston (Kreischerville) area of Staten Island. Note the location of the "Fairview" Estate, the foundation of which is still visible within the western portion of the project site.

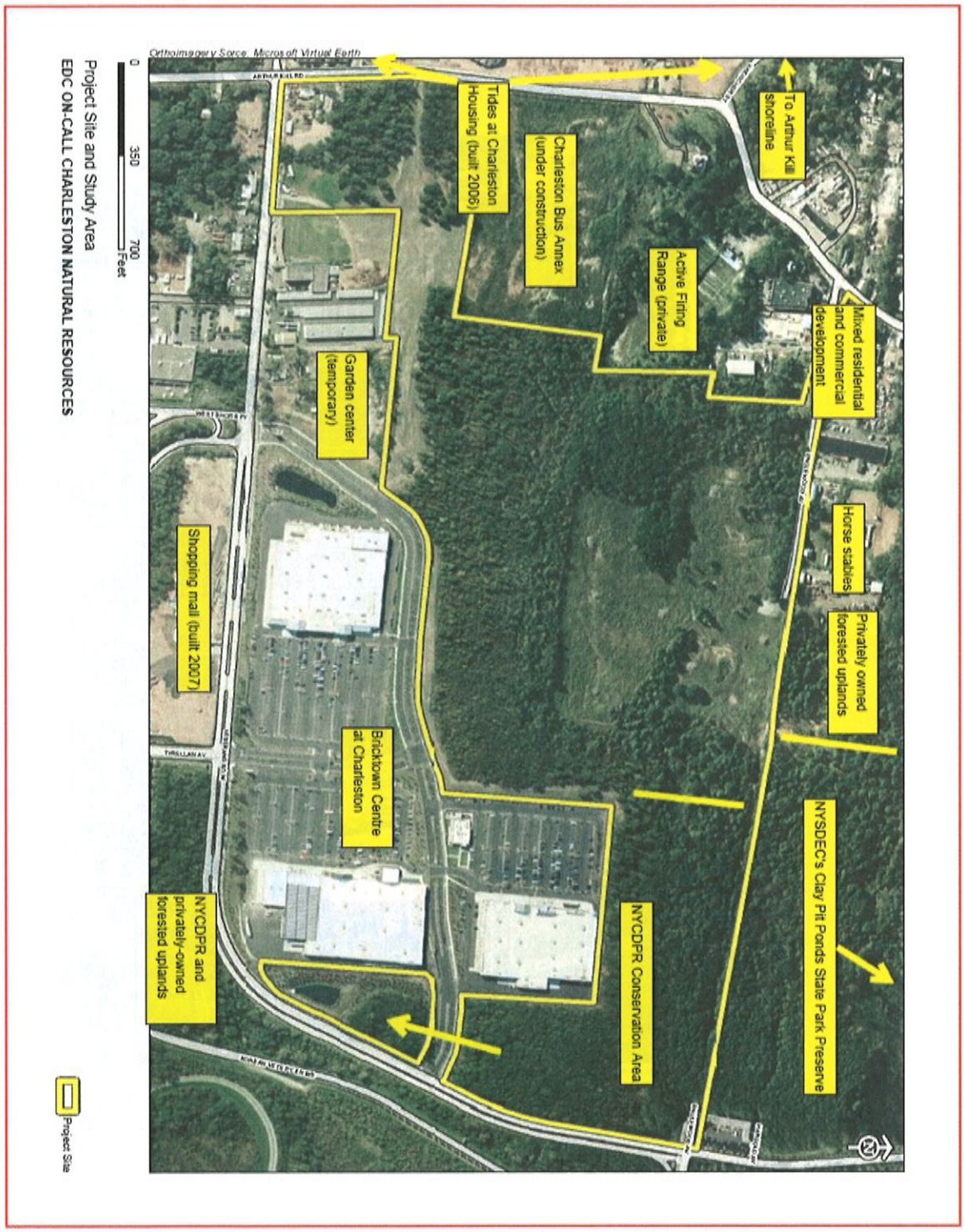


Figure 6: Study area.

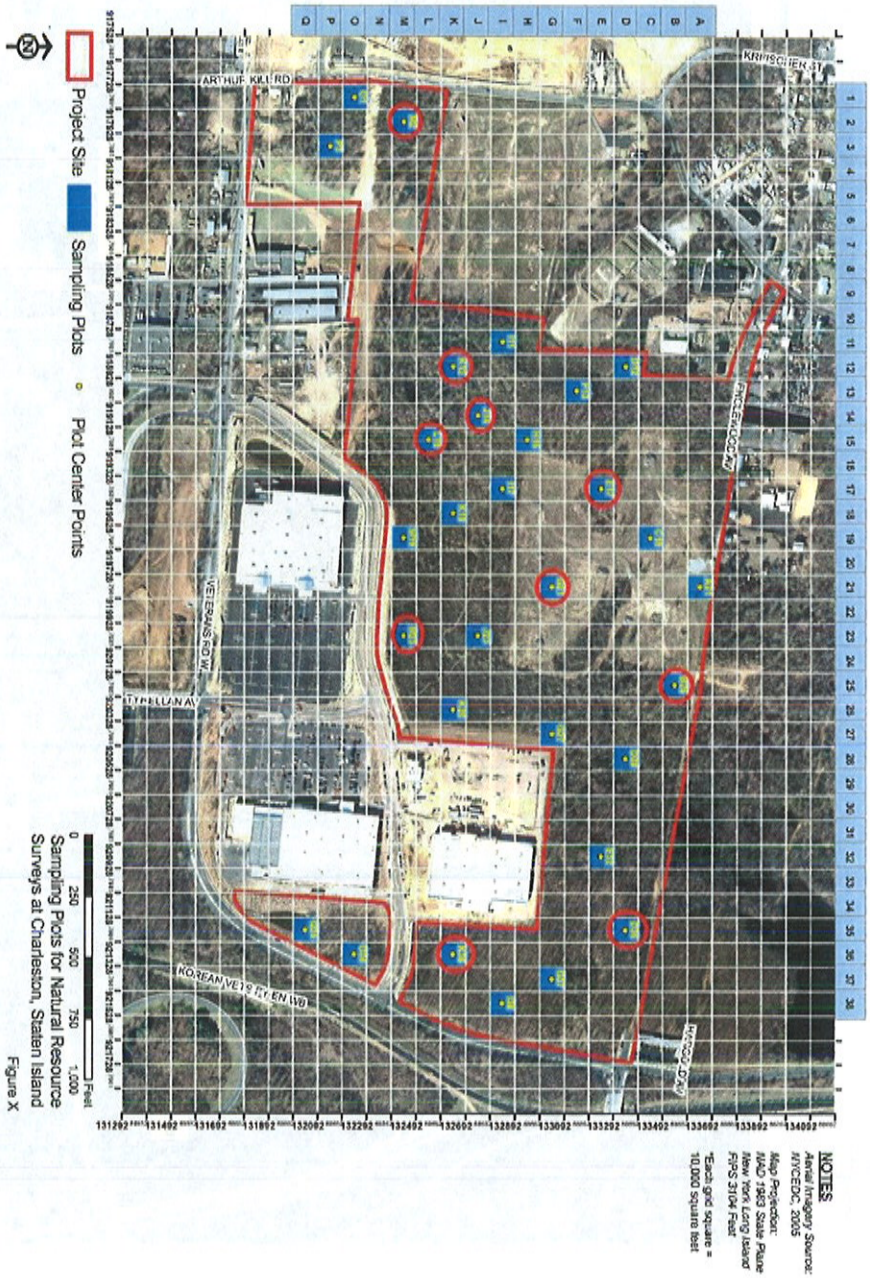


Figure 7: Project site sampling plots (N=30). Circled plots denote those in which cover boards and track boards were placed for fauna surveys.

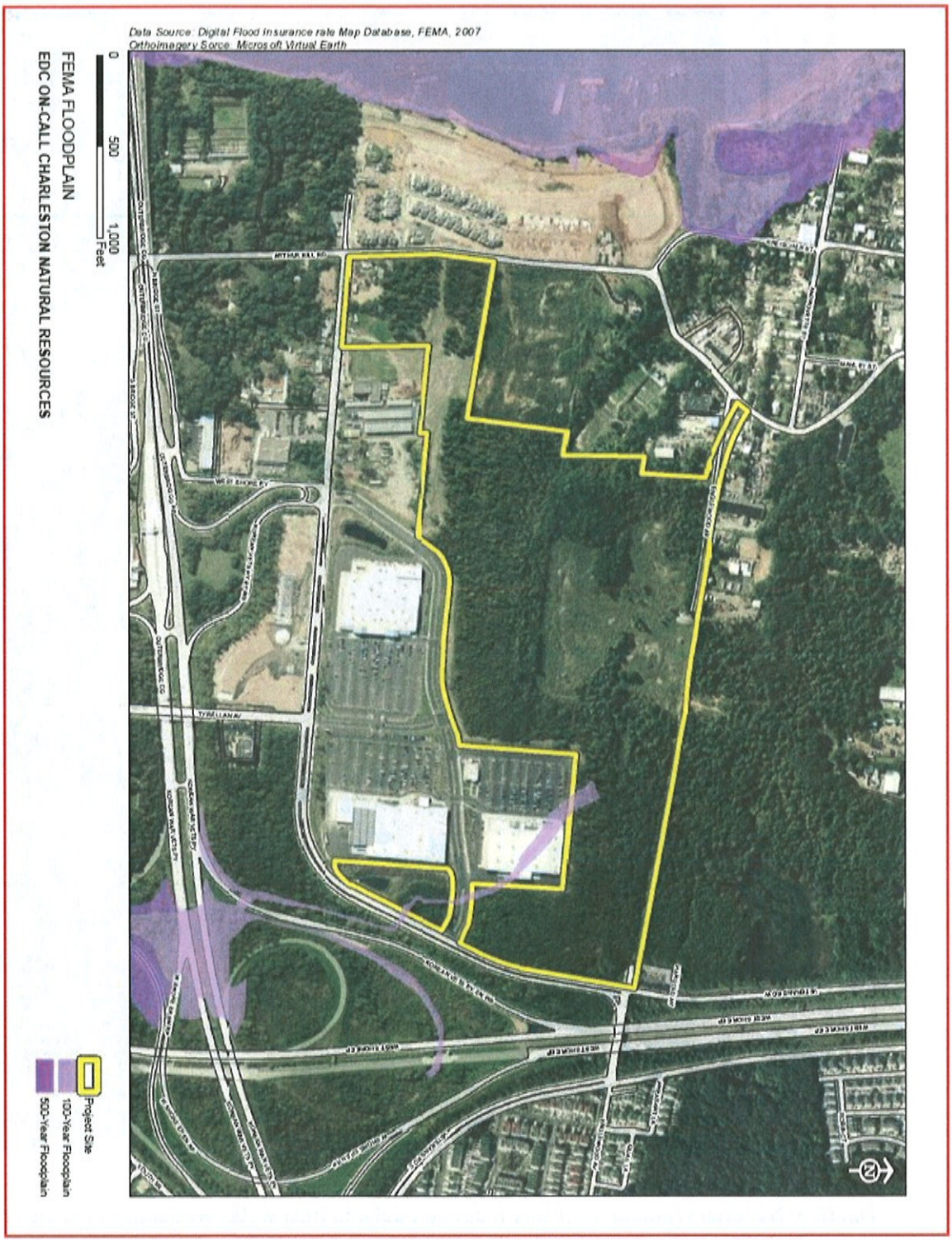


Figure 8: 100 and 500 year floodplains in the vicinity of the project site.

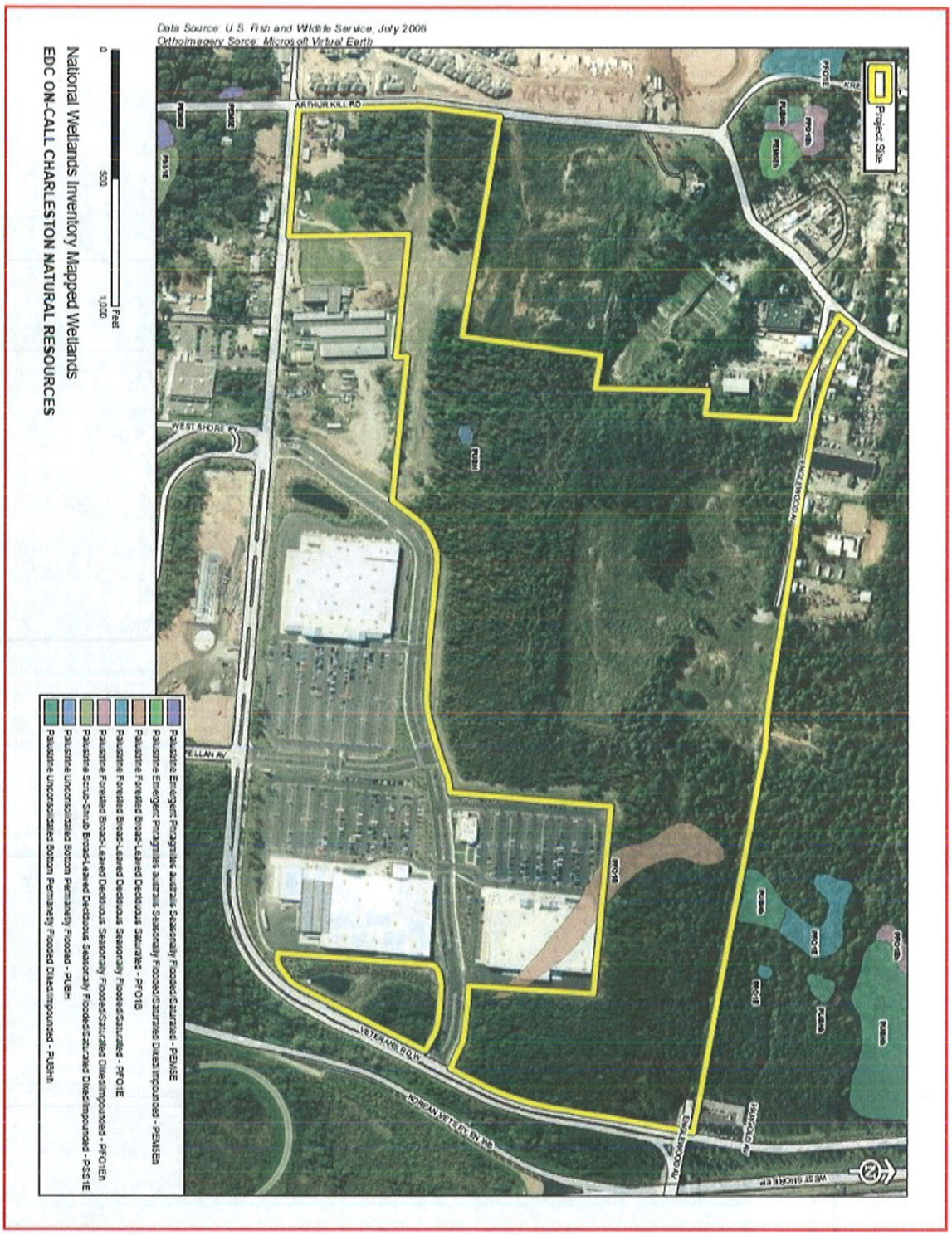


Figure 9: National Wetland Inventory mapped tidal and freshwater wetlands in the vicinity of the project site.

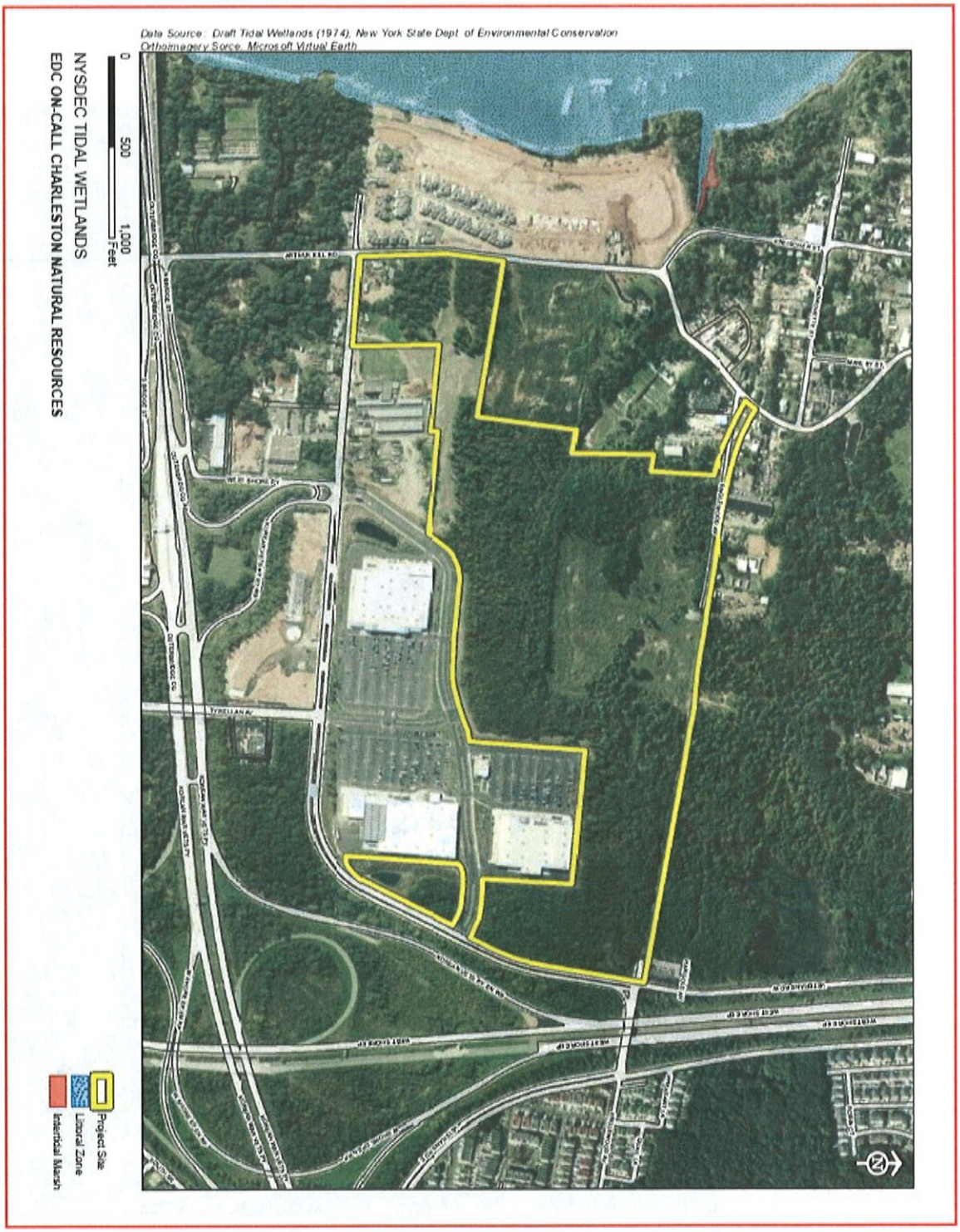


Figure 10: New York State Department of Environmental Conservation mapped tidal wetlands in the vicinity of the project site.

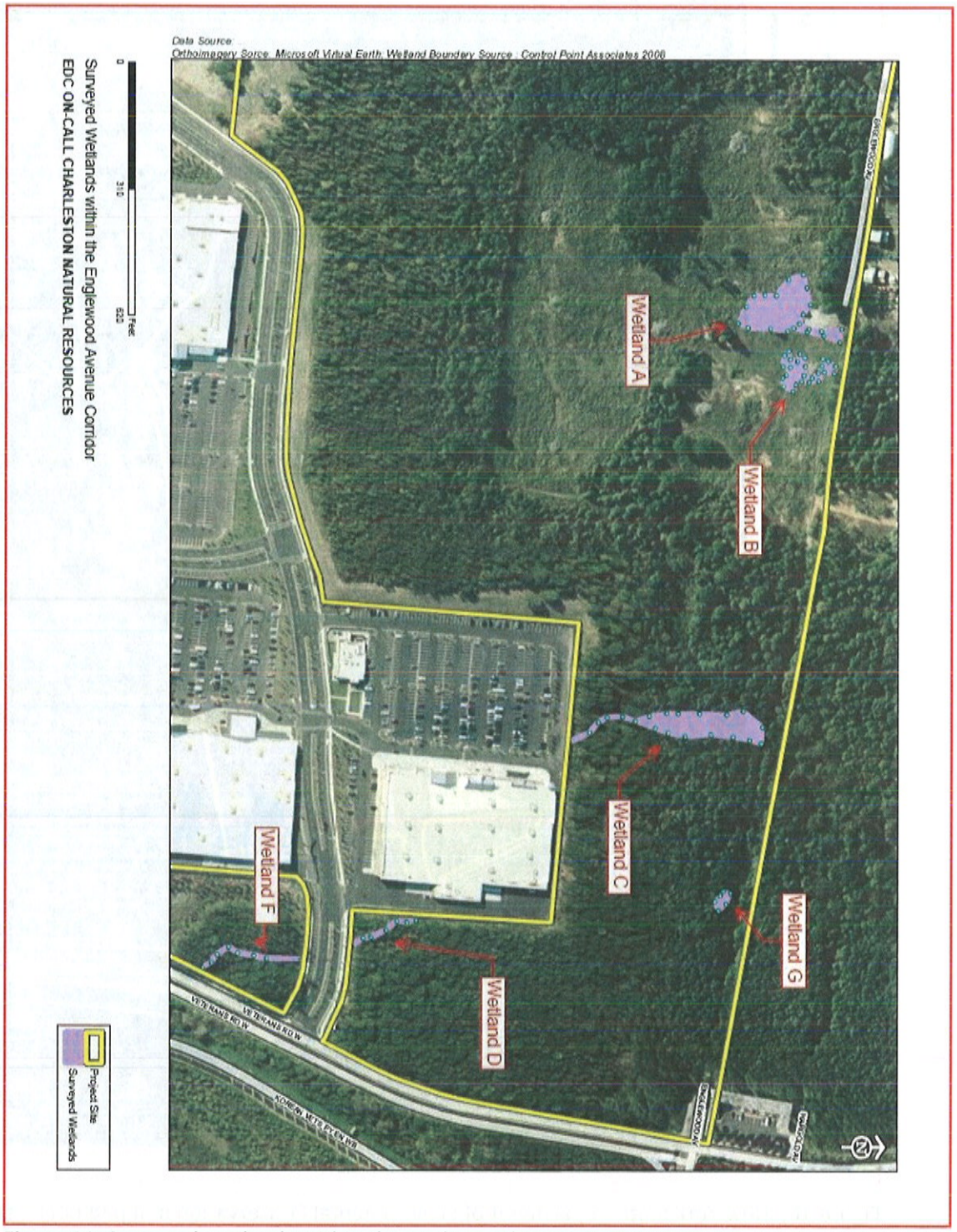


Figure 11: Surveyed wetlands within the Englewood Avenue corridor of the project site. Based on AKRF wetlands delineation survey data and Control Point Associates, Inc. mapping data (10/29/2008).

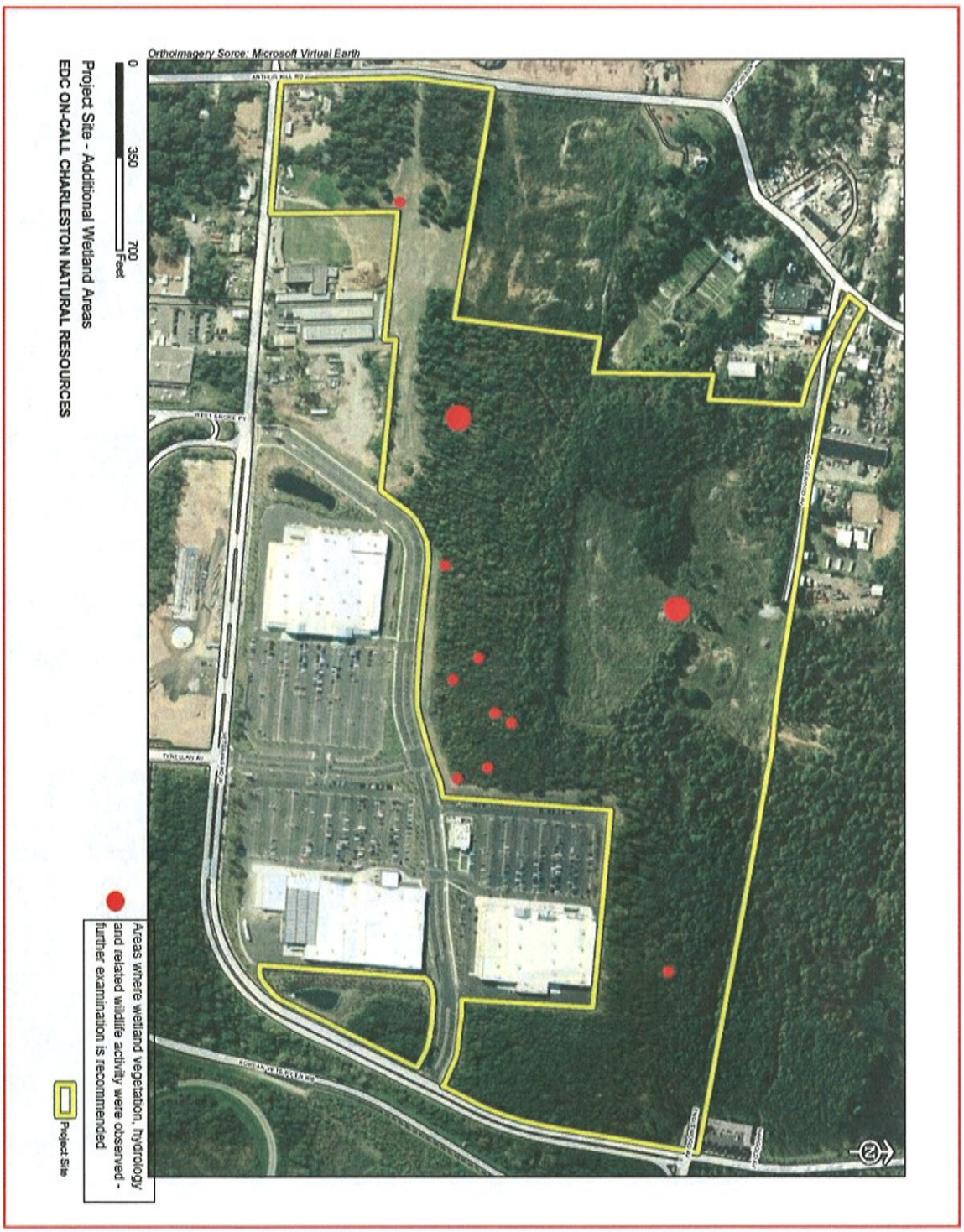


Figure 12: Additional wetlands within the project site. This includes one previously identified jurisdictional wetland and several other locations where evidence of wetland hydrology, vegetation and wildlife activity were present during this study.

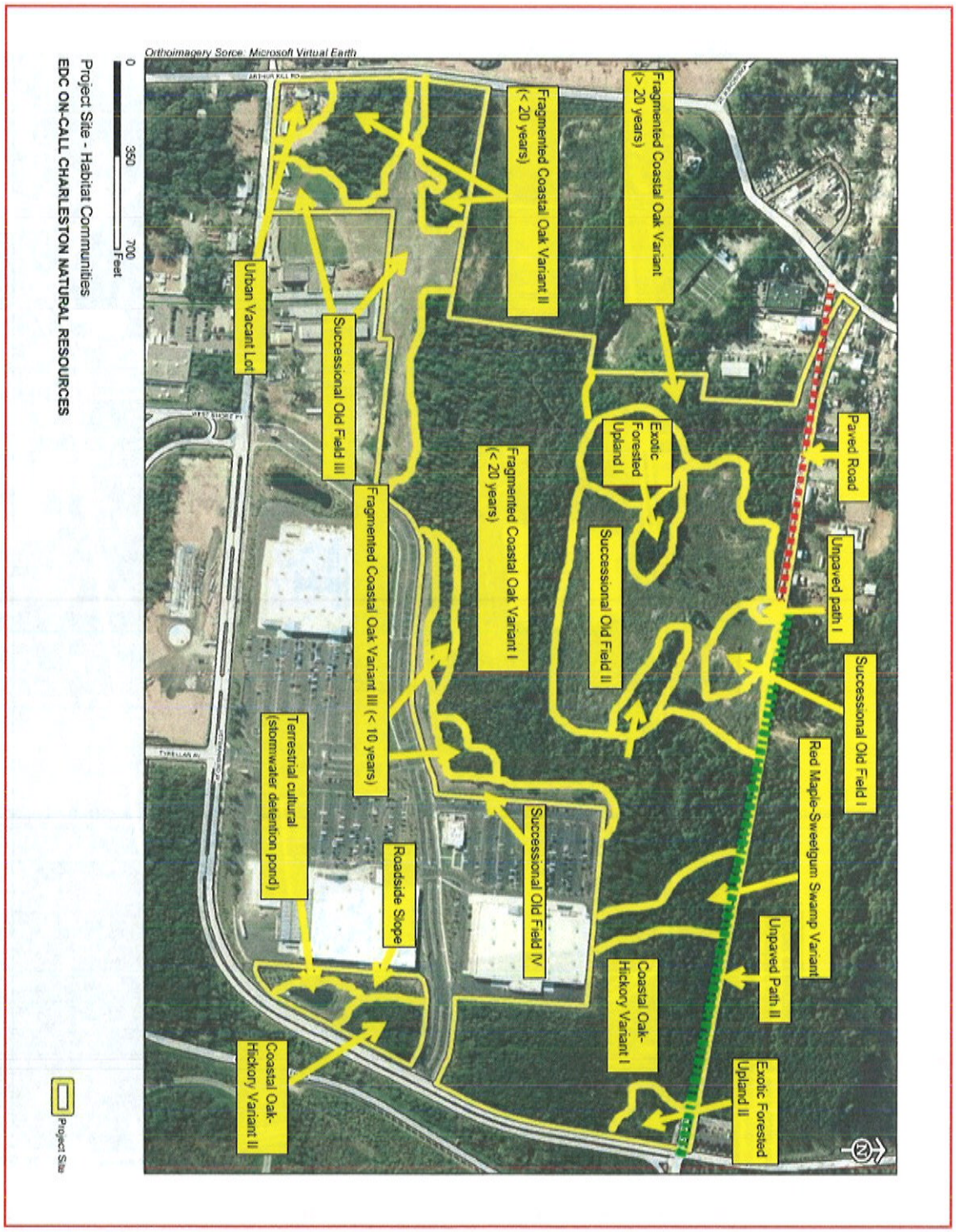


Figure 13: Habitat communities within the project site.

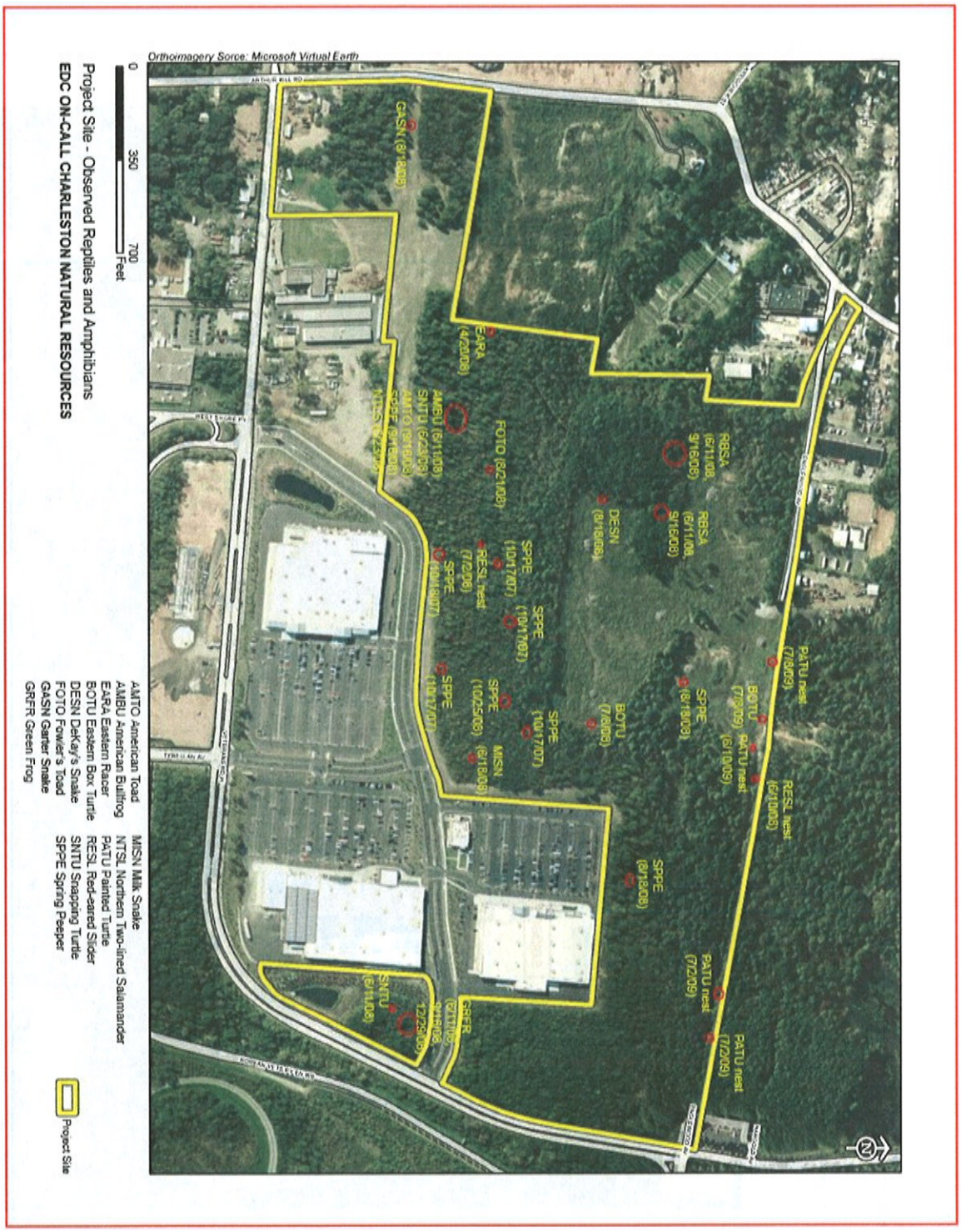


Figure 14: Reptile and amphibian observations located during time-restricted searches and incidental observations at the project site, October 2007 to December 2008.

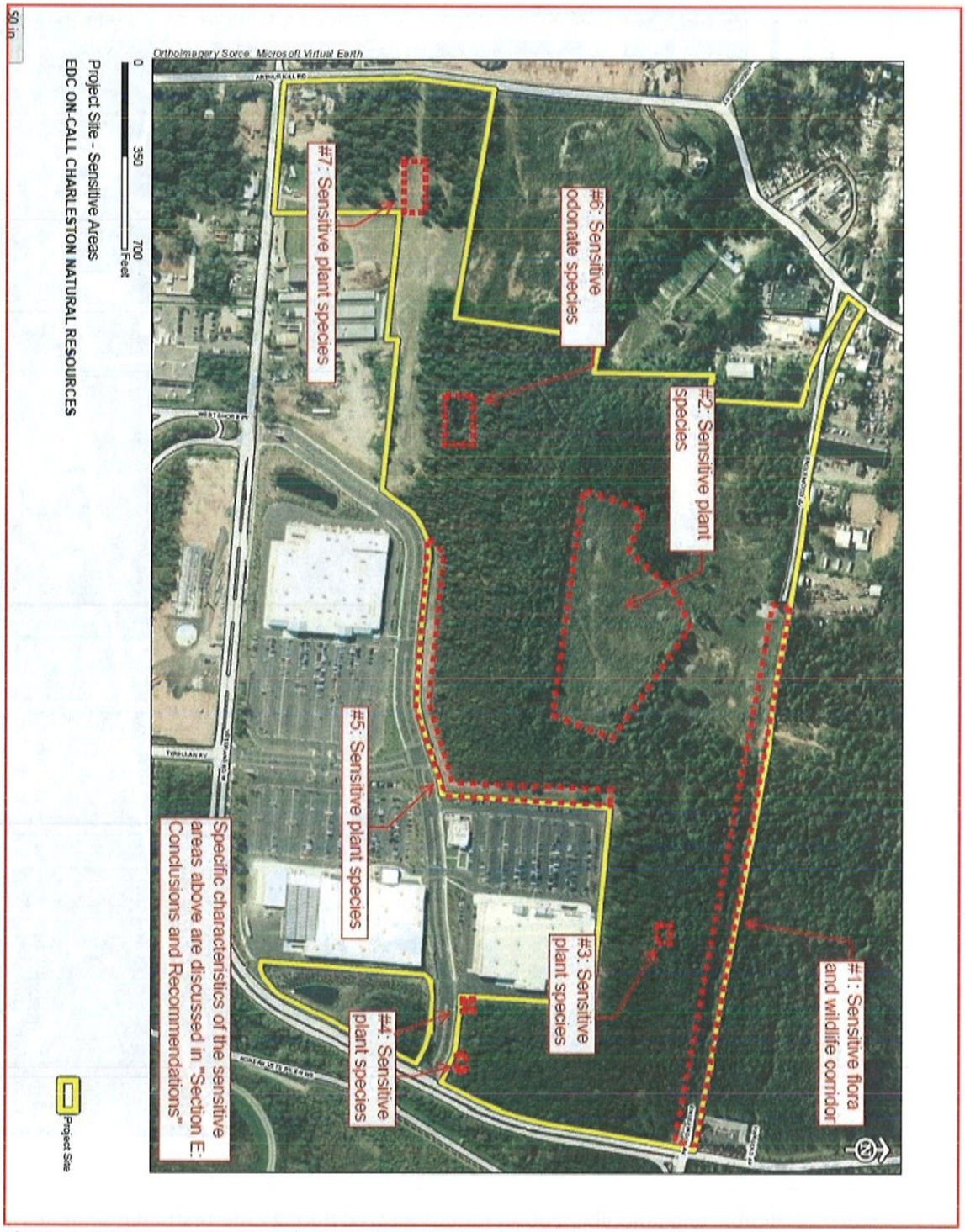


Figure 15: Sensitive areas within the project site. See Section 5 "Conclusions and Recommendations" for further discussion.

TABLES

Table 1
Plants observed within the project site

Form	Scientific Name	Common Name	Rank	Outside Plots Only	Early Spring Only	Early Summer Only	Early Fall Only
Fern	*Dennstaedtia punctilobula*	Hay-scented Fern					
Fern	*Onoclea sensibilis*	Sensitive Fern		x			
Fern	*Osmunda cinnamomea*****	Cinnamon Fern	Protected				
Fern	*Pteridium aquilinum*	Bracken Fern					
Fern	*Thelypteris noveboracensis*****	New York Fern	Protected				
Graminoid	*Agrostis capillaris*	Colonial Bentgrass		x			
Graminoid	*Agrostis gigantea*	Redtop					
Graminoid	*Agrostis perennans*	Upland Bentgrass		x			
Graminoid	*Agrostis stolonifera*	Creeping Bentgrass					
Graminoid	*Aristida oligantha*	Prairie Threeawn		x			
Graminoid	*Aristida purpurea*	Purple Three-awn		x			
Graminoid	*Carex annectens*	Yellowfruit Sedge		x			
Graminoid	*Carex scoparia*	Broom Sedge					
Graminoid	*Carex stricta*	Tussock Sedge					
Graminoid	*Carex vulpinoidea*	Fox Sedge				x	
Graminoid	*Cynodon dactylon*	Bermuda Grass					x
Graminoid	*Cyperus esculentus*	Nut Sedge		x			
Graminoid	*Cyperus iria*	Ricefield Flatsedge		x			
Graminoid	*Cyprus strigosis*	Umbrella Sedge					
Graminoid	*Dactylis glomerata*	Orchardgrass					
Graminoid	*Dichanthelium acuminatum*	Tapered Rosette Grass					
Graminoid	*Dichanthelium clandestinum*	Deertongue		x			
Graminoid	*Digitaria sanguinalis*	Hairy Crabgrass					x
Graminoid	*Echinochloa crus-galli*	Barnyard Grass		x			
Graminoid	*Echinochloa walteri*	Coast Cockspur Grass		x			
Graminoid	*Eleocharis acicularis*	Needle Spike-rush					
Graminoid	*Eleocharis obtusa*	Blunt Spike-rush		x			
Graminoid	*Eleocharis* spp.	Spike-rush spp.					
Graminoid	*Festuca rubra*	Red Fescue					
Graminoid	*Festuca spp.*	Fescue spp.					
Graminoid	*Juncus bufonius*	Toad Rush					
Graminoid	*Juncus canadensis*	Canadian Rush					
Graminoid	*Juncus effusus*	Soft Rush					
Graminoid	*Juncus tenuis*	Path rush					
Graminoid	*Leersia virginica*	White Grass		x			
Graminoid	*Microstegium vimineum*	Japanese Stiltgrass		x			
Graminoid	*Panicum clandestinum*	Deer Tongue Grass					
Graminoid	*Panicum* spp.	Switchgrass					
Graminoid	*Panicum virgatum*	Switchgrass					
Graminoid	*Phalaris arundinacea*	Reed Canarygrass		x			
Graminoid	*Phleum pratense*	Timothy					
Graminoid	*Phragmites australis*	Tall Reed		x			
Graminoid	*Poa pratensis*	Kentucky Bluegrass					x
Graminoid	*Schizachyrium scoparium*	Little Bluestem					x
Graminoid	*Scirpus atrovirens*	Green Bulrush					
Graminoid	*Scirpus cyperinus*	Wool Grass					
Graminoid	*Scirpus microcarpus*	Panicled Bulrush		x			
Graminoid	*Setaria viridis*	Green Foxtail				x	
Graminoid	*Typha latifolia*	Broadleaf Cattail		x			

Herb/Forb	*Ageratina altissima*	White Snakeroot					
Herb/Forb	*Aginalis purpurea*	Purple False Foxglove					x
Herb/Forb	*Alliaria petiolata*	Garlic Mustard					
Herb/Forb	*Allium ascalonicum*	Wild Onion			x		
Herb/Forb	*Allium vineale*	Wild Garlic					
Herb/Forb	*Ambrosia artemisifolia*	Ragweed					
Herb/Forb	*Anaphalis margaritacea*	Pearly Everlasting					
Herb/Forb	*Apocynum cannabinum*	Indian Hemp					
Herb/Forb	*Aralia hispida*	Bristly Sarsaparilla				x	
Herb/Forb	*Aralia racemosa*	American Spikenard					x
Herb/Forb	*Artemisia absinthium*	Wormwood					
Herb/Forb	*Artemisia vulgaris*	Mugwort					
Herb/Forb	*Asclepias syriaca*	Common Milkweed					
Herb/Forb	*Bidens frondosa*	Beggars Ticks					
Herb/Forb	*Chamaecrista fasciculata*	Partridge Pea					
Herb/Forb	*Chenopodium album*	Lamb's Quarters					
Herb/Forb	*Chimaphila maculata*	Striped Wintergreen					
Herb/Forb	*Cichorium intybus*	Chicory					
Herb/Forb	*Claytonia virginica*	Spring Beauty		x	x		
Herb/Forb	*Daucus carota*	Queen Anne Lace					
Herb/Forb	*Desmodium paniculatum*	Panicle-leaved Tick-Trefoil					x
Herb/Forb	*Dianthus armeria*	Deptford Pink					
Herb/Forb	*Erechtites hieracifolia*	Pilewort					x
Herb/Forb	*Erigeron annuus*	Daisy Fleabane					
Herb/Forb	*Erythronium americanum*	Trout Lily		x			
Herb/Forb	*Eupatoriadelphus maculatus*	Joe Pye Weed		x			
Herb/Forb	*Eupatorium album*	White Boneset					
Herb/Forb	*Eupatorium hyssopifolium var. hyssopifolium*	Hyssop-leaved Boneset					
Herb/Forb	*Eupatorium hyssopifolium var. laciniatum***	Fringed Boneset	G5T4T5/S2				
Herb/Forb	*Eupatorium perfoliatum*	Common Boneset		x			
Herb/Forb	*Eupatorium pilosum*	Rough Boneset					
Herb/Forb	*Eupatorium rotundifolium var. ovatum**	Serrate Round-leaf Boneset	G5T5/S1	x			
Herb/Forb	*Eupatorium rotundifolium var. rotundifolium**	Round-leaf Boneset	G5T5/SH	x			
Herb/Forb	*Eupatorium serotinum**	Late-flowering Boneset	G5/S2S3				
Herb/Forb	*Eupatorium sessifolium*	Upland Boneset					
Herb/Forb	*Euthamia caroliniana*	Slenderleaved Goldenrod					
Herb/Forb	*Euthamia galetorum*	Slender Goldentop		x			
Herb/Forb	*Euthamia graminifolia*	Lance-leaved Goldenrod					
Herb/Forb	*Fragaria vesca*	Woodland Strawberry				x	
Herb/Forb	*Fragaria virginiana*	Virginia Strawberry					
Herb/Forb	*Gnaphalium obtusifolium*	Sweet Everlasting					
Herb/Forb	*Hieracium aurantiacum*	Orange Hawkweed		x			
Herb/Forb	*Hypericum gentianoides*	Orangegrass					
Herb/Forb	*Lespedeza capitata*	Round-headed Bush Clover					
Herb/Forb	*Lespedeza stuevei***	Tall Lespedeza	G4?/S2	x			x
Herb/Forb	*Linaria canadensis*	Blue Toadflax					
Herb/Forb	*Lotus corniculatus*	Bird's-foot Trefoil					
Herb/Forb	*Lysimachia quadrifolia*	Whorled Loosestrife					
Herb/Forb	*Maianthemum canadense*	Canada Mayflower		x			
Herb/Forb	*Maianthemum racemosum*	False Solomon's Seal					
Herb/Forb	*Medicago lupulina*	Black Medic					

Herb/Forb	*Oenothera biennis*	Common Evening Primrose		x			
Herb/Forb	*Phytolacca americana*	American Pokeweed					
Herb/Forb	*Pilea pumila*	Clearweed					
Herb/Forb	*Plantago aristata*	Large-bracted Plantain					
Herb/Forb	*Plantago lanceolata*	English Plantain					
Herb/Forb	*Polygonum cespitosum*	Oriental Lady's Thumb					x
Herb/Forb	*Polygonum cuspidatum*	Japanese Knotweed					
Herb/Forb	*Polygonum pennsylvanicum*	Pink Knotweed					
Herb/Forb	*Polygonum perisicaria*	Lady's Thumb					
Herb/Forb	*Potentilla canadensis*	Dwarf Cinquefoil		x			
Herb/Forb	*Potentilla intermedia*	Downy Cinquefoil					
Herb/Forb	*Potentilla recta*	Sulphur Cinquefoil					
Herb/Forb	*Potentilla simplex*	Common Cinquefoil					
Herb/Forb	*Pycnanthemum torrei**	Torrey's Mountain-mint	G2/S1				
Herb/Forb	*Pyrola rotundifolia*	Roundleaf Pyrola					
Herb/Forb	*Rhexia virginica*	Handsome Harry		x	x		
Herb/Forb	*Rumex crispus*	Curled Dock					
Herb/Forb	*Rumex obtusifolius*	Bitter Dock					
Herb/Forb	*Setaria verticillata*	Bristly Foxtail					x
Herb/Forb	*Sinapis arvensis*	Charlock Mustard					
Herb/Forb	*Sisyrinchium atlanticum*	Eastern Blue-eyed Grass				x	
Herb/Forb	*Solanum dulcamara*	Bitter Nightshade					
Herb/Forb	*Solidago canadensis*	Canada Goldenrod					x
Herb/Forb	*Solidago erecta*	Showy Goldenrod					x
Herb/Forb	*Solidago hispida*	Hairy Goldenrod					x
Herb/Forb	*Solidago juncea*	Early Goldenrod		x			
Herb/Forb	*Solidago nemoralis*	Gray Goldenrod					x
Herb/Forb	*Solidago odora*	Anise-scented Goldenrod					x
Herb/Forb	*Solidago puberula*	Downy Goldenrod					x
Herb/Forb	*Solidago rugosa*	Wrinkleleaf Goldenrod					x
Herb/Forb	*Solidago* spp.	Goldenrod spp.					
Herb/Forb	*Sonchus oleraceus*	Common Sow Thistle					
Herb/Forb	*Symphyotrichum laeve*	Smooth Aster					
Herb/Forb	*Symphyotrichum novae-angliae*	New England Aster		x			
Herb/Forb	*Symphyotrichum pilosum*	White Heath Aster					x
Herb/Forb	*Symphyotrichum prenanthoides*	Crookedstem Aster		x			
Herb/Forb	*Symphyotrichum racemosum*	Smooth white oldfield aster		x			
Herb/Forb	*Taraxacum officinale*	Common Dandelion					
Herb/Forb	*Trifolium arvense*	Rabbit-foot Clover					
Herb/Forb	*Trifolium campestre*	Field Clover		x			
Herb/Forb	*Trifolium hybridum*	Alsike Clover					
Herb/Forb	*Trifolium pratense*	Red Clover					
Herb/Forb	*Trifolium repens*	White Clover					
Herb/Forb	*Uvularia perfoliata*	Perfoliate Bellwort				x	
Herb/Forb	*Veronica peregrina*	Hairy Purslane Speedwell				x	
Herb/Forb	*Vicia cracca*	Cow Vetch					
Saprophyte	*Epifagus virginiana*	Beechdrops		x			
Saprophyte	*Monotropa uniflora*	Indian Pipes					
Shrub	*Aralia spinosa*	Devil's Walkingstick					
Shrub	*Baccharis halimifolia*	Groundsel Bush					
Shrub	*Berberis thunbergii*	Japanese Barberry					
Shrub	*Calycanthus floridus*	Eastern Sweetshrub		x			

Shrub	*Cephalanthus occidentalis*	Common Buttonbush		x			
Shrub	*Deutzia scabra*	Fuzzy Pride-of-Rochester					
Shrub	*Elaeagnus umbellata*	Autumn Olive					
Shrub	*Euonymus americana**	American Strawberry-bush	G5/S1				
Shrub	*Fagus grandifolia*	American Beech					
Shrub	*Forsythia* spp.	Forsythia					
Shrub	*Ilex verticillata*	Common Winterberry					
Shrub	*Lonicera tatarica*	Tartarian Honeysuckle		x			
Shrub	*Philadephus* spp.	Mock Orange		x			
Shrub	*Rhus glabra*	Smooth Sumac					
Shrub	*Rosa multiflora*	Multiflora Rose					
Shrub	*Rosa palustris*	Pasture Rose					
Shrub	*Rubus allegheniensis*	Blackberry					
Shrub	*Rubus flagellaris*	Northern Dewberry		x			
Shrub	*Rubus hispidus*	Bristly Dewberry					
Shrub	*Rubus occidentalis*	Black Raspberry					
Shrub	*Rubus pensilvanicus*	Pennsylvania Blackberry		x			
Shrub	*Sambucus nigra*	Elderberry		x			
Shrub	*Vaccinium angustifolium*	Late Low Blueberry					
Shrub	*Vaccinium corymbosum*	Common Highbush Blueberry					
Shrub	*Vaccinium fuscatum*	Black Highbush Blueberry					
Shrub	*Vaccinium pallidum*	Early Lowbush Blueberry					
Shrub	*Viburnum acerifolium*	Maple-leaved Viburnum					
Shrub	*Viburnum alnifolium*	Hobble Bush					
Shrub	*Viburnum dentatum*	Southern Arrowwood					
Tree	*Acer rubrum*	Red Maple					
Tree	*Acer saccharinum*	Silver maple					x
Tree	*Ailanthus altissima*	Tree-of-Heaven					
Tree	*Albizia julibrissin*	Silktree					
Tree	*Amelanchier arborea*	Downy Juneberry					
Tree	*Amelanchier laevis*	Smooth Juneberry					
Tree	*Amelanchier* spp.	Juneberry spp.					
Tree	*Betula nigra*	River Birch	G5/S3	x			
Tree	*Betula populifolia*	Gray Birch					
Tree	*Carya cordiformis*	Bitternut Hickory					x
Tree	*Carya spp.*	Hickory spp.					
Tree	*Carya tomentosa*	Mockernut Hickory					
Tree	*Castanea dentata*	American Chestnut					
Tree	*Celtis occidentalis*	Common Hackberry					
Tree	*Ilex opaca***	American Holly					
Tree	*Juniperus virginiana*	Eastern Red Cedar					
Tree	*Liquidambar styraciflua*	Sweetgum					
Tree	*Morus* spp.	Mulberry spp.					x
Tree	*Nyssa sylvatica*	Black Gum					
Tree	*Paulownia tomentosa*	Royal Paulownia					
Tree	*Photinia pyrifolia*	Red Chokeberry					
Tree	*Picea glauca*	Norway Spruce		x			
Tree	*Pinus echinata*	Shortleaf Pine	G5/S1	x			
Tree	*Pinus rigida*	Pitch Pine					
Tree	*Pinus strobus*	White Pine					
Tree	*Pinus sylvestris*	Scots Pine					
Tree	*Pinus thunbergii*	Japanese Black Pine					
Tree	*Pinus virginiana*	Virginia Pine		x			
Tree	*Platanus occidentalis*	American Sycamore		x			

Tree	*Populus deltoides*	Eastern Cottonwood					
Tree	*Populus grandidentata*	Big-toothed Aspen					
Tree	*Populus tremuloides*	Quaking Aspen					
Tree	*Prunus serotina*	Black Cherry					
Tree	*Pyrus calleryana*	Callery Pear					
Tree	*Quercus alba*	White Oak					
Tree	*Quercus bicolor*	Swamp White Oak					
Tree	*Quercus coccinea*	Scarlet Oak		x			
Tree	*Quercus imbricaria*	Shingle Oak					
Tree	*Quercus marilandica*	Black-jack Oak					
Tree	*Quercus nigra*	Black Oak					
Tree	*Quercus palustris*	Pin Oak					
Tree	*Quercus phellos x marilandica (rudkinii)*	Rudkin's Oak					x
Tree	*Quercus prinus*	Chestnut oak					
Tree	*Quercus rubra*	Red Oak					
Tree	*Quercus velutina*	Black Oak					
Tree	*Rhus copallina*	Winged Sumac					
Tree	*Robinia psuedo-acacia*	Black Locust					
Tree	*Salix bebbiana*	Bebb Willow		x			
Tree	*Sassafras albidum*	Sassafras					
Tree	*Tilia americana*	American Basswood					
Tree	*Ulmus americana*	American Elm					
Vine	*Campsis radicans*	Trumpet Creeper					
Vine	*Celastrus orbiculatus*	Asiatic Bittersweet					
Vine	*Lonicera japonica*	Japanese Honeysuckle					
Vine	*Parthenocissus quinquefolia*	Virginia Creeper					
Vine	*Rhus radicans*	Poison Ivy					
Vine	*Rubus flagellaris*	Prickly Dewberry					
Vine	*Smilax glauca*	Catbrier					
Vine	*Smilax rotundifolia*	Common Greebrier					
Vine	*Vitis labrusca*	Fox Grape					
Vine	*Wisteria sinensis*	Chinese Wisteria					

Notes: Native plants are protected under Section 9-1503 of the Environmental Conservation Law, which states that it is a violation for any person, anywhere in the state, to pick, pluck, sever, remove, damage by the application of herbicides or defoliants, or carry away, without the consent of the owner, any protected plant. Each protected plant so picked, plucked, severed, removed, damaged or carried away shall constitute a separate violation (Young 2008).
Protected status in NYS: * = Endangered; **=Threatened; ***= Exploitably Vulnerable; ****=Native Ferns.
For ranks, see S. Young's New York Rare Plant Status Lists (June 2008).
Sources: Young (2008)

Table 2
Reptiles and amphibians observed within the project site

	Breeding confirmed	Adults only
Salamanders		
Eastern Red-backed Salamander *Plethodon cinereus*	x	
Northern Two-lined Salamander *Eurycea bislineata*		x
Toads and Frogs		
Eastern American Toad *Bufo americanus*	x	
Fowler's Toad *Bufo woodhousii*	x	
Spring Peeper *Pseudacris crucifer*	x	
American Bullfrog *Rana catesbeiana*	x	
Northern Green Frog *Rana clamitans*	x	
Turtles		
Snapping Turtle *Chelydra serpentina*	x	
Eastern Box Turtle *Terrapene carolina*		x
Red-eared Slider *Trachemys scripta*	x	
Painted Turtle *Chrysemys picta*	x	
Snakes		
DeKay's Brownsnake *Storeria dekayi*		x
Eastern Gartersnake *Thamnophis sirtalis*	x	
Eastern Racer *Coluber constrictor*		x
Milksnake *Lampropeltis triangulum*		x

Notes:
Sources: **AKRF Time-restricted searches and Incidental Observations, March to December 2008.**

Table 3
Birds observed within the project site

	Breeding	Flyover	Migratory	Wintering
Order ANSERIFORMES				
Family Anatidae — Swans, Geese, and Ducks				
Snow Goose *Chen caerulescens*		x	x	x
Atlantic Brant *Branta bernicla*		x	x	x
Canada Goose *B. canadensis* *	x		x	x
Mute Swan *Cygnus olor* (I)		x		
Tundra Swan *C. columbianus*		x	x	
Wood Duck *Aix sponsa*				x
Gadwall *Anas strepera*		x		
American Black Duck *A. rubripes*		x		
Mallard *A. platyrhynchos* *	x			
Green-winged Teal *A. crecca*			x	x
Hooded Merganser *Lophodytes cucullatus*			x	
Order GALLIFORMES				
Family Phasianidae — Partridges, Grouse, and Turkeys				
Ring-necked Pheasant *Phasianus colchicus* (I) *	x			
Wild Turkey *Meleagris gallopavo* (I?)*	x			
Order GAVIIFORMES				
Family Gaviidae — Loons				
Red-throated Loon *Gavia stellata*		x	x	
Order PELECANIFORMES				
Family Phalacrocoracidae — Cormorants				
Double-crested Cormorant *Phalacrocorax auritus*		x	x	
Great Cormorant *P. carbo*		x		x
Order CICONIIFORMES				
Family Ardeidae — Bitterns, Herons, and Allies				
Great Blue Heron *Ardea herodias*				x
Great Egret *A. alba*				
Snowy Egret *Egretta thula*				
Green Heron *Butorides virescens* *	x			
Black-crowned Night-Heron *Nycticorax nycticorax*				
Family Threskiornithidae — Ibises and Spoonbills				
Glossy Ibis *Plegadis falcinellus*				
Order FALCONIFORMES				
Family Cathartidae — American Vultures				
Black Vulture *Coragyps atratus*		x		
Turkey Vulture *Cathartes aura*		x		
Family Accipitridae —Eagles, Hawks and Allies				
Osprey *Pandion haliaetus*		x		
Northern Harrier *Circus cyaneus*				x
Sharp-shinned Hawk *Accipiter striatus*			x	x
Cooper's Hawk *A. cooperii*				
Broad-winged Hawk *Buteo platypterus*		x	x	
Red-tailed Hawk *B. jamaicensis*				
Family Falconidae — Caracaras and Falcons				
American Kestrel *Falco sparverius*			x	
Merlin *F. columbarius*			x	
Peregrine Falcon *F. peregrinus*		x		x
Order GRUIFORMES				
Family Rallidae — Rails, Gallinules, and Coots				
Virginia Rail *Rallus limicola*			x	

American Coot *Fulica americana*				x
Order CHARADRIIFORMES				
Family Charadriidae — Plovers				
Killdeer *Charadrius vociferus* *	x			
Family Scolopacidae — Sandpipers and Allies				
Spotted Sandpiper *Actitis macularius*				
Solitary Sandpiper *Tringa solitaria*			x	
Greater Yellowlegs *T. melanoleuca*			x	
Semipalmated Sandpiper *Calidris pusilla*			x	
Least Sandpiper *C. minutilla*			x	
Wilson's Snipe *Gallinago delicata*			x	
American Woodcock *Scolopax minor* *	x			
Family Laridae — Gulls, Terns, and Skimmers				
Laughing Gull *Leucophaeus atricilla*		x		
Ring-billed Gull *Larus delawarensis*		x		
Herring Gull *L. argentatus*		x		
Lesser Black-backed Gull *L. fuscus*				x
Great Black-backed Gull *L. marinus*				
Common Tern *S. hirundo*		x		
Forster's Tern *S. forsteri*		x		
Royal Tern *Thalasseus maximus*		x	x	
Black Skimmer *Rynchops niger*		x		
Order COLUMBIFORMES				
Family Columbidae — Pigeons and Doves				
Rock Pigeon *Columba livia* (I) *	x			
Mourning Dove *Z. macroura* *	x			
Order CUCULIFORMES				
Family Cuculidae — Cuckoos				
Yellow-billed Cuckoo *Coccyzus americanus* *	x			
Black-billed Cuckoo *C. erythropthalmus*			x	
Order STRIGIFORMES				
Family Tytonidae — Barn Owls				
Barn Owl *Tyto alba*				
Family Strigidae — Typical Owls				
Eastern Screech-Owl *Megascops asio*				
Great Horned Owl *Bubo virginianus*				
Northern Saw-whet Owl *A. acadicus*			x	
Order CAPRIMULGIFORMES				
Family Caprimulgidae — Goatsuckers				
Common Nighthawk *Chordeiles minor*			x	
Chuck-will's-widow *Caprimulgus carolinensis*				
Order APODIFORMES				
Family Apodidae — Swifts				
Chimney Swift *Chaetura pelagica*		x		
Family Trochilidae — Hummingbirds				
Ruby-throated Hummingbird *Archilochus colubris*			x	
Order CORACIIFORMES				
Family Alcedinidae — Kingfishers				
Belted Kingfisher *Megaceryle alcyon*				
Order PICIFORMES				
Family Picidae — Woodpeckers				
Red-bellied Woodpecker *M. carolinus* *	x		x	x
Yellow-bellied Sapsucker *S. varius*			x	
Downy Woodpecker *Picoides pubescens* *	x		x	x
Hairy Woodpecker *P. villosus* *	x		x	x

Northern Flicker *Colaptes auratus* *	x			
Order PASSERIFORMES				
Family Tyrannidae — Tyrant Flycatchers				
Eastern Wood-Pewee *C. virens* *	x			
Yellow-bellied Flycatcher *Empidonax flaviventris*			x	
Acadian Flycatcher *E. virescens*			x	
Willow Flycatcher *E. traillii* *	x			
Least Flycatcher *E. minimus*			x	
Eastern Phoebe *Sayornis phoebe*			x	
Great Crested Flycatcher *M. crinitus* *	x			
Eastern Kingbird *T. tyrannus* *	x			
Family Vireonidae — Vireos				
White-eyed Vireo *Vireo griseus* *	x			
Blue-headed Vireo *V. solitarius*			x	
Warbling Vireo *V. gilvus* *	x			
Red-eyed Vireo *V. olivaceus* *	x		x	
Family Corvidae — Jays and Crows				
Blue Jay *Cyanocitta cristata* *	x		x	x
American Crow *Corvus brachyrhynchos* *	x			
Fish Crow *C. ossifragus*			x	x
Family Alaudidae — Larks				
Horned Lark *Eremophila alpestris*			x	
Family Hirundinidae — Swallows				
Purple Martin *Progne subis*		x	x	
Tree Swallow *Tachycineta bicolor*		x		x
Northern Rough-winged Swallow *Stelgidopteryx serripennis*		x		
Bank Swallow *Riparia riparia*		x	x	
Barn Swallow *Hirundo rustica* *	x			
Family Paridae — Chickadees and Titmice				
Black-capped Chickadee *Poecile atricapillus* *	x			x
Tufted Titmouse *Baeolophus bicolor* *	x			x
Family Sittidae — Nuthatches				
Red-breasted Nuthatch *Sitta canadensis*			x	x
White-breasted Nuthatch *S. carolinensis* *	x			x
Family Certhiidae — Creepers				
Brown Creeper *Certhia americana*			x	
Family Troglodytidae — Wrens				
Carolina Wren *Thryothorus ludovicianus* *	x			
House Wren *Troglodytes aedon* *	x			
Winter Wren *T. troglodytes*			x	
Family Regulidae — Kinglets				
Golden-crowned Kinglet *Regulus satrapa*			x	x
Ruby-crowned Kinglet *R. calendula*			x	x
Family Sylviidae — Gnatcatchers				
Blue-gray Gnatcatcher *Polioptila caerulea* *	x		x	
Family Turdidae — Thrushes				
Eastern Bluebird *Sialia sialis*			x	
Veery *Catharus fuscescens*			x	
Gray-cheeked Thrush *C. minimus*			x	
Swainson's Thrush *C. ustulatus*			x	
Hermit Thrush *C. guttatus*			x	x
Wood Thrush *Hylocichla mustelina* *	x		x	
American Robin *T. migratorius* *	x		x	x
Family Mimidae — Mockingbirds, Thrashers, and Allies				
Gray Catbird *Dumetella carolinensis* *	x			x

Northern Mockingbird *Mimus polyglottos* *	x			x
Brown Thrasher *Toxostoma rufum* *	x			
Family Sturnidae — Starlings				
European Starling *Sturnus vulgaris* (I) *	x		x	x
Family Motacillidae — Pipits				
American Pipit *Anthus rubescens*		x	x	
Family Bombycillidae — Waxwings				
Cedar Waxwing *B. cedrorum* *	x		x	x
Family Parulidae — Wood Warblers				
Blue-winged Warbler *Vermivora pinus* *	x		x	
Tennessee Warbler *V. peregrina*			x	
Orange-crowned Warbler *V. celata*			x	
Nashville Warbler *V. ruficapilla*			x	
Northern Parula *Parula americana*			x	
Yellow Warbler *Dendroica petechia* *	x			
Chestnut-sided Warbler *D. pensylvanica*			x	
Magnolia Warbler *D. magnolia*			x	
Cape May Warbler *D. tigrina*			x	
Black-throated Blue Warbler *D. caerulescens*			x	
Yellow-rumped Warbler *D. coronata*			x	x
Black-throated Green Warbler *D. virens*			x	
Blackburnian Warbler *D. fusca*			x	
Pine Warbler *D. pinus*			x	
Prairie Warbler *D. discolor*			x	
Palm Warbler *D. palmarum*			x	
Bay-breasted Warbler *D. castanea*			x	
Blackpoll Warbler *D. striata*			x	
Black-and-white Warbler *Mniotilta varia*			x	
American Redstart *Setophaga ruticilla* *	x		x	
Ovenbird *Seiurus aurocapilla*			x	
Northern Waterthrush *S. noveboracensis*			x	
Kentucky Warbler *Oporornis formosus*			x	
Mourning Warbler *O. philadelphia*			x	
Common Yellowthroat *Geothlypis trichas* *	x		x	
Hooded Warbler *Wilsonia citrina*			x	
Wilson's Warbler *W. pusilla*			x	
Canada Warbler *W. canadensis*			x	
Yellow-breasted Chat *Icteria virens*			x	
Family Thraupidae - Tanagers				
Scarlet Tanager *P. olivacea*			x	
Family Emberizidae - Sparrows				
Eastern Towhee *P. erythrophthalmus* *	x			
American Tree Sparrow *Spizella arborea*				x
Chipping Sparrow *S. passerina*			x	
Field Sparrow *S. pusilla* *	x			x
Savannah Sparrow *Passerculus sandwichensis*				x
Fox Sparrow *Passerella iliaca*			x	x
Song Sparrow *Melospiza melodia* *	x		x	x
Lincoln's Sparrow *M. lincolnii*			x	
Swamp Sparrow *M. georgiana*			x	
White-throated Sparrow *Zonotrichia albicollis*			x	x
White-crowned Sparrow *Z. leucophrys*				x
Dark-eyed Junco *Junco hyemalis*				x
Family Cardinalidae — Grosbeaks and Buntings				
Northern Cardinal *Cardinalis cardinalis* *	x			x

Rose-breasted Grosbeak *Pheucticus ludovicianus*			x	
Indigo Bunting *P. cyanea* *	x			
Family Icteridae — Blackbirds				
Bobolink *Dolichonyx oryzivorus*		x	x	
Red-winged Blackbird *Agelaius phoeniceus* *	x			
Eastern Meadowlark *Sturnella magna*			x	
Rusty Blackbird *Euphagus carolinus*			x	
Common Grackle *Quiscalus quiscula* *	x		x	
Brown-headed Cowbird *Molothrus ater* *	x			
Orchard Oriole *Icterus spurius*				
Baltimore Oriole *I. galbula* *	x			
Family Fringillidae — Fringilline and Cardueline Finches				
Purple Finch *Carpodacus purpureus*		x		x
House Finch *C. mexicanus* (I) *	x			x
Common Redpoll *Carduelis flammea*				x
Pine Siskin *C. pinus*				x
American Goldfinch *C. tristis* *	x			x
Family Passeridae — Old World Sparrows				
House Sparrow *Passer domesticus* (I) *	x		x	x
Total: 174 species	53 species			
Notes: * = Possible, probable or confirmed as breeder on the basis of point counts conducted from late May to mid July. Status of state or federally listed species is discussed in the "Rare, Special Concern, Threatened and Endangered Species" section				
Sources: **AKRF point counts and incidental observations, October 2007-December 2008.**				

Table 4
Mammals observed within the project site

	Breeding confirmed	Adults only
Marsupials		
Virginia Opossum *Didelphis virginiana*	x	
Shrews and Moles		
Northern Short-tailed Shrew *Blarina brevicauda*		x
Eastern Mole *Scalopus aquaticus*		x
Bats		
Little Brown Bat *Myotis lucifugus*		x
Big Brown Bat *Eptesicus fuscus*		x
Red Bat *Lasiurus borealis*		x
Canids		
Feral Dog *Canis lupus familiaris*		x
Raccoon		
Raccoon *Procyon lotor*	x	
Mustelids		
Striped Skunk *Mephitis mephitis*		x
Felids		
Feral Cat *Felis catus*	x	
Ungulates		
White-tailed Deer *Odocoileus virginianus*	x	
Rodents		
Eastern Chipmunk *Tamias striatus*		x
Woodchuck *Marmota monax*		x
Gray Squirrel *Sciurus carolinensis*	x	
White-footed Mouse *Peromyscus leucopus*	x	
Meadow Vole *Microtus pennsylvanicus*	x	
Muskrat *Ondatra zibethicus*		x
Norway Rat *Rattus norvegicus*		x
House Mouse *Mus musculus*		x
Rabbits and Hares		
Eastern Cottontail *Sylvilagus floridanus*	x	

Notes:
Sources: **AKRF cover board and track board surveys and incidental observations, October 2007-December 2008.**

Table 5
Insects observed within the project site

Dragonflies and Damselflies		NY Status
Green Darner	*Anax junius*	
Comet Darner	*Anax longipes*	NYS-S2
Azure Bluet	*Enallagma aspersum*	
Eastern Pondhawk	*Erythemis simplicicollis*	
Fragile Forktail	*Ischnura posita*	
Common Forktail	*Ischnura verticalis*	
Blue Dasher	*Pachydiplax longipennis*	
Wandering Globetrotter	*Pantala flavescens*	
Common Whitetail	*Plathemis (Libellula) lydia*	
Autumn Meadowhawk	*Sympetrum vicinum*	
Carolina Saddlebags	*Tramea carolina*	
Black Saddlebags	*Tramea lacerata*	
Red Saddlebags	*Tramea onusta*	
Butterflies and moths		
Viceroy	*Limenitis archippus*	
Spring Azure	*Celastrina neglecta*	
Orange Sulphur	*Colias eurytheme*	
Monarch	*Danaus plexippus*	
Silver Spotted Skipper	*Epargyreus clarus*	
Hummingbird Clearwing	*Hemaris thysbe*	
Grass Skipper (unid)	Hesperiinae	
Gian Leopard Moth	*Hypercompe scribonia*	
Gypsy Moth	*Lymantria dispar*	
Eastern Tent Caterpillar Moth	*Malacosoma americanum*	
Little Wood Satyr	*Megisto cymela*	
Mourning Cloak	*Nymphalis antiopa*	
Eastern Tiger Swallowtail	*Papilio glaucus*	
Black Swallowtail	*Papilio polyxenes*	
Spicebush Swallowtail	*Papilio troilus*	
Cloudless Sulphur	*Phoebis sennae*	
Pearl Crescent	*Phyciodes tharos*	
Cabbage White	*Pieris rapae*	
Zabulon Skipper	*Poanes zabulon*	
Eastern Comma	*Polygonia comma*	
Question Mark	*Polygonia interrogationis*	
Wooly Bear	*Pyrrharctia isabella*	
Large Lace Border	*Scopula limboundata*	
Painted Lady	*Vanessa cardui*	
American Lady	*Vanessa virginiensis*	
Red Admiral	*Vanessa atalanta*	
Additional species		
Field Cricket (unid)	*Gryllus* spp	
Round-headed Katydid (unid)	*Amblycorypha* spp	
Lone Star Tick	*Amblyomma americanum*	
Broad Nosed Weevil	*Aphrastus taeniata*	
Honey Bee	*Apis mellifera*	
Yellow Garden Spider	*Argiope aurantia*	
Eastern Boxelder Bug	*Boisea trivittata*	
Blowfly (unid)	Calliphoridae	
Carpenter Ant	*Camponotus chromaiodes*	
Black Carpenter Ant	*Camponotus pennsylvanicus*	

Lesser Meadow Katydid (unid)	*Conocephalus* spp	
American Dog Tick	*Dermacentor variabilis*	
Carolina Grasshopper	*Dissosteira carolina*	
Crane Fly	*Epiphragma solatrix*	
Leafhopper	*Graphocephala versuta*	
Brown Marmorated Stink Bug	*Halyomorpha halys*	
Ichneumonid Wasp (unid)	Ichneumonidae	
Deer Tick	*Ixodes scapularis*	
Leaf-footed Bug (unid)	*Leptoglossus* spp	
Orchard Orbweaver	*Leucauge venusta*	
Red-legged Grasshopper	*Melanoplus femurrubrum*	
Pine Tree Spurthroat Grasshopper	*Melanoplus punctulatus*	
Large Milkweed Bug	*Oncopeltus fasciatus*	
Common Woodlouse	*Oniscus asellus*	
Nursery Web Spider	*Pisaurina mira*	
European Paper Wasp	*Polistes dominula*	
Eastern Cicada Killer	*Sphecius speciosus*	
Chinese Mantid	*Tenodera aridifolia sinensis*	
Orbweaver Spider (unid)	*Tetragnatha* spp	
Pygmy Grasshopper	*Tetrix subulata*	
Swamp Cicada	*Tibicen tibicen*	
Yellowjacket (unid)	*Vespula* spp	
Notes:	State Rank: NYS-S2 = imperiled in New York State	
Sources:	**Time-restricted searches and targeted wetland surveys conducted by AKRF Natural Resources field staff, October 2007-October 2008. Additional field assistance on odonate surveys by Ellen Pehek and Susan Stanley, NYCDPR-NRG (8 July 2008)**	

Table 6

Rare, special concern, threatened and endangered species reported to occur in the vicinity of the Charleston, Staten Island project site

FLORA		STATUS
Bristly Sarsaparilla	*Aralia hispida*	O
White Milkweed	*Asclepias variegata*	P
Saltmarsh Aster	*Aster subulatus*	P
River Birch	*Betula nigra*	C
Terrestrial Starwort	*Callitriche terrestris*	P
Collins' Sedge	*Carex collinsii*	P
Slender Spikegrass	*Chasmanthium laxum*	P
Dwarf Hawthorn	*Crataegus uniflora*	P
Wild Comfrey	*Cynoglossum virginianum*	P
Retrorse Flatsedge	*Cyperus retrorsus*	P
Little-leaf Tick-trefoil	*Desmodium ciliare*	P
Smooth Tick-clover	*Desmodium laevigatum*	P
Nuttall's Tick-clover	*Desmodium nuttallii*	P
Slender crabgrass	*Digitaria filiformis*	P
Persimmon	*Diospyros virginiana*	P
American Strawberry Bush	*Euonymus americanus*	O
Fringed Boneset	*Eupatorium hyssopifolium var. laciniatum*	O
Round-leaved Boneset	*Eupatorium rotundifolium var. rotundifolum* *Eupatorium rotundifolium var.ovatum*	O
Wild Ipecac	*Euphorbia ipecacuahae*	P
Soapwort Gentian	*Gentiana saponaria*	P
Carolina Cranesbill	*Geranium carolinianum*	P
Swamp Pink	*Helonias bullata*	P
Flax-leaved Whitetop	*Ionactis linarilfolius*	P
Wild Potato-vine	*Ipomoea pandurata*	P
Scirpus-like Rush	*Juncus scirpoides*	P
Bead Pinweed	*Lechea pulchella var moniliformis*	P
Pale Duckweed	*Lemna valdiviana*	P
Velvety Lespedeza	*Lespedeza stuevei*	O
Wolf's claw	*Lycopodium clavatum*	P
Ground Pine	*Lycopodium obscurum*	P
Sweet-bay Magnolia	*Magnolia virginiana*	P
Few-flowered Panic Grass	*Panicum oligosanthes var oligosanthes*	P
Downy Rattlesnake Plantain	*Peramium pubescens*	P
Ground-cherry	*Physalis pruinosa*	P
Shortleaf pine	*Pinus echinata*	C
Virginia Pine	*Pinus virginiana*	C
Torrey's Mountain-mint	*Pycnanthemum torrei*	O
Whorled Mountain-mint	*Pycnanthemum verticillatum*	P
Round-leaved Pyrola	*Pyrola americana*	C
Blackjack Oak	*Quercus marilandica*	C
Willow Oak	*Quercus phellos*	P
Sand Blackberry	*Rubus cuneifolius*	P
Rose Pink	*Sabatia angularis*	P
Hyssop-skullcap	*Scutellaria integrifolia*	P
Michaux's Blue-eyed Grass	*Sisyrinchium mucronatum*	P
Seaside Goldenrod	*Soidago sempervirens*	P
Wild Pink Bean	*Strophostyles umbellata*	P
Ohio spiderwort	*Tradescantia ohiensis*	P
Virginia spiderwort	*Tradescantia virginiana*	P

Tiny Blue Curls	*Trichostema oblongum*	P
Possum-haw	*Viburnum nudum*	P
Primrose Violet	*Viola primulifolia var primulifolia*	P
FAUNA		
Tawny Emperor Butterfly	*Asterocampa clyton*	P
Whip-poor-will	*Caprimulgus vociferus*	P
Spotted Turtle	*Clemmy guttata*	P
Wood Turtle	*Clemmys insculpta*	P
Northern Harrier	*Circus cyaneus*	C (foraging)
Eastern Mud Turtle	*Kinosternon subrubrum*	P
Bar-winged Skimmer	*Libellula acilena*	P
Yellow-sided Skimmer	*Libellula flavida*	P
Osprey	*Pandion haliaetus*	C (flyover)
Fence Lizard	*Sceloporus undulatus*	P

Notes: Status is as follows: C = Confirmed during 2007-2008 study; O = Observed during 2007-2008 study, identification pending review by NYNHP; P = Previously observed within the study area; not observed within the project site during his study.

Sources: Information requests from NYNHP regarding rare, special concern, threatened and endangered species in the vicinity of the project site, from the following documents: Bricktown Centre at Charleston FEIS (2002), Fairview Park Modified EAS (2005), Charleston Bus Annex EA (2007). Additional information from *Evans, D., P. Novak and T. Weldy. 2002. Rare species and ecological communities of Clay Pit Ponds State Park.*

APPENDIX A: PROJECT SITE PHOTOGRAPHS

[TO COME]

APPENDIX B: REPORT ON ENGLEWOOD AVENUE CORRIDOR WETLANDS DELINEATION, AUGUST-OCTOBER 2008

This report pertains to AKRF's wetlands delineation efforts in the Englewood Avenue Corridor of the project site in Charleston, Staten Island. The delineation was conducted by AKRF, with input from NYCDPR-NRG, between August and October 2008. Control Point Associates, Inc. surveyed the flagged boundaries in mid-October 2008, and produced a wetlands delineation sketch on October 29, 2008 (Control Point Associates, Inc. 2008).

H. INTRODUCTION:

AKRF's wetland inspection targeted the Englewood Avenue corridor, located along the northern boundary of the Charleston Natural Resources Survey project site. The wetland inspection extended along Englewood Avenue southwards into the project site a distance of 80 feet, as shown in Figure B-1. Wetland areas identified within this zone (Wetlands A-D, F and G) were identified and flagged in accordance with the US Army Corps of Engineers' (USACE) Wetland Delineation Methodology (1987). The flagging of the identified wetlands was extended southwards into the project site until positive wetland indicators were no longer present. This resulted in the flagging of several wetland areas beyond the footprint of Englewood Avenue – most notably, the wetland system comprised of Wetlands "C", "D", and "F". This wetland system extends southwards well into the subject parcel following the path of surface drainage tributary to Mill Creek. The other three wetland areas, Wetlands "A", "B", and "G", are located in closer proximity to the mapped portion of Englewood Avenue. Figures B-2 to B-9 indicate all current National Wetlands Inventory (NWI) and New York State Department of Environmental Conservation (NYSDEC) mapped wetlands at, and in the vicinity of, the project site. USACE Routine Wetland Determination Data Forms for upland and wetland data points are also provided below.

I. WETLAND AREA DESCRIPTIONS

WETLAND AREAS A AND B

Wetlands A and B are located within a level portion of the project site that has been maintained in a cleared, open field and successional field condition. Portions of both wetland areas extend into the existing footprint of the dirt path/road within the mapped portion of Englewood Avenue.

WETLAND A:

Wetland A is an area of low topography, characterized by a wet depressional area. This area is interrupted at points by small upland pockets; this area was subject to recent clearing for the Fairview Park project, and appears to be maintained as open habitat by the informal recreational uses ongoing within the site (e.g., horseback riding). These small upland pockets are vegetated with successional plant species. In general, the vegetation in this area can be described generally as a wet shrubland; trees are limited to saplings or small trees, and

herbaceous vegetation is prominent. The upland pockets are dominated by gray birch (*Betula populifolia*) (FAC), quaking aspen (*Populus tremuloides*), and pin oak (Quercus palustris). Dominant species in the wet depressional areas include soft rush (*Juncus effusus*), lance-leaved goldenrod (*Euthamia graminifolia*), switch grass (*Panicum virgatum*), and toad rush (*Juncus bufonius*). Associated species include common greenbrier (*Smilax rotundifolia*), late boneset (*Eupatorium serotinum*), hairy boneset (*Eupatorium pilosum*), and tapered rosette grass (*Dichanthelium acuminatum*). Hydric soils are present throughout the area.

WETLAND B:

Wetland B is located immediately east of Wetland A, and extends from the footprint of Englewood Avenue into an open successional field, portions of which are used currently for horseback riding. It is dominated by herbaceous wetland species (*Scirpus* sp., *Juncus* sp., *Carex* sp.) and shows evidence of surface ponding as observed over several site inspections between May and December 2008. The extent of the cleared area surrounding this wetland was expanded in the recent past (approximately 2002) by the NYC Department of Parks and Recreation for the Fairview Park project.

Wetland B contains vegetated mounds of soil bordering the unbuilt portion of Englewood Avenue. The mounds of soil are remnants of recent earth moving activities that were associated with the preliminary stages of the Fairview Park project, and vegetation is actively grazed by domesticated horses. Currently, this area contains wet depressions dominated by hydrophytic vegetation and hydric soils. Dominant vegetation within the wet depressions are characterized by the obligate species of blunt spike rush (*Eleocharis obtusa*) and FACW/+ species of toad rush (*Juncus bufonius*), coast cockspur grass (*Echinochloa walteri*), and soft rush (*Juncus effusus*). Lance-leaved goldenrod (*Euthamia graminifolia*) and grass that JIM identified (formerly thought to be Poa pratensis) are also present. Although the surface of the soils in these depressions can be characterized as rocky fill, hydric soils are present and display dark manganese concretions at depths below six inches.

Upland areas associated with Wetland B include hyssop-leaved boneset (*Eupatorium hyssopifolium*), lance-leaved goldenrod (*Euthamia graminifolia*), birds-foot trefoil (*Lotus corniculatus*) and English plantain (*Plantago lanceolata*). Soils in the upland area demonstrate a silty loam with some low chroma colors and some mottling, though hydrophytic vegetation and hydrology do not appear to be present.

Hydric soil indicators encompass a larger area than flagged as Wetland B, extending into much of the remaining portions of the cleared area dominated by herbaceous plants. However, evidence of wetland hydrology and vegetation is not uniform throughout the field area. Therefore, the extent of Wetland B was limited by vegetation/hydrology indicators, and flagged in a closed loop (B-1 to B-26). Wetland B was found to be one of a number of discrete wetland areas in the field. Additional wetland areas observed are not contiguous with Wetland B and are located beyond the 80 foot investigation area adjacent to Englewood Avenue. Therefore, the additional wetland areas observed in the field were not included in the delineation of Englewood Avenue wetlands.

WETLAND AREAS C, D AND F

Wetland Areas C, D, and F appear to constitute one wetland system which conveys surface water flows across Englewood Avenue southwards, through two large culverts and eventually into the Mill Creek watershed.

Wetlands flagged as "C", "D" and F" are mapped by both the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) as shown in Figure B-7, and the New York State Department of Environmental Conservation (NYSDEC) as shown in Figures B-2 and B-4. The NWI classification of this wetland system is "PFO1B – palustrine forested, broad-leaved deciduous, saturated" within its more northerly segment and "R2UBH – riverine, lower perennial, unconsolidated bottom, permanently flooded" within the more linear segments to the south. The New York State wetland identification number for this wetland system is "AR-27".

New York State has also mapped a classified stream within this wetland system. This stream is known as "Mill Creek" and is classified a "Class C" stream (Figure B-6). Mill Creek flows southwards from the project site into Richmond Valley and then westwards eventually tributary to the Arthur Kill tidal river.

Due to the fact that this wetland system is mapped at the Federal and State level, and is a NYSDEC classified stream, AKRF extended the delineation southwards beyond Englewood Avenue. Site inspection confirms that Wetland Areas "C", "D" and "F" form a system of interconnected wetlands that were formerly one uninterrupted stream/wetland complex.

DRAINAGE

This wetland system is directly adjacent and appear to be hydrologically connected to the offsite Sharrott's Pond wetland system (NYSDEC Wetland AR-11, Figure B-3) located immediately north of Englewood Avenue within Clay Pit Ponds State Park Preserve. The relationship of the onsite and offsite wetland systems is shown in Figure B-4. Surface flows connecting these wetland systems were evident across the dirt path that now represents Englewood Avenue. As such, the survey drawing prepared for this delineation report indicates that the offsite and onsite wetland systems are contiguous. No wetland flags were placed north of Englewood Avenue within NYSDEC property, as permission was not received for this project.

It appears that surface and subsurface water flows southwards from the offsite Sharrott's Pond wetland, through Wetland Area C, then into a newly-built culvert in the retaining wall of the parking lot serving the Bricktown Centre shopping mall (north of the present Christmas Tree Shops). Formerly, surface drainage proceeded southwards as "Mill Creek" from Wetland Area C through Wetland Area D and Wetland Area F before exiting the project site at Veteran's Parkway. Currently, surface drainage from Wetland C is piped directly to Wetland F; under heavy flow conditions, there is a potential for surface flow to pass along the retaining wall and enter Wetland D. Wetland D also has a large culvert at its southern terminus, which connects southward into Wetland F.

WETLAND C:

Wetland Area "C" is a forested wetland dominated by red maple (*Acer rubrum*) and pin oak (*Quercus palustris*) with some occurrence of additional facultative species including sweetgum (*Liquidambar styraciflua*) and elderberry (*Sambucus canadensis*). It was flagged C-1 to C-20.

WETLAND D:

Wetland "D" is a linear wetland feature formerly connected via surface runoff to Wetland "C". This wetland conveys surface water through young oak, sassafras and black gum forest and is mapped by NYSDEC as the classified stream "Mill Creek". Dominant plants within and adjacent to Wetland D include red maple, black gum, greenbrier and pin oak. Construction of the shopping mall appear to have separated this wetland from historic upstream water sources – examination of the retaining wall built as part of the "Christmas Tree Shops" shows no culvert. As mentioned above, periods of heavy flow may contribute water from the north to Wetland D via the retaining wall; it is apparent that positive wetland indicators persist.

It was flagged as a center-line (linear) wetland feature D-1 to D-7. The area exhibiting positive Federal wetland indicators is limited to the drainage feature and its immediate banks – approximately 8' in width.

WETLAND F:

Wetland "F" is also a linear wetland feature conveying the flows of "Mill Creek" through the project site as described above. This segment of was flagged F-1 to F-8.

Wetland F is best described as an ephemeral drainage area, and as noted above, appears to have formerly been connected to a larger wetland complex now occupied by a portion of the Bricktown Centre development. This drainage area can be described as having a number of eroded gullies that connect to a larger arterial drainage corridor. The bed of the drainage area contains medium to large sized cobble, sand, and in some areas, the banks are eroded. Standing water is present in a pool located in an area close to the roadway leading to the Bricktown Centre development that bisects the drainage way.

Vegetation in the vicinity of Wetland F and along the drainage way corridor is largely dominated by red maple (*Acer rubrum*) in the canopy. Black gum (*Nyssa sylvatica*), sweet gum (*Liquidambar styraciflua*), big-tooth aspen (*Populus grandidentata*), and sumac (*Rhus* sp.) species are also present. In the subcanopy, sassafras (*Sassafras albidum*) is present. The shrub layer is largely dominated high bush blueberry (*Vaccinium corymbosum*) and maple-leaf viburnum (*Vibrunum acerifolium*). Species of juneberry (*Amelanchier* sp.) are also present. Species in the herbaceous layer include hayscented fern (*Dennstaedtia punctilobula*), bracken fern (*Pteridium aquilinum*), blackberry (*Rubus allegheniensis*), Canada mayflower (*Maianthemum canadense*), round-leaved pyrola (*Pyrola rotundifolia*), and seedlings of the abovementioned woody species. Early spring vegetation surveys also show that a spring ephemeral, trout lily (*Erythronium americanum*), occurs in this area. Roundleaf greenbrier (*Smilax rotundifolia*) and cat greenbrier (*Smilax glauca*) is present in both the herbaceous and shrub layers.

WETLAND AREA G

Wetland G is an isolated depression dominated by pin oak and red maple. It is located in close proximity to Englewood Road, and was flagged G-1 to G-6. It appears to be an ephemeral wet depression that receives surface water seasonally from the surrounding higher ground; there is a substantial amount of debris in the vicinity of this wet depression, suggesting past disturbance and possible excavation.

J. SOILS:

The Natural Resources Conservation Service (NRCS) has mapped the following two soil mapping units for the project site:

Western portion of Site – Wetlands A and B: *Wethersfield-Ludlow-Wilbraham complex, 0 to 8 percent slopes*

Nearly level to gently sloping areas of till plains, relatively undisturbed and mostly wooded; a mixture of well drained, moderately well drained, and poorly drained soils developed in red till; located in Staten Island. The Willbraham Series is designated a Hydric Soil per National Technical Committe for Hydric Soil (NTCHS). Its taxonomy is an "Aquic Dystrochrept".

Eastern portion of Site – Wetlands C, D, F and G: *Wethersfield-Ludlow complex, 8 to 15 percent slopes*

Strongly sloping to moderately steep areas of till plains and hills, relatively undisturbed and mostly wooded; a mixture of well drained and moderately well drained soils developed in red till; located in Staten Island.

Site inspection confirms these soil types on the project site. Due to the prevalence of red parent material in both of these soil mapping units, AKRF used the test indicator for hydric soils "TF2: Red Parent Material" (Field Indicators of Hydric Soil in the United States, 2006) for several areas – most notably Wetland "C". Past communications with Paul Smith of the NRCS, New York City Field Office, have confirmed the presence of soils derived from red sandstone/siltstone in this region of Staten Island and the likelihood of encountering hydric soil without low chroma colors as a result.

Wethersfield series

Parent Material: Dense basal till derived mainly from red sedimentary rocks

Landform: Till plains and hills

Depth to Bedrock: Very deep

Drainage Class: Well drained

Permeability: Moderately rapid or moderate in the solum; slow or very slow in the dense substratum

Soil Texture: Silt loam, loam, or sandy loam throughout

Coarse Fragments: 5 to 25 percent rock fragments in the solum; 5 to 35 percent in the substratum

Range in Soil pH: Extremely acid to mildly alkaline

Hydrologic Soil Group: C

Typical Soil Profile:

A 0 to 3 inches - dark brown (7.5YR 3/2) loam; moderate medium granular structure; friable; 10 percent gravel; strongly acid.

Bw1 3 to 13 inches - reddish brown (5YR 4/4) loam; weak medium subangular blocky structure; friable; 10 percent gravel; strongly acid.

Bw2 13 to 27 inches - dark reddish brown (5YR 3/3) gravelly loam; weak medium subangular blocky structure; friable; 10 percent gravel and 5 percent cobbles; strongly acid.

Cd 27 to 65 inches - reddish brown (2.5YR 4/4) gravelly loam; weak thick platy structure; very firm and brittle; few silt films and black coatings on some plates; 15 percent gravel and 5 percent cobbles; strongly acid.

Ludlow series

Parent Material: Dense basal till derived mainly from red sedimentary rocks and basalt

Depth to Bedrock: Very deep

Drainage Class: Moderately well drained

Permeability: Moderate in the solum; slow or very slow in the substratum

Soil Texture: Loam or sandy loam in the solum; sandy loam in the substratum where pockets or thin lenses of loamy sand may be found

Coarse Fragments: 5 to 25 percent in the solum; 5 to 35 percent in the substratum

Range in Soil pH: Very strongly acid to moderately acid

Hydrologic Soil Group: C

Typical Soil Profile:

Ap 0 to 8 inches; dark brown (7.5YR 3/2) silt loam; weak coarse granular structure; friable; 8 percent gravel; strongly acid.

Bw1 8 to 20 inches – reddish brown (5YR 4/4) silt loam; weak coarse subangular blocky structure; friable; 10 percent gravel; strongly acid.

Bw2 20 to 26 inches – dark reddish brown (5YR 3/4) silt loam; weak coarse subangular blocky structure; friable; 12 percent gravel; common medium distinct pinkish gray (5YR 6/2) and common medium prominent strong brown (7.5YR 5/8) redoximorphic features; strongly acid.

Cd 26 to 65 inches – dark reddish brown (2.5YR 3/4) gravelly loam; weak thick platy structure; very firm and brittle; thin patchy silt films and black (10YR 2/1) manganese coatings on some plates; 15 percent gravel and 5 percent cobbles; few fine distinct reddish gray (5YR 5/2) redoximorphic features; strongly acid.

Wilbraham series

Parent Material: Dense basal till derived mainly from red sedimentary rocks

Landform: Till plains and hills

Depth to Bedrock: Very deep

Drainage Class: Poorly drained

Permeability: Moderate in the solum; slow or very slow in the dense substratum

Soil Texture: Silt loam or loam in the surface; silt loam, loam, or fine sandy loam in the subsoil and substratum

Coarse Fragments: 5 to 25 percent rock fragments in the solum; 5 to 35 percent in the substratum

Range in Soil pH: Very strongly acid to moderately acid

Hydrologic Soil Group: D

Typical Soil Profile:

A 0 to 4 inches - very dark gray (10YR 3/1) silt loam; weak medium granular structure; very friable; 5 percent gravel; strongly acid.

Bw1 4 to 8 inches - dark reddish brown (5YR 3/3) silt loam; weak coarse subangular blocky structure; very friable; common medium prominent pinkish gray (7.5YR 6/2) redoximorphic features; 10 percent gravel; strongly acid.

Bw2 8 to 20 inches - reddish brown (5YR 4/4) silt loam; weak coarse subangular blocky structure; friable; common medium prominent reddish gray (5YR 5/2) redoximorphic features; 10 percent gravel and 3 percent cobbles; strongly acid.

Cd 20 to 65 inches - dark reddish brown (5YR 3/3) gravelly loam; weak thick platy structure; very firm and brittle; silt films and black (10YR 2/1) coatings on some plates; many medium distinct brown (7.5YR 5/2) and dark brown (7.5YR 4/4) redoximorphic features; 20 percent gravel and 5 percent cobbles; strongly acid.

K. RECOMMENDATION

It is important to note that the wetland delineation effort performed by AKRF in August to October 2008 flagged only those wetlands contiguous with Englewood Avenue. As part of AKRF's ongoing ecological work onsite, numerous additional wetland areas, and potential wetland areas, have been identified outside of the Englewood Avenue investigation area (See Figure 11 within the final report). These additional wetland areas have not been flagged as part of the 2008 wetlands delineation within the Englewood Avenue Corridor. It is AKRF's recommendation that the NYC Economic Development Corporation (EDC) request a Jurisdictional Determination (JD) Site Inspection from the Army Corps of Engineers (USACE) to confirm the boundaries of those wetlands delineated and described in this report, after which the regulatory status of additional wetlands areas throughout the project can be determined.

Many of these additional wetland areas occur in isolated depressions, or qualify as wetlands based on soil parameters specific to red parent material. Although the USACE has previously noted their intention to take jurisdiction over some of these potential wetland areas (see EEA 2004), before proceeding on a lengthy delineation of the entire property, complicated by highly variable site conditions, we recommend receiving input from the USACE – the one regulatory body with authority for freshwater wetlands within New York City.

FIGURES

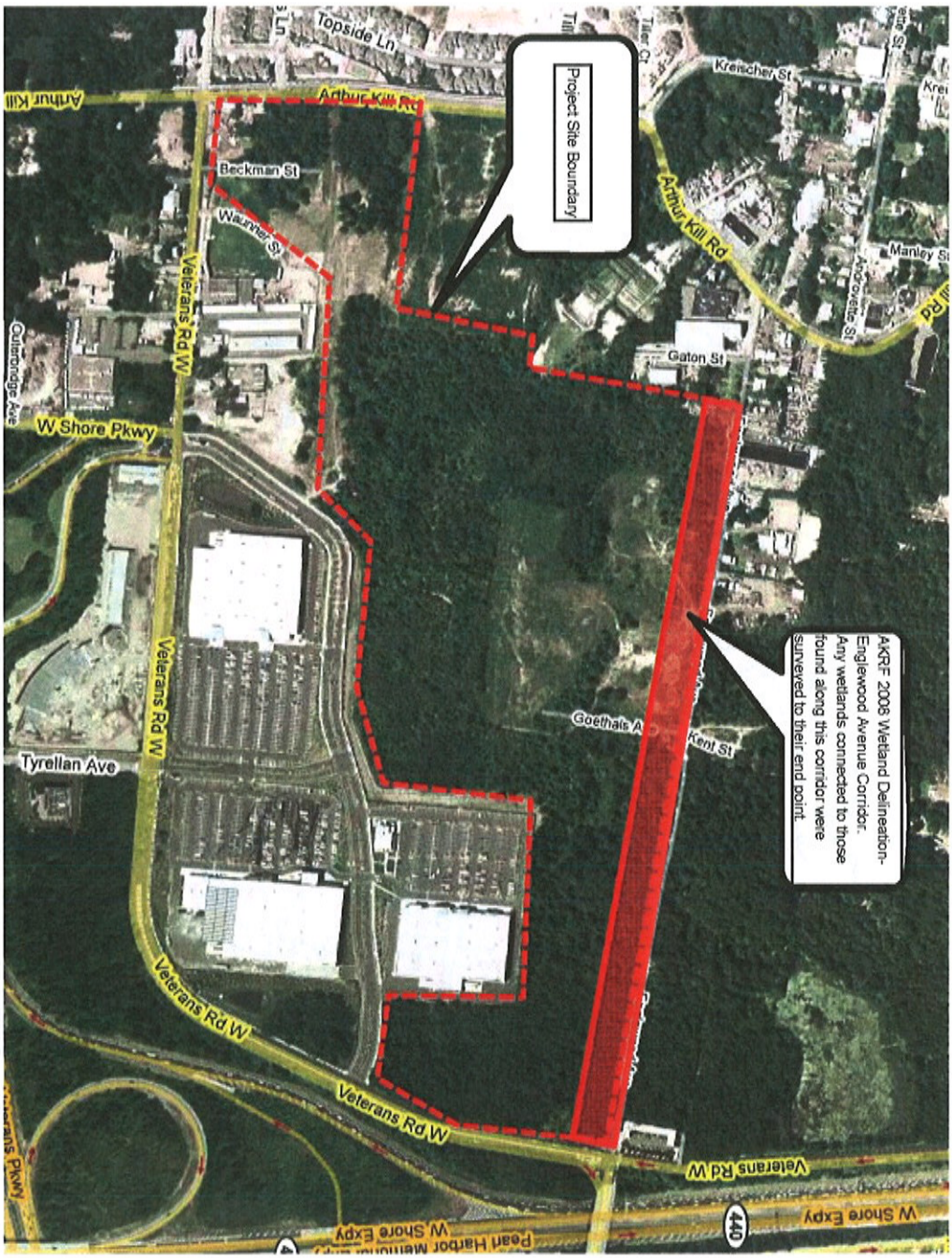


Figure B- 1: Englewood Avenue Corridor – search area for AKRF wetlands delineation

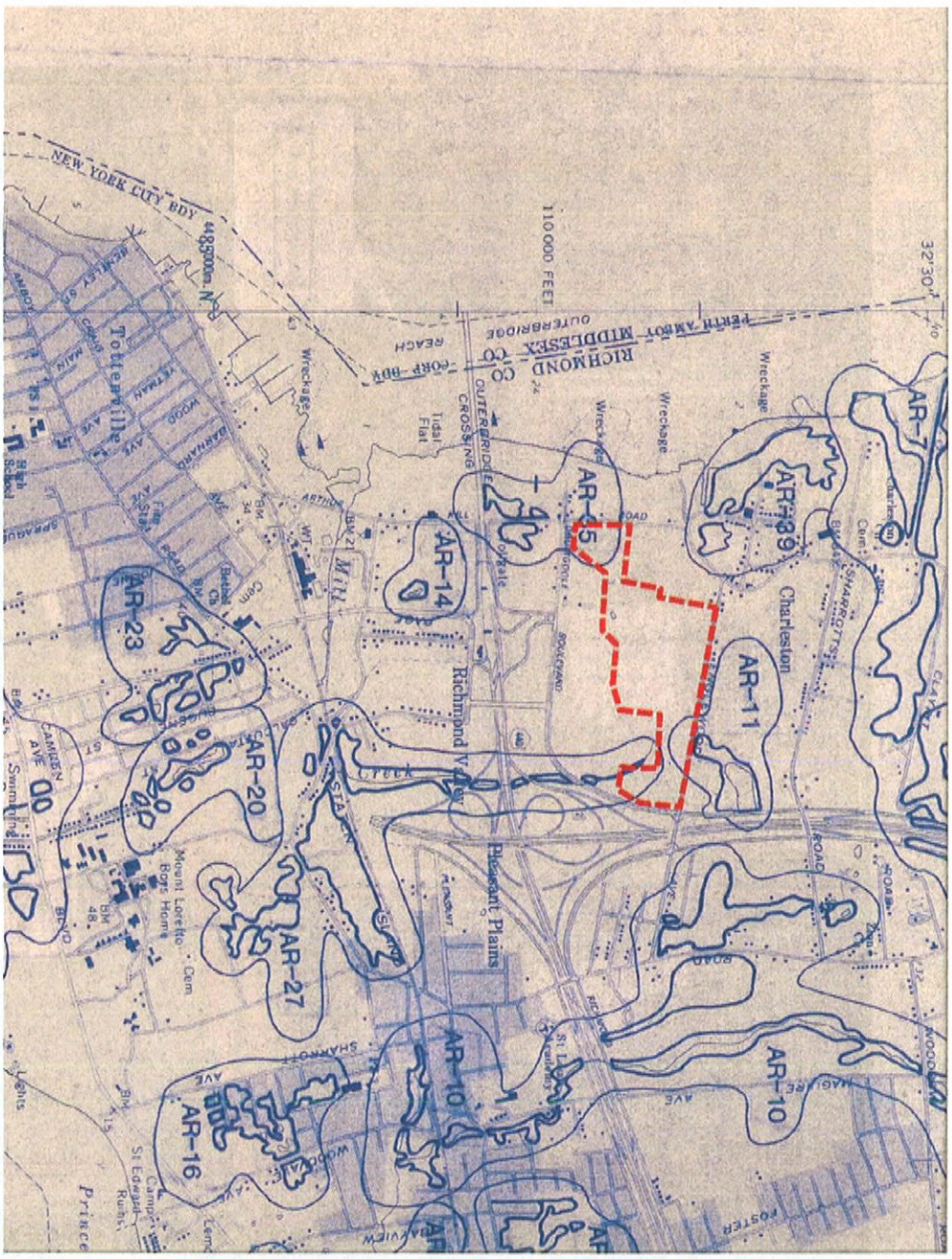


Figure B- 2: NYSDEC wetland areas within the vicinity of the project site.

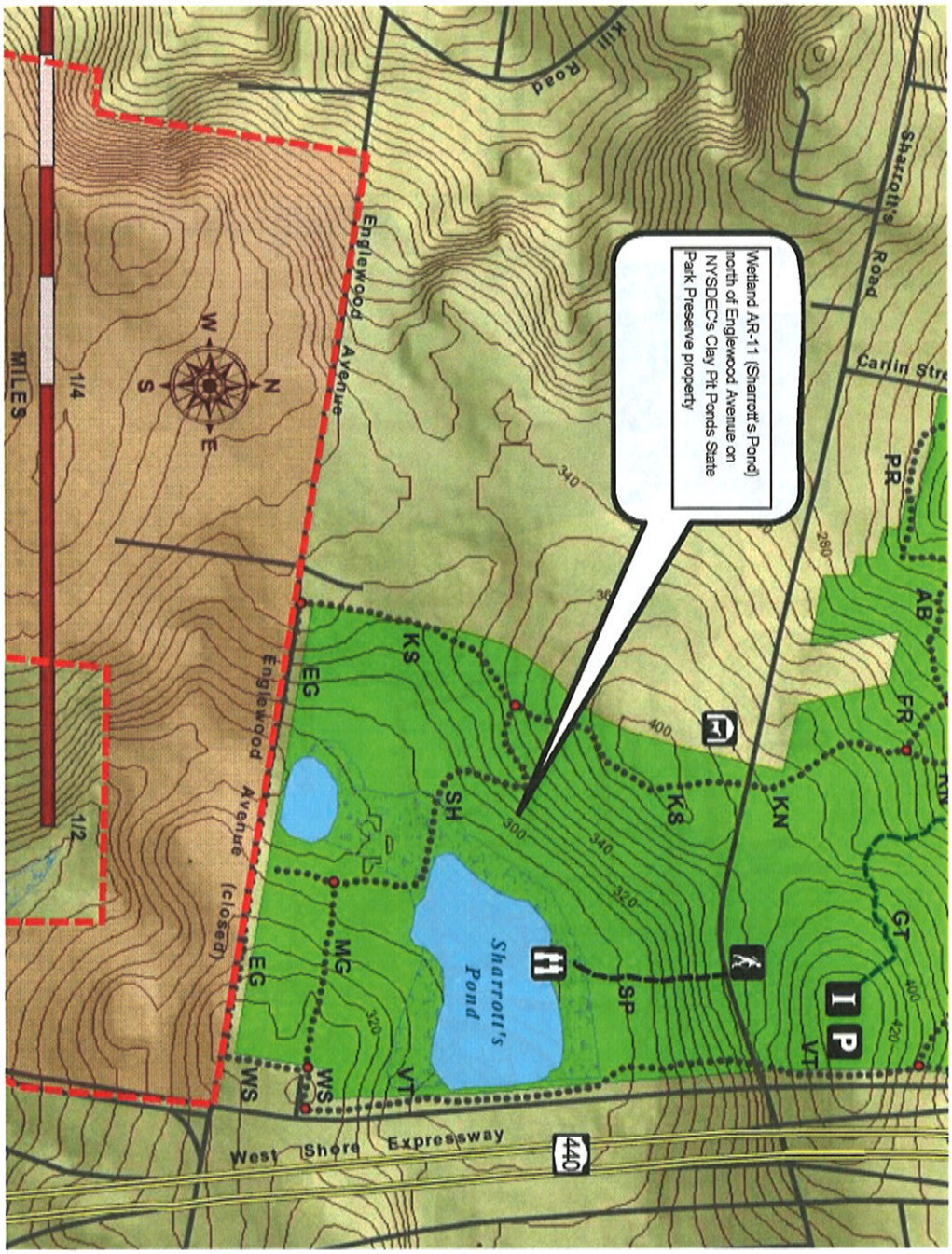


Figure B- 3: Clay Pit Ponds State Park Preserve wetlands, north of project site

Figure B- 4: NYSDEC wetlands from Environmental Resource Mapper (green area represents the "wetlands check-zone"

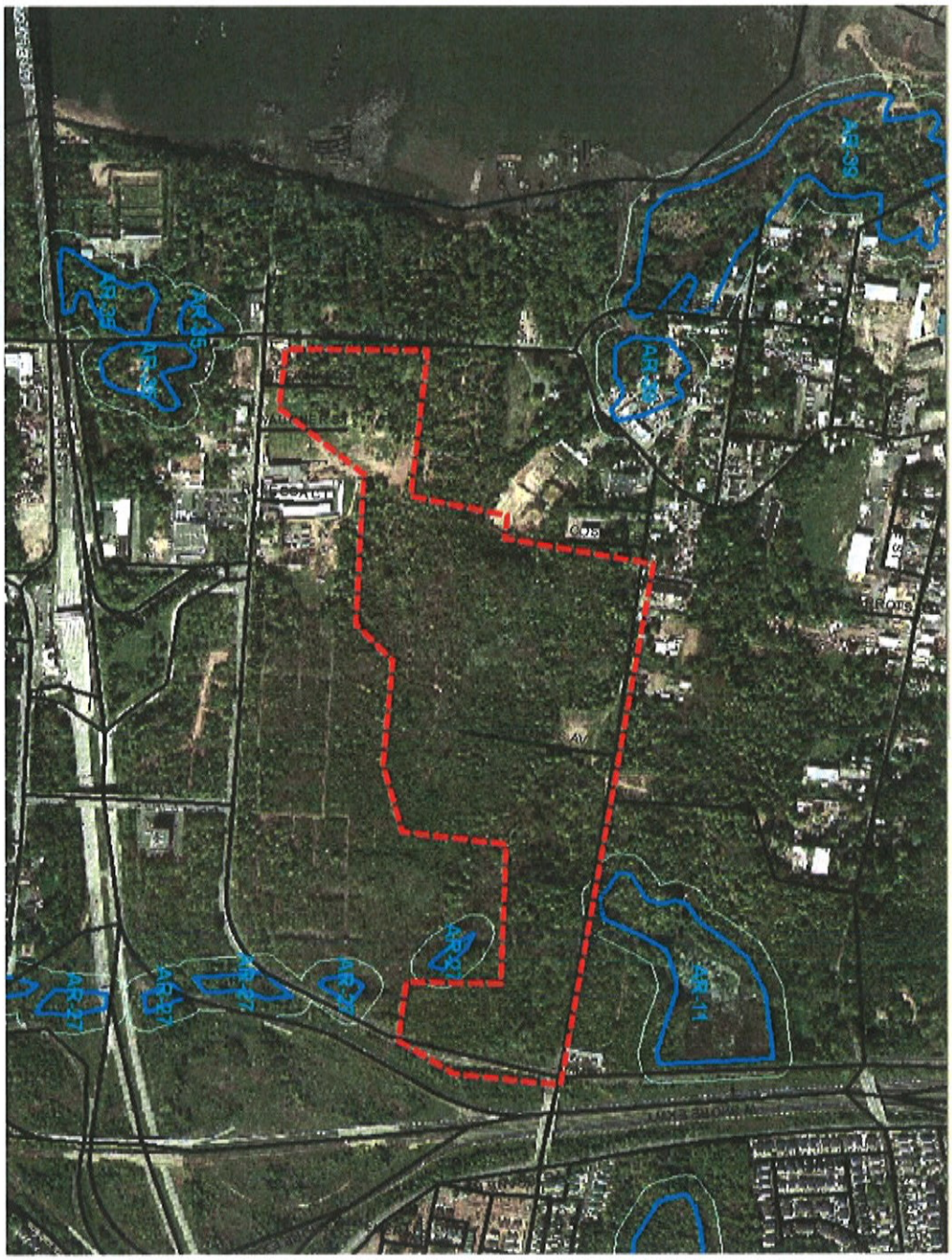


Figure B- 5: NYSDEC wetlands over 2002 aerial, prior to construction of Bricktown Centre at Charleston and Tides at Charleston developments

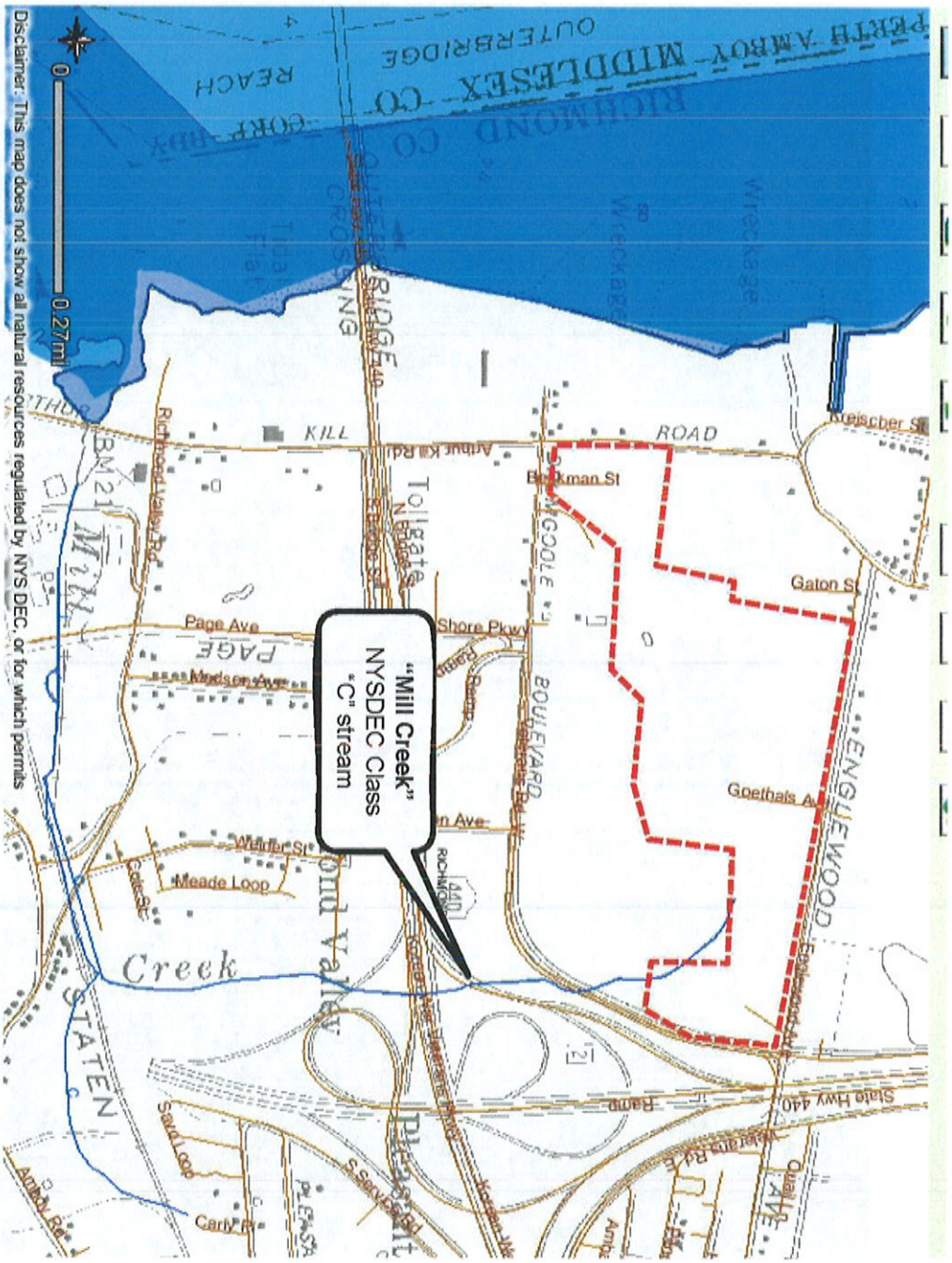


Figure B- 6: NYSDEC wetlands to south of project site, including Mill Creek watershed

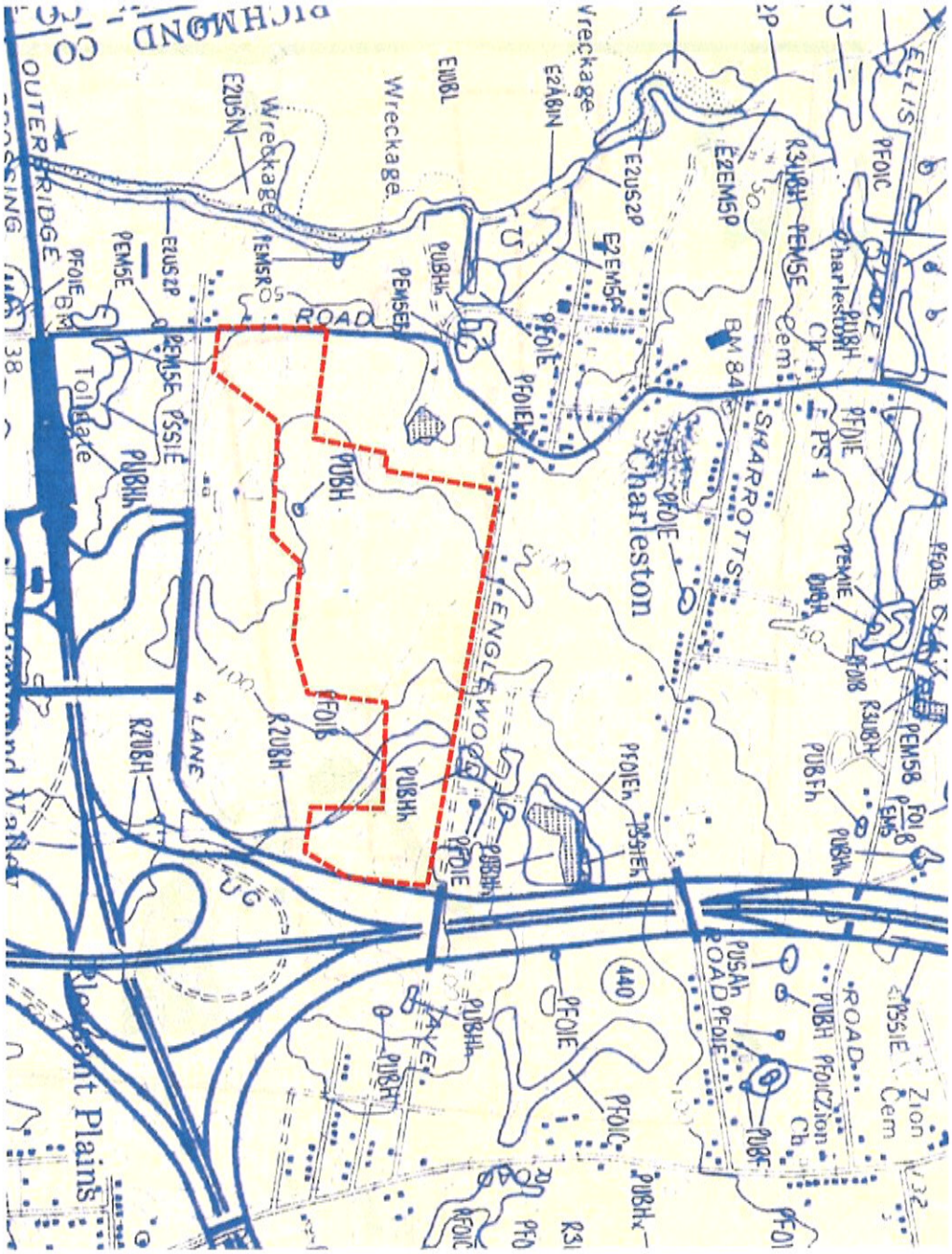


Figure B- 7: NWI wetlands in the vicinity of the project site

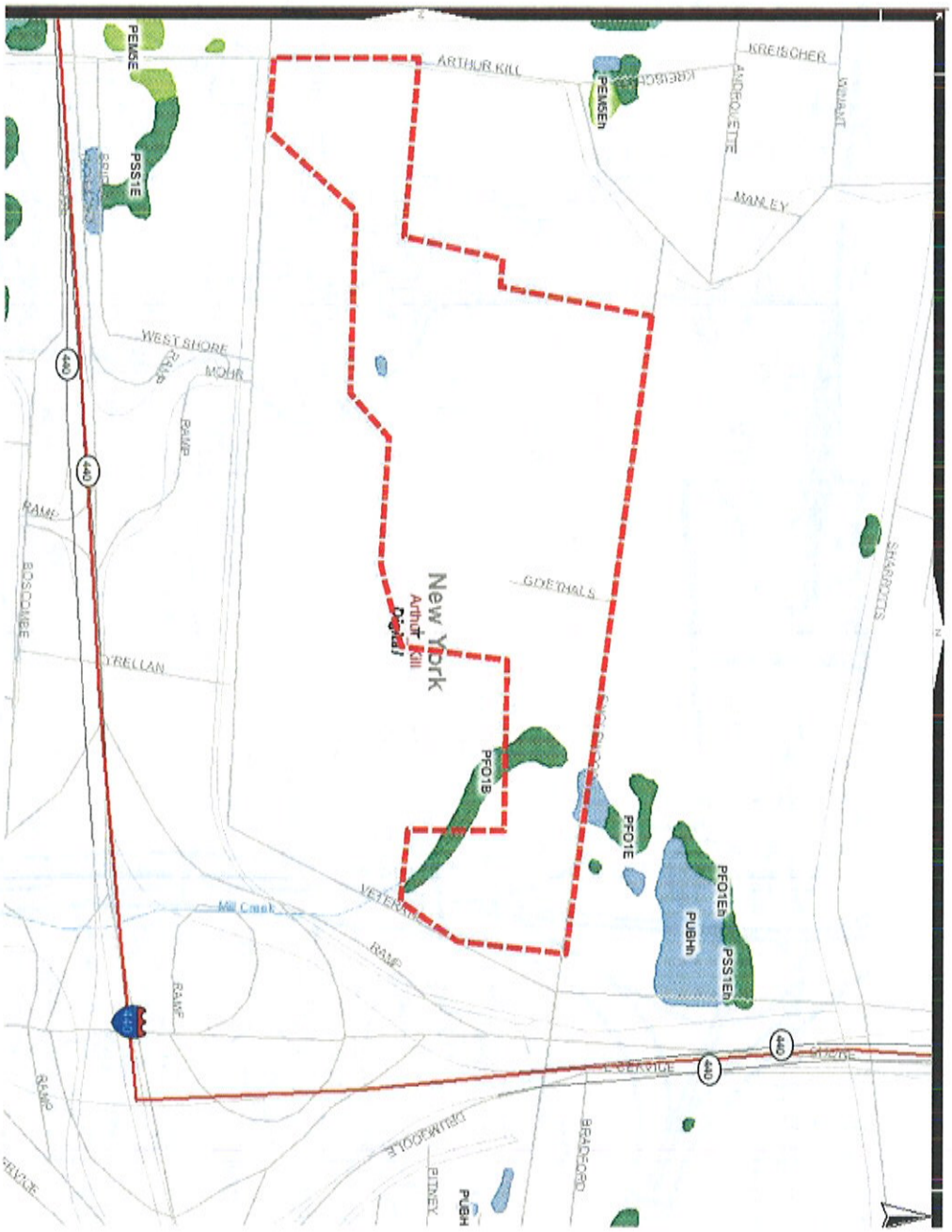


Figure B- 8: NWI wetlands in the vicinity of the project site

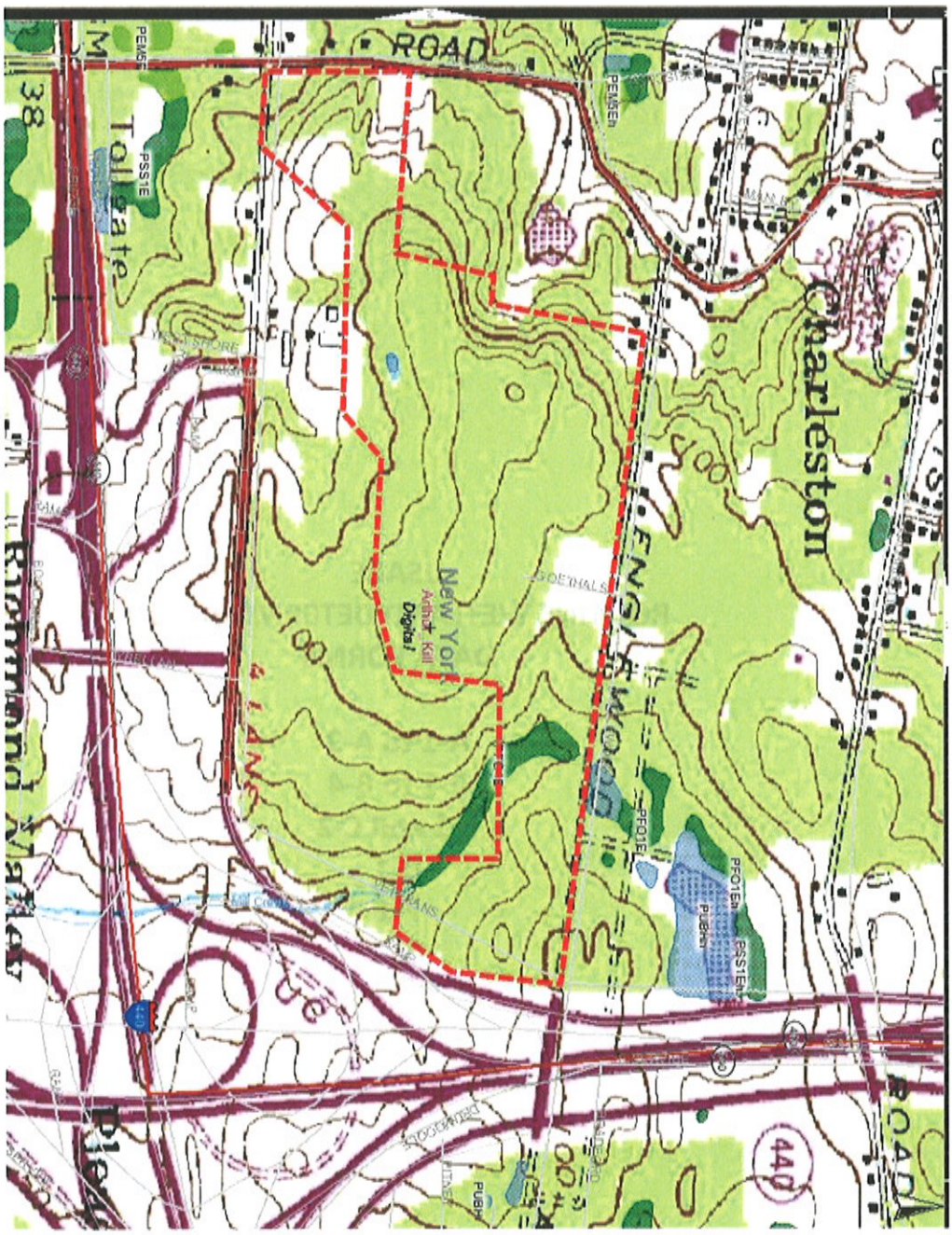


Figure B- 9: Project site topography with NWI wetlands

USACE
ROUTINE WETLAND DETERMINATION
DATA FORMS

A-1 to A-3
B-1 to B-4
C-1 and C-2
D-1
F-1
G-1

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island (Natural Resources Study Area) Date: 08.18.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: A. Bernick, M. Bright, A. McMahon, J. Nash, AKRF, Inc. State: NY

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data Point A-1
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged Wetland A)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Juncus effusus*	herb	FACW+	6.		
2. Scirpus cyperinus	herb	FACW+	7.		
3. *Betula populifolia*	tree	FAC	8.		
4.			9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100

Remarks: Eupatorium serotinum (FAC-)

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations: N/A

Depth of Surface Water: ___ (in.)

Depth to Free Water in Pit: ___ (in.)

Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Water ponded near wetland flag A1. Broad-leaved Cattails observed growing in the ponded area. Wood chips and coarse gravel fill observed near Englewood Avenue at northern end of Wetland A.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic subgroup

Field Observations: Poorly drained

Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4	A	10 YR 4/2			Clay loam
4-10	B	10 YR 4/1	10 YR 5/8		Loamy clay
10-12+	B	10 YR 6/1	10 YR 6/8		Loamy clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfuric Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Wethersfield, Ludlow and Wilbraham soils developed in dense basal till derived mainly from red sedimentary rocks. Drainage class for these soil types ranges from well drained to poorly drained, with hydrologic soil group either C or D. Wilbraham and Ludlow are both mesic Aquic Dystrudepts. Wethersfield is a mesic Oxyaquic Dystrudepts. Wilbraham is designated as a hydric soil by the NTCHS. Meets TF2: red parent material test.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks: The course of Wetland A appears to have changed with some human alteration of the landscape (e.g., clearing) occurring in the past five years. More study is needed to determine connectivity between Wetland A and possible wet depressions to the south.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island (Natural Resources Study Area) Date: 08.18.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: A. Bernick, M. Bright, A. McMahon, J. Nash, AKRF, Inc. State: NY

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data Point A-2
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged Wetland A)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Poa pratensis*		FACU	6.		
2. Panicum virgatum		FAC	7.		
3. Daucus carota		NL	8.		
4. *Eupatorium serotinum*		FAC-	9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 25

Remarks: Other vegetation:

Potentilla canadensis (NL)

Plantago lanceolata (UPL)

Carex scoparia (FACW)

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations: N/A

Depth of Surface Water: ___ (in.)

Depth to Free Water in Pit: ___ (in.)

Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
X Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: No hydrology present.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic subgroup

Field Observations: Poorly drained

Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfuric Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: NO SOILS TAKEN – GRAVEL FILL TO 4 INCHES

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks: Upland point taken near wetland flag A-3.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island (Natural Resources Study Area) Date: 08.18.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: A. Bernick, M. Bright, A. McMahon, J. Nash, AKRF, Inc. State: NY

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data Point A-3
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged Wetland A)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Juncus effusus*	herb	FACW+	6.		
2. Juncus bufonius	herb	FACW	7.		
3. Carex scoparia	herb	FACW	8.		
4. *Phragmites australis*	herb	FACW	9.		
5. Panicum virgatum	herb	FAC	10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100

Remarks: Other vegetation:
Eupatorium serotinum (FAC-)
Carex scoparia (FACW)
Scirpus cyperinus (FACW+)
Betula populifolia (FAC)
Liquidambar styraciflua (FAC)

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations: N/A

Depth of Surface Water: ____ (in.)
Depth to Free Water in Pit: ____ (in.)
Depth to Saturated Soil: ____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
X Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Standing water near flag A-5.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic subgroup

Field Observations: Poorly drained

Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10 YR 4/3			Clay loam
3-10	B	10 YR 6/6			Loamy clay
10-12+	B	10 YR 6/6	10 YR 6/8 and 10 YR 6/1		Loamy clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfuric Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Wethersfield, Ludlow and Wilbraham soils developed in dense basal till derived mainly from red sedimentary rocks. Drainage class for these soil types ranges from well drained to poorly drained, with hydrologic soil group either C or D. Wilbraham and Ludlow are both mesic Aquic Dystrudepts. Wethersfield is a mesic Oxyaquic Dystrudepts. Wilbraham is designated as a hydric soil by the NTCHS. Meets TF2: red parent material test.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks: Wetland point taken near wetland flag A-5.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 08.18.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: A. Bernick, M. Bright, A. McMahon, J. Nash, AKRF, Inc. State: NY
N 40'31'59 W 074'13"54.1

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data point B-1
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged Wetland B area)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Eleocharis obtusa*	Herb	OBL	6.		
2. *Juncus bufonius*	Herb	FACW	7.		
3. *Poa pratensis*	Herb	FACU	8.		
4. *Echinochloa crus-galli*	Herb	FACU	9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-):

Remarks: Associated species (FAC-), *Euthamia graminifolia* (FAC), *E. hyssopifolium* (N/L)

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations: N/A

Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Vegetation represented and the presence of water stained leaves suggests that water ponds in this wet depressional area.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic subgroup

Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-3		7.5 YR 6/1	7.5YR 6/8		Clay/Loam
3-8		7.5 YR 6/1-7/1	7.5YR 6/8-7/1		Clay/Loam
7-10		10 YR 5/1	7.5YR 5/8		Clay/Loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfuric Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland? X Yes No

Remarks: This area has had recent human disturbances (clearing activity within the past 5 years). Although the point exhibited wetland characteristics, further consultation with USACE is required on this site as an atypical situation is present.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 08.18.08
Applicant/Owner: NYCEDC County: Richmond
Investigator: A. Bernick, M. Bright, A. McMahon, J. Nash, AKRF, Inc. State: NY

Do Normal Circumstances exist on the site?	Yes	X	No	Community ID: Data Point B-2
Is the site significantly disturbed (Atypical Situation)?	Yes	X	No	Transect ID:
Is the area a potential Problem Area?	Yes		No X	Plot ID: (flagged Wetland B)
(If needed, explain on reverse.)				

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Juncus effusus*	Herb	FACW+	6.		
2. *Echinochloa walteri*	Herb	FACW+	7.		
3. *Eleocharis obtusa*	Herb	OBL	8.		
4. *Juncus bufonius*	Herb	FACW	9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations: N/A

Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Vegetation represented and the presence of water stained leaves suggests that water ponds in this wet depressional area.

SOILS

Map Unit Name (Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-3	Fill				Rocky fill
3-6		10 YR 5/3	10 YR 5/8		
6-8		10 YR 7/3	10 YR 5/8		Dark black Maganese concretions
8-12		10 YR 7/3	10 YR 5/8		Dark black Maganese concretions

Hydric Soil Indicators:

___	Histosol	X	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfuric Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed on Local Hydric Soils List
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 08.18.08
Applicant/Owner: NYCEDC County: Richmond
Investigator: A. Bernick, M. Bright, A. McMahon, J. Nash, AKRF, Inc. State: NY

Do Normal Circumstances exist on the site?	Yes	X	No	Community ID: Data Point B-3
Is the site significantly disturbed (Atypical Situation)?	Yes		No X	Transect ID:
Is the area a potential Problem Area?	Yes		No X	Plot ID: (flagged Wetland B)
(If needed, explain on reverse.)				

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Eupatorium serotinum*	Herb	FAC-	6.		
2. *Eupatorium hyssopifolium*	Herb	N/A	7.		
3. *Euthamia graminifolia*	Herb	FAC	8.		
4. *Lotus corniculatus*	Herb	FACU	9.		
5. *Plantago lanceolata*	Herb	UPL	10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 20%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations: N/A

Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: No wetland hydrology indicators present.

SOILS

Map Unit Name (Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations Confirm Mapped Type? Yes No

Profile Description: **TO COME**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-5		7.5 YR 5/6			Silty Loam
6-8		7.5 YR 4/3	7.5 YR 4/6		Silty Loam
8-10		7.5 YR 4/4-5/4	5YR 4/6		Silty Loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfuric Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Hydric soils indicators are not present.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks: This area represents the upland boundary of wetland B.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 10.2.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: J.Nash State: NY

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data Point B-4
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged **Wetland B**)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cyperus iria*	Herb	FACW	6. *Euthamia galetorum*	Herb	FAC
2. *Juncus bufonius*	Herb	FACW	7.		
3. *Panicum virgatum*	herb	FAC	8.		
4. *Carex scoparia*	Herb	FACW	9.		
5. *Scirpus atrovirens*	herb	OBL	10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: The grasses *Aristida oligantha* (NL) and *Agrostis capillaris* (NO) and *Eupatorium serotinum* (FAC-) are found in open areas on the edge of wetland B, slightly drier than wetter portions. *Eleocharis obtusa* (OBL), *Scirpus cyperinus* (FACW+), *Juncus effusus* (FACW+) and *Scirpus cyperinus* (FACW+) were seen in earlier visits (summer 2008) within the wettest portions of Wetland B.

Adjacent woods w/ gray birch, highbush blueberry, black gum, slender leaved goldenrod, pin oak, but appear to lack suitable hydrology.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: _____ (in.)
Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Portions inundated two days after rain storm. Predominantly saturated at surface in wetter portions (flagged) during other site visits. Sediment deposits and bare soil noted.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic

Field Observations: Poorly drained

Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-2	O/A	7.5YR 4/2	none		Clay loam
2-6	A	7.5YR 5/1	7.5YR 5/6	20%	clay loam
7-12+	A2	7.5YR 5/1	7.5YR 5/6	30%	Clay loam
			--		

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfuric Odor
- ___ Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- X Other (Explain in Remarks)

Remarks:

Meets Field Indicator "F3: Depleted Matrix".

NOTE: Soil is uniformly low chroma/high value throughout open field area. Boundary therefore defined based on predominance of hydrophytic vegetation. It is suspected that regrading of the field in previous years (~2004/2005, during clearing for Fairview Park project) has exposed a nearly gleyed horizon w/ high clay content. Adjacent woodlands at southern end of open field meet "TF2: Red Parent Material".

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks: Wetland flagged B1 to B26 in a closed loop. Wetland extends around soil/mulch piles in center of open field, in northwest corner, partially within footprint of mapped Englewood Drive.

NOTE: Additional areas of the open field and adjacent woods to the south may meet USACE wetland definition. However, these additional areas were not contiguous within the Englewood Avenue Corridor. These additional potential wetland areas must be investigated as part of land-use actions on remaining portions of the Charleston Natural Resources Study Area.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 8.13.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: J.Nash (Data Point: 40 deg, 31' 57.5"; 74 deg, 13' 43.0") State: NY

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data Point C-1
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged **Wetland C**)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Red Maple (Acer rubrum)	tree	FAC	6.		
2. Pin oak (Quercus palustris	tree	FACW	7.		
3. White grass (Leersia virginica)	herb	FACW	8.		
4. Sweetgum (Liquidambar styraciflua)	tree	FAC	9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: Buttressed rooting noted.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: ____ (in.)
Depth to Free Water in Pit: ____ (in.)
Depth to Saturated Soil: ____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
X Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Little herbaceous vegetation. Sediment deposits and roots exposed attest to frequent surface flow as sheet runoff.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic and Oxyaquic subgroup

Field Observations: Poorly drained

Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-6	A	5YR 4/6		--	
6-8	B	7.5YR 6/4		--	Silty loam
8-10	B	5YR 5/3	5YR 4/6	20%	Silty loam
11-14	B2	7YR 3/2	4/6	20%	Silty loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfuric Odor
- ___ Aquic Moisture Regime
- X Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- X Other (Explain in Remarks)

Remarks:
Meets Field Indicators "TF2: Red Parent Material". Wethersfield, Ludlow and Wilbraham soils developed in dense basal till derived mainly from red sedimentary rocks. Drainage class for these soil types ranges from well drained to poorly drained, with hydrologic soil group either C or D. Wilbraham and Ludlow are both Aquic Dystrudepts. Wethersfield is an Oxyaquic Dystrudepts. Wilbraham is designated as a hydric soil by the NTCHS.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks: Wetland Flagged C1-C20. Wetland mapped by NWI (PFO1B and R2UBH) and by NYSDEC as AR-27.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 8.13.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: J.Nash (Data Point: 40 deg, 31' 57.5"; 74 deg, 13' 43.0") State: NY

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data Point C-2
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged **Wetland C**)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Red Maple (Acer rubrum)	tree	FAC	6.		
2. Pin oak (Quercus palustris)	tree	FACW	7.		
3. White grass (Leersia virginica)	herb	FACW	8.		
4.			9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: Buttressed rooting noted. As wetland descends southwards, it becomes a linear water feature occupied by Elderberry (Sambucus nigra): FACW-; red maple (Acer rubrum): FAC; and joe pye weed (Eupatoriadelphus fistulosus): FACW. Linear water feature reaches retaining wall of shopping mall - formerly connected to wetland "D", as headwaters of Mill Creek. At southern terminus, a substantial culvert opening is present, which diverts flow underneath the Bricktown Centre shopping area to the area of Wetland F. Overland flow may pass along retaining wall and towards Wetland D.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: ____ (in.)
Depth to Free Water in Pit: ____ (in.)
Depth to Saturated Soil: ____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
X Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

Oxidized rhizospheres 2-6". Little herbaceous vegetation. Sediment deposits and roots exposed attest to frequent surface flow as sheet runoff.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic

Field Observations: Poorly drained

Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-2	A	5YR 4/3	5YR 5/8	10%	
2-6	B	5YR 4/3	5YR 4/6		Silty loam
7-10	B	5YR 4/3	5YR 4/6	20%	Silty loam
10-15	B2	7YR 3/2	4/6	20%	Sandy loam loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfuric Odor
- ___ Aquic Moisture Regime
- X Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- X Other (Explain in Remarks)

Remarks:

Meets Field Indicators "TF2: Red Parent Material".

Wethersfield, Ludlow and Wilbraham soils developed in dense basal till derived mainly from red sedimentary rocks. Drainage class for these soil types ranges from well drained to poorly drained, with hydrologic soil group either C or D. Wilbraham and Ludlow are both Aquic Dystrudepts. Wethersfield is a Oxyaquic Dystrudepts. Wilbraham is designated as a hydric soil by the NTCHS.

Upland fringe where smilax dominant (40deg, 31' 55.5"; 74deg, 13' 44.7") exhibits 5YR 4/3 throughout, no mottling.

Second soil pit at data point: 40deg, 31' 57.5"; 74deg, 13' 43.0".

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	(Circle)
Hydric Soils Present?	Yes	No	

Is this Sampling Point Within a Wetland? Yes No

Remarks: Wetland flagged C1 to C20. Wetland mapped by NWI (PFO1B and R2UBH) and by NYSDEC as AR-27.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 8.13.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: J.Nash (Data Point: 40 deg, 31' 49.6"; 74 deg, 13' 36.6") State: NY

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data Point D-1
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged **Wetland D**)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Red maple (Acer rubrum)	tree	FAC	6.		
2. Pin oak (Quercus palustris)	tree	FACW	7.		
3. Black gum (Nyssa sylvatica)	tree	FAC	8.		
4. Greenbriar (Smilax rotundifolia)	vine	FAC	9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: Narrow band of wetland vegetation - greenbriar, bigtooth aspen and white oak more prevalent as one ascends away from stream corridor to the east or west.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
X Water Marks
X Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

Formerly connected stream channel (gully) - now disconnected from upstream portions by shopping mall retaining wall. (Formerly connected to upstream portions of NYSDEC wetland AR-27). At southern terminus, a substantial culvert opening is present, apparently diverting flow (during storm events) to the northern end of Wetland F. See Data Forms for Points F-1 and C-2 for more discussion.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic

Field Observations: Poorly drained

Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-3	A	5YR 5/6	5YR 4/4	10%	Clay loam
4-8	A	5YR 4/2	5YR 3/4 to 4/6	20%	clay loam
8-10	B	5YR 4/2 to 4/3	5YR 5/6	20%	Silty loam
10+	B2	7YR 4/3	--		Sandy loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfuric Odor
___ Aquic Moisture Regime
X Reducing Conditions
X Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
X Other (Explain in Remarks)

Remarks:

Meets Field Indicators "TF2: Red Parent Material". Portions meet "F3: Depleted Matrix".

Wethersfield, Ludlow and Wilbraham soils developed in dense basal till derived mainly from red sedimentary rocks. Drainage class for these soil types ranges from well drained to poorly drained, with hydrologic soil group either C or D. Wilbraham and Ludlow are both Aquic Dystrudepts. Wethersfield is a Oxyaquic Dystrudepts. Wilbraham is designated as a hydric soil by the NTCHS.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks: Wetland flagged D1 to D7 as a linear wetland feature. Wetland mapped by NWI and by NYSDEC as AR-27.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 08.18.08
Applicant/Owner: NYCEDC County: Richmond
Investigator: A. Bernick, M. Bright, A. McMahon, J. Nash, AKRF, Inc. State: NY

Do Normal Circumstances exist on the site?	Yes	X	No	Community ID: Data Point F-1
Is the site significantly disturbed (Atypical Situation)?	Yes		No X	Transect ID:
Is the area a potential Problem Area?	Yes		No X	Plot ID: (flagged Wetland F)
(If needed, explain on reverse.)				

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Acer rubrum*	Canopy/ Sub/canopy	FAC	6.		
2. *Sassafras albidum*	Sub-canopy	FACU-	7.		
3. *Vaccinium corymbosum*	shrub	FACW-	8.		
4. *Viburnum dentatum*	Shrub	FAC	9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
X No Recorded Data Available

Field Observations: N/A

Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
X Water Marks
___ Drift Lines
X Sediment Deposits
X Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Intermittent stream. A shallow cut-back approximately 20 meters from the northern end of Wetland F holds standing water through the growing season, and supported Green Frogs through the season. A well defined channel is present, with substantial cobble along much of the run. The southern terminus of Wetland F drains into a culvert that passes east underneath Veterans Road and enters the Mill Creek system (see attached figures).

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic

Field Observations Confirm Mapped Type? Well drained Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-2	A	5YR 4/3	5YR 5/8	10%	
2-6	B	5YR 4/3	5YR 4/6		Silty loam
7-10	B	5YR 4/3	5YR 4/6	20%	Silty loam
10-15	B2	7YR 3/2	4/6	20%	Sandy loam loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfuric Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks: Appears to be connected to the areas of Wetlands C and D via culverts – see Data Forms for Data Points C-2 and D-1. At northern terminus of the Wetland F channel, a substantial culvert opening is present, which appears to accept flow underneath the Bricktown Centre shopping area from culverts at the southern end of Wetland C, and potentially Wetland D.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Charleston, Staten Island, NY (Natural Resources Study Area) Date: 8.13.08
Applicant/Owner: NYC EDC County: Richmond
Investigator: J.Nash (Data Point: 40 deg, 31' 57.7"; 74 deg, 13' 38.2") State: NY

Do Normal Circumstances exist on the site?	Yes	No	Community ID: Data Point G-1
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: (flagged **Wetland Area G**)
(If needed, explain on reverse.)			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Red Maple (Acer rubrum)	Tree	FAC	6.		
2. Pin oak (Quercus palustris)	Tree	FACW	7.		
3. Hay-scented fern (Dennstaedtia punctilobula)	Herb	NL	8.		
4.			9.		
5.			10.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 66%

Remarks: Hay scented fern limited to margins of this small depressional wetland.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
X Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Small, wet depression 3 meters south of unpaved path along the mapped Englewood Avenue corridor, with evidence of past fill/excavation.

SOILS

Map Unit Name (Series and Phase): Wethersfield-Ludlow-Wilbraham complex

Drainage Class: Well drained to poorly drained

Taxonomy (Subgroup): Aquic to Oxyaquic subgroup

Field Observations: Poorly drained

Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-3		7.5 YR 6/1	7.5YR 6/8		Clay/Loam
3-8		7.5 YR 6/1-7/1	7.5YR 6/8-7/1		Clay/Loam
7-10		10 YR 5/1	7.5YR 5/8		Clay/Loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfuric Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Wethersfield, Ludlow and Wilbraham soils developed in dense basal till derived mainly from red sedimentary rocks. Drainage class for these soil types ranges from well drained to poorly drained, with hydrologic soil group either C or D. Wilbraham and Ludlow are both mesic Aquic Dystrudepts. Wethersfield is a mesic Oxyaquic Dystrudepts. Wilbraham is designated as a hydric soil by the NTCHS. Meets TF2: red parent material test.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)

Wetland Hydrology Present? Yes No

Hydric Soils Present? Yes No

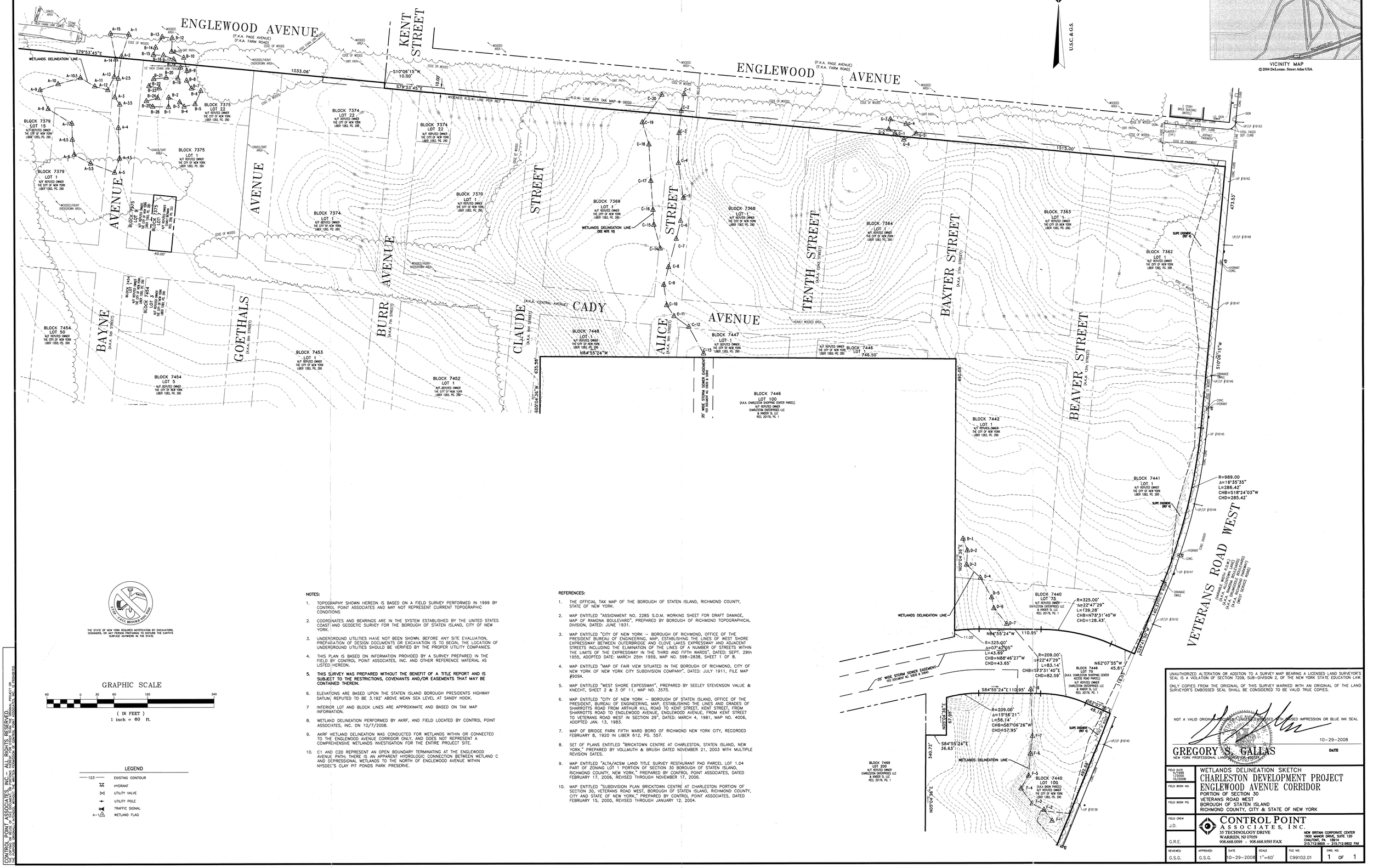
(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks: Flagged wetland "G", numbered G1 to G6 in a closed loop.

Approved by HQUSACE 3/92

DRAFT



THE STATE OF NEW YORK REQUIRES NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

LEGEND

- 123 — EXISTING CONTOUR
- HYDRANT
- UTILITY VALVE
- UTILITY POLE
- TRAFFIC SIGNAL
- A–1 WETLAND FLAG

NOTES:

1. TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED IN 1999 BY CONTROL POINT ASSOCIATES AND MAY NOT REPRESENT CURRENT TOPOGRAPHIC CONDITIONS
2. COORDINATES AND BEARINGS ARE IN THE SYSTEM ESTABLISHED BY THE UNITED STATES COAST AND GEODETIC SURVEY FOR THE BOROUGH OF STATEN ISLAND, CITY OF NEW YORK.
3. UNDERGROUND UTILITIES HAVE NOT BEEN SHOWN. BEFORE ANY SITE EVALUATION, PREPARATION OF DESIGN DOCUMENTS OR EXCAVATION IS TO BEGIN, THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE VERIFIED BY THE PROPER UTILITY COMPANIES.
4. THIS PLAN IS BASED ON INFORMATION PROVIDED BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
5. **THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN.**
6. ELEVATIONS ARE BASED UPON THE STATEN ISLAND BOROUGH PRESIDENTS HIGHWAY DATUM, REPUTED TO BE 3.192' ABOVE MEAN SEA LEVEL AT SANDY HOOK.
7. INTERIOR LOT AND BLOCK LINES ARE APPROXIMATE AND BASED ON TAX MAP INFORMATION.
8. WETLAND DELINEATION PERFORMED BY AKRF, AND FIELD LOCATED BY CONTROL POINT ASSOCIATES, INC. ON 10/7/2008.
9. AKRF WETLAND DELINEATION WAS CONDUCTED FOR WETLANDS WITHIN OR CONNECTED TO THE ENGLEWOOD AVENUE CORRIDOR ONLY, AND DOES NOT REPRESENT A COMPREHENSIVE WETLANDS INVESTIGATION FOR THE ENTIRE PROJECT SITE.
10. C1 AND C20 REPRESENT AN OPEN BOUNDARY TERMINATING AT THE ENGLEWOOD AVENUE PATH; THERE IS AN APPARENT HYDROLOGIC CONNECTION BETWEEN WETLAND C AND DEPRESSIONAL WETLANDS TO THE NORTH OF ENGLEWOOD AVENUE WITHIN NYSDEC'S CLAY PIT PONDS PARK PRESERVE.

REFERENCES:

1. THE OFFICIAL TAX MAP OF THE BOROUGH OF STATEN ISLAND, RICHMOND COUNTY, STATE OF NEW YORK.
2. MAP ENTITLED "ASSIGNMENT NO. 2285 S.O.M. WORKING SHEET FOR DRAFT DAMAGE, MAP OF RAMONA BOULEVARD", PREPARED BY BOROUGH OF RICHMOND TOPOGRAPHICAL DIVISION, DATED: JUNE 1931.
3. MAP ENTITLED "CITY OF NEW YORK – BOROUGH OF RICHMOND, OFFICE OF THE PRESIDENT BUREAU OF ENGINEERING, MAP, ESTABLISHING THE LINES OF WEST SHORE EXPRESSWAY BETWEEN OUTERBRIDGE AND CLOVE LAKES EXPRESSWAY AND ADJACENT STREETS INCLUDING THE ELIMINATION OF THE LINES OF A NUMBER OF STREETS WITHIN THE LIMITS OF THE EXPRESSWAY IN THE THIRD AND FIFTH WARDS", DATED: SEPT. 29th 1955, ADOPTED DATE: MARCH 25th 1959, MAP NO. 598–2838, SHEET 1 OF 8.
4. MAP ENTITLED "MAP OF FAIR VIEW SITUATED IN THE BOROUGH OF RICHMOND, CITY OF NEW YORK OF NEW YORK CITY SUBDIVISION COMPANY", DATED: JULY 1911, FILE MAP #909A.
5. MAP ENTITLED "WEST SHORE EXPRESSWAY", PREPARED BY SEELEY STEVENSON VALUE & KNECHT, SHEET 2 & 3 OF 11, MAP NO. 3575.
6. MAP ENTITLED "CITY OF NEW YORK – BOROUGH OF STATEN ISLAND, OFFICE OF THE PRESIDENT, BUREAU OF ENGINEERING, MAP, ESTABLISHING THE LINES AND GRADES OF SHARROTTS ROAD FROM ARTHUR KILL ROAD TO KENT STREET, KENT STREET, FROM SHARROTTS ROAD TO ENGLEWOOD AVENUE, ENGLEWOOD AVENUE, FROM KENT STREET TO VETERANS ROAD WEST IN SECTION 29", DATED: MARCH 4, 1981, MAP NO. 4006, ADOPTED JAN. 13, 1983.
7. MAP OF BRIDGE PARK FIFTH WARD BORO OF RICHMOND NEW YORK CITY, RECORDED FEBRUARY 8, 1920 IN LIBER 612, PG. 557.
8. SET OF PLANS ENTITLED "BRICKTOWN CENTRE AT CHARLESTON, STATEN ISLAND, NEW YORK," PREPARED BY VOLLMUTH & BRUSH DATED NOVEMBER 21, 2003 WITH MULTIPLE REVISION DATES.
9. MAP ENTITLED "ALTA/ACSM LAND TITLE SURVEY RESTAURANT PAD PARCEL LOT 1.04 PART OF ZONING LOT 1 PORTION OF SECTION 30 BOROUGH OF STATEN ISLAND, RICHMOND COUNTY, NEW YORK," PREPARED BY CONTROL POINT ASSOCIATES, DATED FEBRUARY 17, 2006, REVISED THROUGH NOVEMBER 17, 2006.
10. MAP ENTITLED "SUBDIVISION PLAN BRICKTOWN CENTRE AT CHARLESTON PORTION OF SECTION 30, VETERANS ROAD WEST, BOROUGH OF STATEN ISLAND, RICHMOND COUNTY, CITY AND STATE OF NEW YORK," PREPARED BY CONTROL POINT ASSOCIATES, DATED FEBRUARY 15, 2000, REVISED THROUGH JANUARY 12, 2004.

10-29-2008

GREGORY S. GALLAS — DATE
NEW YORK PROFESSIONAL LAND SURVEYOR #050181

FIELD DATE: 6/1999 1/2000 10/2008	WETLANDS DELINEATION SKETCH CHARLESTON DEVELOPMENT PROJECT ENGLEWOOD AVENUE CORRIDOR PORTION OF SECTION 30 VETERANS ROAD WEST BOROUGH OF STATEN ISLAND RICHMOND COUNTY, CITY & STATE OF NEW YORK
FIELD BOOK NO.	
FIELD BOOK PG.	
FIELD CREW J.D. G.R.E.	CONTROL POINT ASSOCIATES, INC. 35 TECHNOLOGY DRIVE WARREN, NJ 07059 908.668.0099 – 908.668.9595 FAX NEW BRITAIN CORPORATE CENTER 1600 MANOR DRIVE, SUITE 120 CHALFONT, PA 18914 215.712.9800 – 215.712.9802 FAX

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WETLAND DELINEATION REPORT

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Charleston Mixed Use Development Site
Wetland Delineation Report

July 2013

Prepared For

New York City Economic Development Corporation

Prepared by

AECOM

November 7, 2012
20 Exchange Place

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1.0 Introduction

1.1 Purpose of Study

The purpose of this investigation was to provide data regarding an identification of the extent of US Army Corps of Engineers (Corps) jurisdiction ("waters of the United States") for the Charleston Mixed-Use Development Site in Staten Island (Richmond County), New York (**Figure C-1**). The wetland delineation was performed as part of a larger site-wide investigation for the project proposed by the New York City Economic Development Corporation (EDC).

The determination of the extent of waters of the United States was conducted in accordance with the requirements of the Corps wetlands delineation method contained in the 1987 *Corps of Engineers Wetlands Delineation Manual* (1987). As per the guidelines set forth in the 1987 Manual, a 'routine' wetland delineation was conducted in July 2012. Also, adjacent to the project site, there are areas mapped by New York State Department of Environmental Conservation's (NYSDEC) as jurisdictional wetlands. The NYSDEC investigated these wetlands and confirmed their delineation in December 2012.

1.1 Site Identification

The Development Area is located in southwest Staten Island. The area is bordered to the west by Arthur Kill Road and commercial developments, to the south by commercial developments and Bricktown Way/Mohr Street. The east border of the area consists of parking lots associated with a shopping center, although the northeast portion of the area borders an environmental Conservation Area (part of the Project Area). The northern portion of the Development Area is bordered by Englewood Avenue. In the extreme northeast portion of the Development Area, the area encompasses a small dirt road (hereafter referred to as the corridor road) that separates the Conservation Area to the south and Clay Pit Ponds State Park Preserve to the north.

The Development Area is generally wooded, with several open grassy areas. No permanent surface water features occur in the area; although the remnants of two man-made reflecting ponds occur in the area. Mill Creek a north-south flowing waterbody occurs in the Conservation Area.

1.2 Regulatory Agency Mapped Wetlands

Preliminary investigations to determine the extent of freshwater wetlands in the area included review of the following:

- USFWS National Wetlands Inventory (NWI) Online Mapper; and
- NYSDEC Regulatory Freshwater Wetlands Maps.

1.3.1 National Wetland Inventory Maps

National Wetland Inventory (NWI) maps, prepared by the US Fish and Wildlife Service (USFWS), show the approximate configuration, location, and type of wetlands found within a given area of coverage. The NWI maps are prepared primarily by conventional aerial photo interpretation (stereoscopic analysis) of high-altitude aerial photography (1:80,000 black and white). The map notes state:

" . . . there is a margin of error inherent in the use of the aerial photographs. Thus, a detailed, on-the-ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation... No attempt was made to define the limits of proprietary jurisdiction of any federal, state or local government . . ."

The *User Notes for National Wetlands Inventory Maps* (US Department of the Interior, 1994) caution: "Maps should therefore be used to locate the presence of wetlands and not [emphasis added] to identify precise boundaries between wetlands and uplands."

Because the NWI maps are limited in precision by their scale (1:24,000) and the identification method used, the boundaries of wetlands shown on the NWI maps need to be more precisely determined in the field. Commonly, small wetland areas, and, less frequently, large wetland areas are not shown on NWI maps.

As per the USFWS' National Wetland Inventory online mapper, two palustrine wetlands occur on or adjacent to the Development Area (**Figure C-2**). Palustrine wetlands include all non-tidal wetlands that are dominated by trees, shrubs, persistent emergent, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 percent Cowardin et. al., 1979).

The wetland polygons mapped on and/or immediately adjacent to the area are as the following:

- PFO1B - Palustrine Forested, broad-leafed deciduous, Saturated
- PUBH - Palustrine Unconsolidated Bottom, Permanently Flooded.

1.3.2 New York State Wetland Maps

1.3.2.1 NYSDEC Tidal Wetland Maps

The NYSDEC has mapped tidal wetlands adjacent to the tidal waters of the Atlantic Ocean, as portions of the Hudson River. New York State tidal wetland maps are based on aerial photography taken in 1974. Each tidal wetland map is given a six digit code that corresponds to its geographical position. The maps that cover the relevant portions of Staten Island's west shore were reviewed to determine the extent of mapped tidal wetlands within the project area. No tidal wetlands occur within and/or adjacent to the Development Area.

Figure C-1
Project Site Location

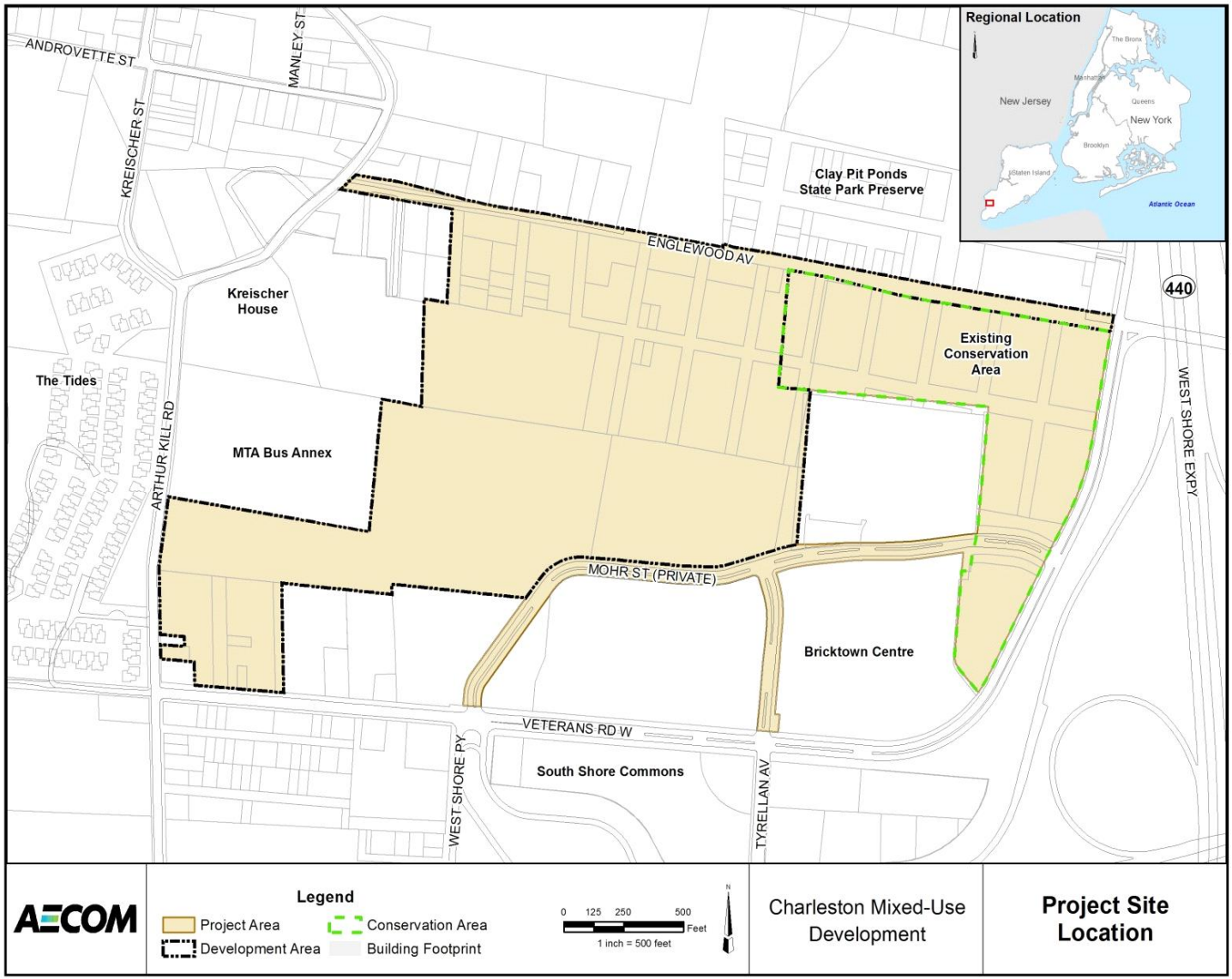
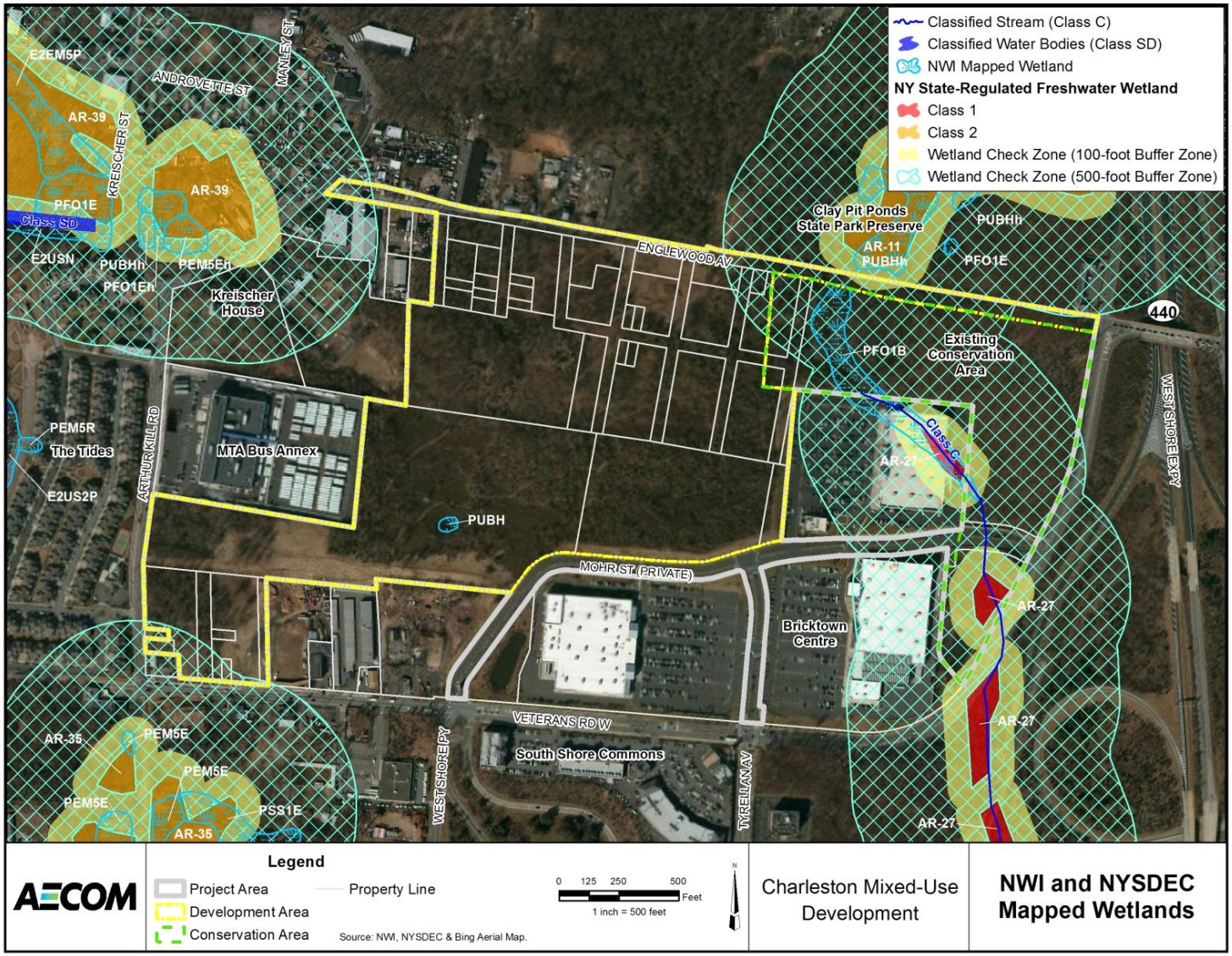


Figure C-2
NWI and NYSDEC Mapped Wetlands



1.3.2.2 NYSDEC Freshwater Wetlands

NYSDEC regulates certain activities that occur in freshwater wetlands that are 12.4 ac (5 ha) or greater in size, or of significant local importance. NYSDEC classifies these significant local wetlands as Class I through IV, depending on their ecological value. Class I wetlands are the most valuable as they may provide habitat for threatened and endangered species, or are the source of or are adjacent to drinking water sources. Only two NYSDEC classified freshwater wetlands were identified near the Development Area:

- Wetland AR-11 is a Class II wetland located along Englewood Avenue in the northeast portion of the Development Area.
- Wetland AR-27 is a Class I wetland located along Mill Creek south of the corridor road where Englewood Avenue is to be extended eastward to Veterans Road West.

Delineated Wetlands B and C (see next chapter) identify the boundaries of Wetland AR-11and AR-27 in and near the corridor road. The wetland delineation was field reviewed by NYSDEC in September 2012 and approved by NYSDEC in a letter dated December 5, 2012.

1.4 Topography, Geology, and Soils

1.4.1 Topography

Elevations in the area vary between 38 and 127 feet above mean sea level (AMSL). The highest elevations occur in the west-central portions of the Development Area. Most slopes in the area are less than 2 percent; although steep slopes are encountered along the periphery of the area. Evidence of previous earthmoving activities is present in the area. Artificially created reflecting ponds, temporary roadways, pathways, etc. were documented in the area.

1.4.2 Geology

The geology of the Development Area is largely dominated by materials deposited during the last Ice Age. During the last Ice Age, the southern boundary of the glacier is represented by the terminal moraine, a line of undulating hills with minor steep slopes. The moraine crosses through Staten Island. After deglaciation, the moraine was covered by glacial till depositions – a layer of loose unconsolidated, poorly sorted material. No outcrops of bedrock were observed on site.

1.4.3 Soils

The New York City Reconnaissance Soil Survey was reviewed to determine the mapped soils within the site. Review of the soil survey indicates that four mapped soil series occur on site (**Figure C-3**).

Foresthills-Greenbelt-Pavement & buildings complex, 0 to 8 percent slopes: Nearly level to gently sloping areas that have been filled with natural soil materials; a mixture of anthropogenic soils that vary in depth of fill, with more than 15 percent impervious pavement and buildings covering the surface. This soil type was mapped only on a small portion of the southern boundary of the Development Area.

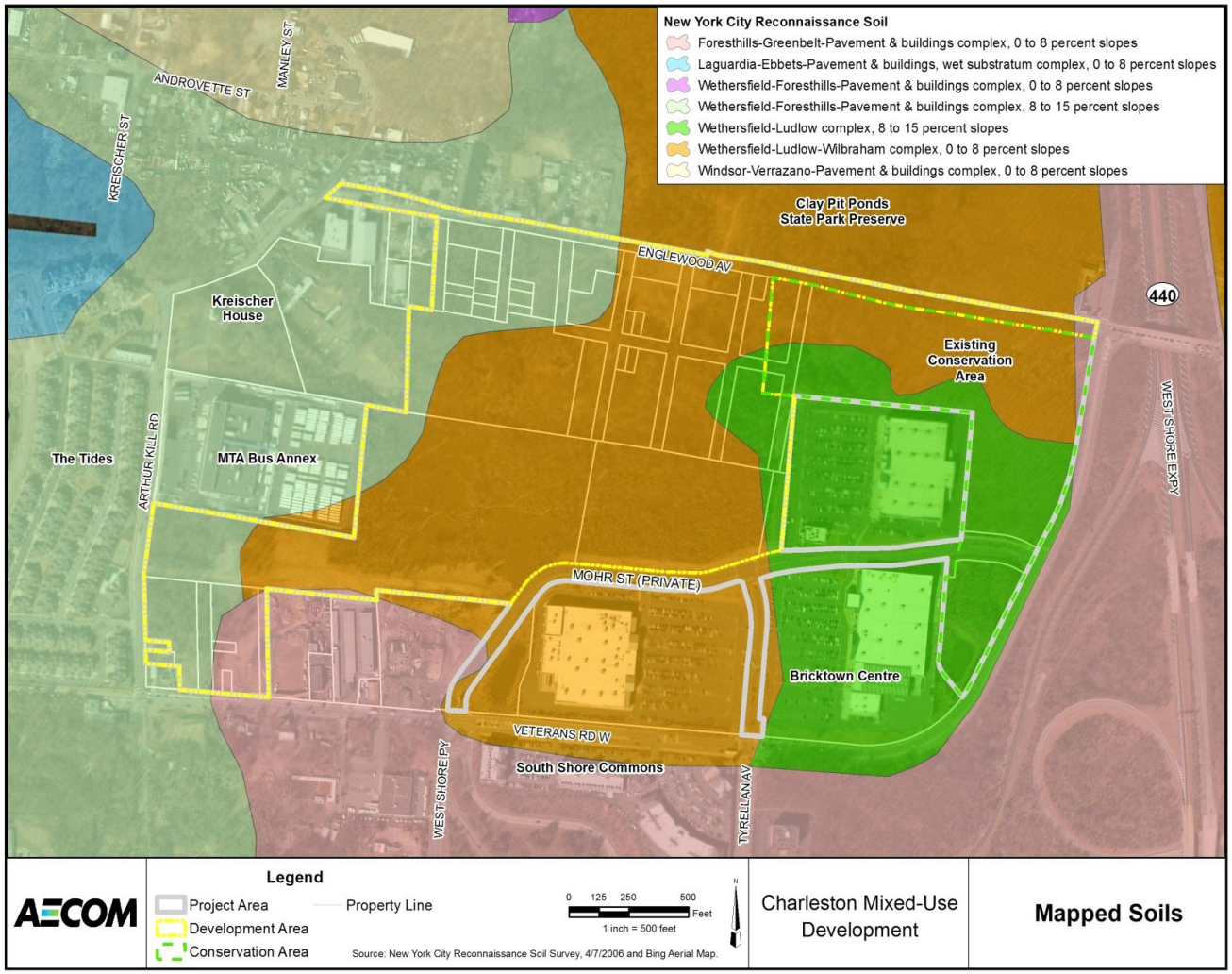
Wethersfield-Foresthills-Pavement & buildings complex, 8 to 15 percent slopes: Strongly sloping areas of till plains and hills that have been partially filled for residential use and cemeteries; a mixture of red till soils and anthropogenic soils, with more than 15 percent impervious pavement and buildings covering the surface; located in Staten Island. This soil series was mapped as occurring in the northwest and west portion of the Development Area.

Wethersfield-Ludlow complex, 8 to 15 percent slopes: Strongly sloping to moderately steep areas of till plains and hills, relatively undisturbed and mostly wooded; a mixture of well drained and moderately well drained soils developed in red till; located in Staten Island. This soil type was mapped only along the eastern boundary of the Development Area.

Wethersfield-Ludlow-Wilbraham complex, 0 to 8 percent slopes: Nearly level to gently sloping areas of till plains, relatively undisturbed and mostly wooded; a mixture of well drained, moderately well drained, and poorly drained soils developed in red till; located in Staten Island. This soil type occurs throughout the overwhelming majority of the Development Area.

A wide variety of soil types were observed in the Development Area (e.g., silty sand, silty clay loam, clay, etc.). Immediately north of the site is Clay Pit Ponds State Park Preserve, a site of former clay excavation for brick and earthen wares. As the name suggests, the soils in the area can have a high clay content. During the wetland delineation (See subchapter 3.2), soil texture and color varied considerably. Soils had high clay content and were influenced by red parent material. Often the wetlands formed in low depressions that allowed for the collection and retention of rainwater.

Figure C-3
Mapped Soils



2.0 Wetlands Delineation

The Corps regulates "waters of the United States", pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) (hereinafter referred to as Section 404). The term "waters of the United States" includes navigable lakes, rivers, streams, tributaries to navigable waters, all waters which are subject to the ebb and flow of the tide, interstate waters and tributaries. Waters of the United States also include wetlands adjacent to any of the above and all other waters of the US not identified above, such as isolated wetlands and lakes, intermittent streams and other waters, the destruction of which could affect interstate or foreign commerce.

The interpretation of interstate commerce is broad and extends to waters that are presently used, or have been used in the past, or may be susceptible for use by interstate or foreign travelers for recreation, waters from which fish or shellfish are or could be taken and sold in interstate commerce or foreign commerce, waters which are or could be used by industries in interstate commerce and waters which are or could be used by migratory birds or waterfowl. While the determination of wetlands is the focus of this report, it must be emphasized that waters in general are subject to regulation, since in all likelihood such waters would be considered "waters of the United States."

The Corps (Federal Register 1982) and the US Environmental Protection Agency (Federal Register 1980) jointly define wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

From this definition of wetlands, the Corps developed a three-parameter method to evaluate areas of land for the existence of wetlands, based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. This method is described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Federal Manual). Generally, an area must exhibit all three parameters in order to be considered a jurisdictional wetland. A detailed field sampling methodology was developed and published in the Federal Manual, based on the following definitions of the three parameters:

Hydrophytic Vegetation - The sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.

Hydric Soil - A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.

Wetland Hydrology - Encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively.

A detailed description of these three parameters is provided in the following sections.

2.1 Hydrophytic Vegetation

Hydrophytic vegetation is adapted to life in permanently or periodically inundated or saturated soils. There are five main plant indicator status categories, based on the plant species' frequency of occurrence in wetlands:

- Obligate wetland plants (OBL) occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but may also occur rarely (estimated probability <1 percent) in nonwetland areas;

- Facultative wetland plants (FACW) usually occur in wetlands (estimated probability >67-99 percent), but occasionally are found in nonwetlands (estimated probability 1-33 percent);

- Facultative plants (FAC) are equally likely to occur in wetlands or nonwetlands (estimated probability 33-67 percent);

- Facultative upland plants (FACU) usually occur in nonwetlands (estimated probability >67-99 percent), but occasionally are found in wetlands (estimated probability 1-<33 percent); and

- Upland plants (UPL) occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in nonwetlands.

The three facultative categories are subdivided by "+" and "-" modifiers. FAC+ species, for example, have a greater probability of occurring in wetlands than FAC species, while FAC- species have a lower estimated probability of occurring in wetlands than FAC species.

An area is considered to have hydrophytic vegetation when, under normal circumstances, more than 50 percent of the dominant species are OBL, FACW, or FAC species. For this report a specific species indicator status was based upon the "United State Department of Agriculture's Natural Resource Conservation Services Plant Data Base, 2003." Additional indicators of wetland vegetation include:

- Observation of plant species growing in areas of prolonged inundation and/or soil saturation;
- Morphological adaptations;
- Information from technical literature;
- Physiological adaptations; and
- Reproductive adaptations.

The dominant species in the plant community at the site were determined and categorized as to their likelyhood to occur in wetlands (e.g., OBL, FACW, etc.).

Observation points were selected to be representative of the plant communities present in the wetland and adjacent upland area. At each observation point, dominant plant species were identified and their relative abundance was estimated. Dominant plant species were recorded for each of the observation points. The criteria used to determine dominance were basal area and/or estimated percent areal cover for trees, and percent areal cover for saplings/shrubs, herbs, and vines.

2.2 Hydric Soils

Indicators of hydric soils can be placed into two categories: 1) soil series and phases on the national and state hydric soils lists; and 2) field indicators of hydric soils. In addition, direct evidence can be used such as the observation of ponding, flooding and saturation, taking into account factors such as the time of year and likely duration. Direct evidence may be the only indication in newly developing soils or in areas of recent change. The US Department of Agriculture (USDA), Soil Conservation Service (SCS), in conjunction with the National Technical Committee for Hydric Soils has developed national and state lists of hydric soils (NTCHS, 1991).

The Federal Manual has identified that the presence of any one of the following field identifiable factors may indicate that hydric soils are present:

Organic Soils contain a high amount of organic matter and water content;

Histic Epipedon is a layer of a mineral hydric soil between 8 to 16 inches in depth at or near the surface that is saturated for 30 consecutive days or more in most years and contains a minimum of 20 percent of organic matter when no clay is present or a minimum of 30 percent of organic matter when 60 percent or greater clay is present;

Sulfidic materials in mineral soils emit an odor of rotten eggs. The odor is produced by the presence of hydrogen sulfide. These odors are present in permanently saturated water logged soils with sulfidic material only a few inches from the soil surface. Sulfides are produced only in a reducing environment;

Aquic or peraquic moisture regimes in soils that are almost completely free of dissolved oxygen due to the presence and/or saturation of groundwater at the soil surface i.e., soils of tidal marshes and soils of closed, landlocked depressions that are fed by permanent streams;

Reducing soil conditions (e.g. black anoxic soil) occur when soils have been saturated for long or very long durations of time;

Gleyed, low chroma or low chroma mottled soils refer to the coloration of hydric soils. The colors of various soil components are often the most diagnostic indicator of soils. Gleyed soils or gray-colored soils develop when anaerobic conditions result in pronounced chemical reduction of iron, manganese, and other elements, thereby producing a gray soil colors. Mottled means “marked with spots of contrasting color.” Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table;

Iron and/or manganese concretions less than 0.07 in (2 mm) in diameter occurring within 3 in (7.5 cm) of the surface are evidence that the soil is saturated for long periods near the surface; and

Coarse textured soils with:

a) High organic matter content in the surface horizon,
b) Dark vertical streaking of subsurface horizons by organic matter; and/or
c) Wet spodosols.

Detailed investigations were made at each observation point to determine if hydric soils were present. Soil pits were dug to depths ranging from 11 in to 20 in. The field analysis included the evaluation of soil colors, stratification and textures. In addition, particular attention was also given to those properties that identify soils as hydric. At a depth of 10 inches, the soil color was analyzed (using the Munsell color chart). The use of the color chart is employed to determine the chroma of the soil. The presence of gleyed or mottled soil coloring below a depth of 10 inchesor the A horizon (whichever is shallower) indicates the presence of hydric conditions. Additional soil investigations were made between observation points as necessary to assist in locating the wetland/upland boundary.

2.3 Hydrology

Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. The Federal Manual discusses hydrology in terms of a percent of the growing season when an area is wet. Generally speaking, areas which are seasonally inundated and/or saturated to the surface for more than 12.5 percent of the growing season are wetlands. Areas saturated to the surface between 5 percent and 12 percent of the growing season are sometimes wetlands and sometimes uplands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands. The length of time an area is wet for the hydrology criterion is based on consecutive days during the growing season.

The hydrology parameter may be quite evident (i.e., overbank flooding), or it can be difficult to observe. In contrast to the vegetation and soil parameters, the hydrology parameter has much more spatial and temporal variation, making the determination of wetland boundaries generally impracticable on the basis of the hydrology parameter alone. Hydrologic indicators are useful in confirming that a site with hydrophytic vegetation and hydric soils still exhibits hydrological conditions typically associated with such vegetation and soils.

Hydrologic indicators associated with wetlands can be based on recorded data and/or field data. Recorded data can be obtained from tide gauges, stream gauges, flood predictions, historical data (i.e., aerial photographs and soil surveys) and piezometers. Field data include the following characteristics:

- Visual observation of inundation;
- Visual observation of soil saturation;
- Water marks;
- Drift lines;
- Sediment deposits;
- Surface scouring; and,
- Wetland drainage patterns.

In addition, the March 1992 guidance issued by the Office of the Chief of Engineers allows use of two or more secondary indicators, including: oxidized root channels; water-stained leaves; local soil survey data; the FAC-neutral test; and "other" (to be explained by the delineator).

The presence or absence of wetland hydrology was assessed at each observation point and at several additional points along each of the wetland boundaries. Any evidence of hydrological modifications was noted. Features observed include inundation, depth to saturated soil, matted and stained leaf litter, drift lines, buttressed tree trunks, shallow rooting, surface scour and sediment deposition.

2.4 US Army Corps of Engineers Jurisdiction

The Corps has federal jurisdiction of tidal wetlands pursuant to Section 10 of the Rivers and Harbors Act (hereinafter referred to as Section 10). Section 10 was enacted March 3, 1899 (33 USC 403). Section 10 prohibits the unauthorized obstruction or alteration of any navigable water of the United States. Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

As defined in 33 CFR 329.12(a)(2), in coastal areas, the shoreward limits of the Corps' jurisdiction under Section 10 extends to the line on the shore reached by the plane of the mean (average) high water. Jurisdiction extends to the edge of all US tidal waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered "navigable in law", but only so far as these areas are subject to inundation by the mean high waters.

As defined in 33 CFR 328.4(b), under Section 404 of the Clean Water Act (hereinafter referred to as Section 404), the landward limit of the Corps' jurisdiction in tidal waters extends to the high tide line. The term "high tide line" means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm (33 CFR 328.3(d)). When adjacent non-tidal waters of the US are present, the Corps' jurisdiction under Section 404 extends to beyond the line of spring high tide line (SHTL).

3.0 Results and Discussion

3.1 Identified Species

Table C-1 below identifies the species that were identified in the wetlands and uplands during the wetland delineation. The table identifies the species per vegetative strata and provides the wetland indicator status. Plants and their indicator status were identified per the United States Department of Agriculture (USDA) Plants Database (USDA, 2012).

Table C-1

Species Identified in the Area

Strata	Common Name	Scientific Name	Indicator
T	Red maple	Acer rubrum	FAC
T	River birch	Betula nigra	FACW
T	Gray birch	Betula populifolia	FAC
T	Green ash	Fraxinus pennsylvanica	FACW
T	Sweetgum	Liquidambar styraciflua	FAC
T	Cottonwood	Populus deltoides	FAC
T	Pin oak	Quercus palustris	FACW
T	Willow	Salix sp.	NI
T	Sassafras	Sassafras albidum	FACU-
S/S	Baccharis	Baccharis halmnifolia	FACW
S/S	Buttonbush	Cephalanthus occidentalis	OBL
S/S	Russian olive	Elaeagnus angustifolia	FACU
S/S	Lowbush blueberry	Vaccinium angustifolium	FACW-
S/S	Highbush blueberry	Vaccinium corymbosum	FACW-
S/S	Southern arrowwood	Viburnum dentatum	FAC
V	Virginia creeper	Parthenocissus quinquefolia	FACU
V	Fox grape	Vitis labrusca	FACU
V	Wisteria	Wisteria sp.	NIS
H	Red top grass	Agrostis gigantea	NI
H	Water plantain	Alisma subcordatum	OBL
H	Dogbane	Apocynum androsaemifolium	NL
H	Mugwort	Artemisia vulgaris	NL
H	Brome	Bromus sp.	NIS
H	Broom sedge	Carex scoparia	FACW
H	Wool grass	Cirpus cyperinus	FACW+
H	Umbrella sedge	Cyperus	NL
H	Water purslane	Didiplis diandra	OBL
H	Spikerush	Eleocharis obtusa	OBL
H	Fuscue grass	Gramineae Family	NIS
H	Timothy grass	Gramineae Family	NIS
H	Canadian rush	Juncus canadensis	FACW
H	Soft rush	Juncus effusus	FACW+
H	Path rush	Juncus tenuis	FAC-
H	Rice cutgrass	Leersia oryzoides	OBL
H	Birdfoot trefoil	Lotus corniculatus	FACU
H	Common reed	Phragmites australis	FACW
H	Reed canary grass	Phalaris arundinacea	FACW+
H	English plantain	Plantago major	NL

Strata	Common Name	Scientific Name	Indicator
H	Pennsylvania smartweed	Polygonum pensylvanicum L	FACW
H	Curly dock	Rumex crispus	FACU
H	Bull rush	Scirpus atrovirens	OBL
H	Green Brier	Smilax rotundifoloa	FAC
H	Canada goldenrod	Solidago canadensis	FACU
H	Rough leaf goldenrod	Solidago rugosa	FAC
H	Goldenrod	Solidago sp.	NIS
H	Slender leaf goldenrod	Solidago tenuifolia	FAC
H/V	Poison ivy	Toxicodendron radicans	FAC
Notes: T – tree, S/S – shrub/scrub, V – vine, H – herbaceous, and H/V – herbaceous/vine			

Delineated Wetlands

Larger wetlands on site are labeled as wetlands A through HA are Wetlands that start with the letter “N” Are very small parcels that often formed within the tire ruts and other small depression within on onsite trails and access ways. Many of the wetlands on site were delineated under atypical conditions due to previous anthropogenic disturbance and/or the presence of red parent material in the soils.

Many of the delineated wetlands are less than 0.01 acres in size. **Table C-2** identifies each wetland’s acreage and species that were identified in each wetland and the surrounding upland. **Figure C-4** identifies the locations of the delineated wetlands on site. Wetland Data Sheets are provided in **Attachment C-1**.

Figure C-4
Delineated Wetlands

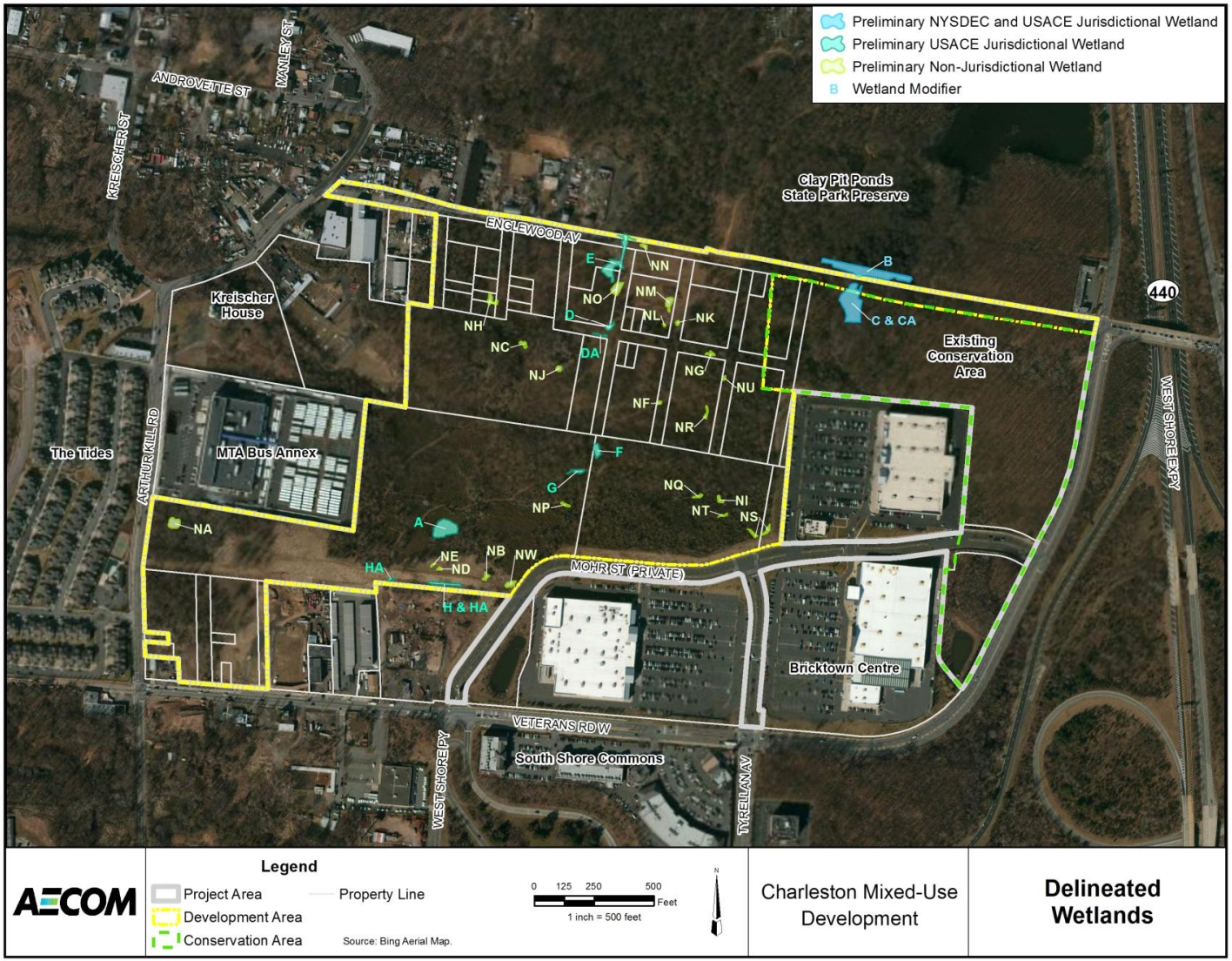


Table 2

Species Identified in Wetland and Upland Observation Points

Wetland	Acreage	Species Identified in Wetland	Species in Adjacent Upland
A	0.136	rice cut grass Pennsylvania smartweed water purslane	sassafras pin oak grey birch smilax
B*	0.239	red maple sweet gum pin oak river birch green brier	green brier goldenrod
C*	0.239	red maple green ash Pennsylvania smartweed	green brier goldenrod
D	0.024	soft rush common reed flat top goldenrod umbrella sedge spike rush path rush	Canada goldenrod path rush grasses slender leaf goldenrod broom sedge flat top goldenrod
E	0.126	soft rush water purslane path rush slender leaf goldenrod rough stem goldenrod spike rush plantain common reed	English plantain red top clover grasses path rush birdsfoot trefoil chicory
F	0.030	green brier gray birch pin oak highbush blueberry	green brier pin oak gray birch
G	0.017	gray birch pin oak highbush blueberry slender leafed goldenrod dark green bulrush	gray birch greenbrier low bush blueberry grasses (Andropogon sp.) path rush
H	0.035	soft rush common reed wool grass path rush willow	brome mugwort cottonwood seedlings
HA	0.006	soft rush common reed wool grass path rush flat top goldenrod	mugwort brome flat top goldenrod cottonwood (seedlings)
NA**	0.040	pin oak green brier arrowwood soft rush willow	pin oak maple green brier
NB	0.009	smilax pin oak soft rush arrowwood	grasses goldenrod mugwort

Wetland	Acreage	Species Identified in Wetland	Species in Adjacent Upland
		willow	
NC	0.009	poison ivy Pennsylvania smartweed smilax pin oak	wisteria Virginia creeper smilax pin oak
ND	0.004	soft rush common reed	grasses goldenrod mugwort
NE	0.002	curly dock soft rush broom sedge	grasses Canada goldenrod
NF	0.004	soft rush common reed spike rush	gray birch goldenrod mugwort
NG	0.008	pin oak red top soft rush	pin oak green brier grases
NH	0.018	rough stem goldenrod lance leaf goldenrod umbrella sedge sweetgum (seedlings) wool grass gray birch sedges spike rush red top green brier common reed	gray birch green brier path rush lance leaf goldenrod broom sedge cinquefoil
NI**	0.008	arrowood highbush blueberry willow pin oak aspen button bush green brier	path rush green brier goldenrods
NJ	0.009	umbrella sedge common reed soft rush spike rush	smilax sumac
NK	0.005	spike rush umbrella sedge	path rush
NL	0.002	soft rush spike rush umbrella sedge path rush	path rush Canada goldenrod grasses
NM	0.023	soft rush umbrella sedge spike rush slender leaf goldenrod sycamore	smilax gray birch slender leaf goldenrod rough stemmed goldenrod
NN	0.008	soft rush spike rush	plantain grasses
NO	0.036	soft rush wool grass goldenrods	English plantain red top clover grasses path rush birdsfoot trefoil gray birch

Wetland	Acreage	Species Identified in Wetland	Species in Adjacent Upland
NP**	0.007	soft rush	path rush
NQ**	0.007	dark green bulrush path rush	path rush solidago sp grasses.
NR	0.007	gray birch soft rush goldenrod woolgrass	grey birch path rush
NS	0.011	dark green bulrush wool grass soft rush common reed	
NT	0.007	greenbrier gray birch pin oak	greenbrier gray birch sassafras
NU	0.004	wool grass soft rush goldenrod	path rush
NV	0.002	dark green bulrush soft rush	path rush
NW	0.017	soft rush dog bane reed canary grass wool grass common reed	brome path rush timothy grass goldenrod

Bold text indicates dominant species

Notes: Wetland continues outside of the project area.
*Species identified for a portion of the wetland line adjacent to road embankment.
** At the time of the delineation, the wetland consisted of over 85 percent bare saturated ground. The wetland was located in an access trail or road and vegetation only grew along the edge of the wetlands

Wetland A- Wetland is located within a man-made pond (Photo 1). The wetland is dominated by rice cutgrass and Pennsylvania smartweed. Soils consisted of matrix colors of 7.5YR4/1 and 2.5Y5/2 with mottles of 10YR5/2 present at a depth of 5-12 inches. Additionally, oxidized rhizospheres were present from 10-15 inches. Texture was mainly silty sand. Indicators of hydrology consisted of evidence of a high water table, saturation, and the presence of oxidized rhizospheres on living roots.

Wetland B – Wetland is located at the south edge of a NYSDEC-regulated wetland located in Clay Pits Pond Park (Photo 2). Wetland boundary is demarcated by increase in elevation associated with a road embankment. Wetland B is dominated by red maple, sweetgum, pin oak, river birch, and smilax. Soils consisted of matrix color 2.5YR3/1, 3/4, and 4/2, as well as 7.5YR5/6 at deepest depths (16+ inches). Redoximorphic features of 2.5YR3/4 were only present from 7 to 16 inches. Texture was generally a loam or sandy loam. Red parent material was evident throughout the profile. Indicators of wetland hydrology included saturation at 2 inches, water table present at 16 inches, sparsely vegetated concave surface, as well at micro-topographic relief, and meeting the FAC-Neutral Test criteria. The transition area for the NYSDEC regulated freshwater wetland designated as AR-11 extends along the northern side of Englewood Avenue but does not extend into the Project Area according to the NYSDEC freshwater wetlands map for the Arthur Kill Quadrangle.

Wetland C – The wetland line demarcates the northern line of a NYSDEC-regulated wetland in the Conservation Area (Photo 3). This wetland is dominated by red maple and green ash. Sporadically in the wetland, small patches of Pennsylvania smartweed are present. The soil profile consisted of a matrix that varied with depth and included 7.5YR3/3, 2.5YR4/3, 5YR4/3, 4/2, and 3/2. Redoximorphic features were present at depths of 5-17 inches. Texture was primarily a silt loam. The presence of red parent material

was evident throughout the profile. Indicators of wetland hydrology present included saturation at 2 inches, sparsely vegetated concave surface, water-stained leaves and micro-topographic relief.

Wetland D – This wetland is a small depression at the base of a slope dominated by soft rush and wool grass and a small narrow linear drainage way dominated by common reed (Photo 4). The soil profile revealed matrix colors that varied from 10YR4/1, 7.5YR5/6, to 7.5YR4/4 at increasing depth. Redoximorphic features were present at depths of 2 through 12 inches. Soil texture was silty clay loam throughout. Oxidized rhizospheres were present within the first 2 inches. Indicators of wetland hydrology included micro-topographic relief, a positive FAC-Neutral Test, as well as the presence of oxidized rhizospheres on living roots.

Wetland E – Wetland is a large emergent wetland located adjacent to a horse pasture (Photo 5). The wetland is dominated by soft rush. Other species included spike rush, common reed Pennsylvania smartweed, water purslane, and goldenrods. Soil matrix color varied between 7.5YR3/2, 4/1 and 5/1. Redoximorphic features were present from 2 to 14 inches. Soil texture was silty clay loam throughout. Indicators of wetland hydrology included water-stained leaves, oxidized rhizospheres on living roots, surface soil cracks, and drainage patterns.

Wetland F – Located within the wooded portion of the site, this wetland is dominated by dense growths of smilax, which covers approximately 95 percent of the wetland (Photo 6). Other species in the wetland include gray birch, pin oak, and high bush blueberry. The soil profile consisted of matrix colors that varied between 10YR2/1, 4/1, and 7.5YR5/1. Redoximorphic features were present from 1 to 16 inches. Soil texture was generally a silt loam or silty clay loam. Soils were saturated in the upper 10 inches and water stained leaves.

Wetland G – Small wetland associated with depression in a horse trail (Photo 7). Dominant vegetation is pin oak, grey birch, and highbush blueberry. The soil profile consisted of matrix colors varying between 7.5YR4/3, 4/4, and 5/3. Redoximorphic features were present throughout the profile. Texture was silt loam throughout. Indicators of wetland hydrology included surface water present at 1-2 inches, water-stained leaves, and drainage patterns.

Wetland H – Wetland is located within a man-made drainage feature (Photo 8). Wetland is dominated by soft rush and common reed. The soil profile consisted of matrix colors of 10YR3/2, 5YR3/2, and 7.5YR3/6. Redoximorphic features were present from 6 to 16 inches. Soil texture was generally a silt loam. Red parent material was evident throughout. Indicators of wetland hydrology included the presence of water-stained leaves, drainage patterns, and micro-topographic relief.

Wetland HA – Wetland is located within the same man-made drainage feature as wetland H (Photo 8). Wetland is dominated by soft rush and common reed. The soil profile within the wetland consisted of matrix colors of 5YR3/2 and 7.5YR3/2. Redoxiporphic features were present beyond 6 inches. The soil texture was silt loam with gravel and red parent material. Indicators of wetland hydrology included micro-topographic relief as well as a positive FAC-Neutral Test.

Wetland NA – Wetland is located within the remnants of an old gravel road (Photo 9). Wetland is very sparsely vegetated with pin oak, smilax, arrowwood, soft rush, and willow.

Wetland NB – This wetland consists of a low area in a former drainage way (Photo 10). Wetland vegetated and dominated by smilax, soft rush and poison ivy.

Wetland NC – Wetland is a small depression located in the corner of a junction of two onsite roads (Photo 11). Wetland is sparsely vegetated with Pennsylvania smartweed and smilax. The wetland is surrounded by large coniferous trees.

Wetland ND – Wetland is a small roadside drainage swale dominated by soft rush and common reed (Photo 12).

Wetland NE – Wetland is a small pit receiving runoff from an adjacent dirt road, wetland is sparsely vegetated with soft rush (photo 13).

Wetland NF – Wetland is a small depression within an on-site path dominated by soft rush (Photo 14).

Wetland NG – Located at the base of a slope, the wetland is confined by tire ruts and dominated by pin oak, Canada rush and soft rush (Photo 15).

Wetland NH – The wetland is an isolated depression located with a successional wooded area (Photo 16). The wetland is dominated by rough leaf goldenrod, arrowwood, umbrella sedge, and gray birch.

Wetland NI – Wetland is a bare depression ringed by arrowwood, highbush blueberry, willow, pin oak buttonbush, and smilax (photo 17).

Wetland NJ – Wetland is a small depression that is largely unvegetated. Observed species included umbrella sedge, common reed, soft rush, and spikerush (Photo 18).

Wetlands NK, NL, NM, NN, and NO occur in a parcel of land that is now a horse pasture. The site has been historically graded and cleared. Soils within the parcel vary considerably from 7.5YR 4/4 silty sands to 10YR 6/1 clays. These wetlands typically formed in shallow depressions.

Wetland NK – Wetland is a small depression within and access trail dominated by spikerush (Photo 19)

Wetland NL – Wetland consists of several tire ruts within a field. The wetland is dominated by soft rush, umbrella sedge, and slender leaf goldenrod (Photo 20).

Wetland NM – Located within the middle of a horse pasture, wetland NM is an emergent wetland dominated by soft rush, spike rush, slender leaf goldenrod and path rush (Photo 21).

Wetland NN – This is a small isolated wetland within a small depression adjacent to a horse pasture. The wetland was vegetated with soft rush and Pennsylvania smartweed (Photo 22).

Wetland NO – Wetland NO is similar to wetland E. The wetlands are separated by a small rise. No hydrologic connection between wetland NO and Wetland E was observed (Photo 23).

Wetland NP - This wetland is a small depression within a horse trail. Wetland sparsely vegetated with soft rush (Photo 24).

Wetland NQ – Wetland consists of tire ruts within a horse trail. Wetland sparsely vegetated with dark green bulrush (Photo 25).

Wetland NR – This isolated wetland is located in an access way. Wetland vegetated with gray birch, wool grass, and soft rush (Photo 26).

Wetland NS – Wetland largely consists of a series of deep ruts in access trail dominated by dark green bull rush, wool grass, soft rush, and common reed (Photo 27).

Wetland NT – Wetland is a small linear depression within a wooded area on site. Dominant vegetation included pin oak, gray birch, and smilax (Photo 28).

Wetland NU – Wetland NU is a small depression in an access trail delineated with only five wetland flags. Dominant vegetation was wool grass and soft rush (Photo 29).

Wetland NW - Wetland consists of a confined depression and is dominated by soft rush, dog bane, and reed canary grass (Photo 30).

AECOM	PHOTOGRAPHIC LOG

Photo No. 1	Date: July, 2012

Description:

Wetland A – a man made pond that is periodically flooded with up to one foot of water.

Photo No. 2	Date: July, 2012

Description:

Wetland B – A forested wetland parcel located in Clay Pit Ponds State Park Preserve.

AECOM	PHOTOGRAPHIC LOG

Photo No. 3	Date: July, 2012

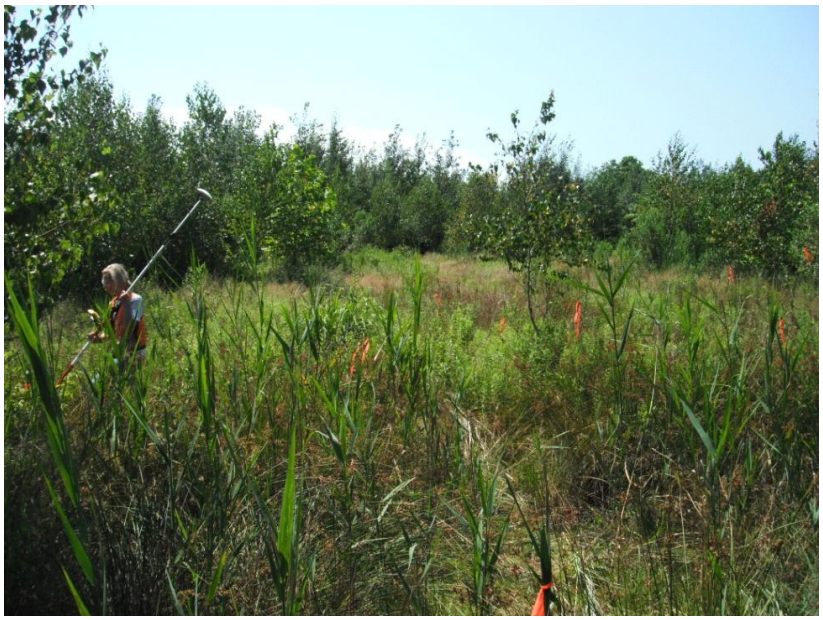
Description:

Wetland C – The wetland is located just south of Wetland B. A forested wetland in the Conservation Area.

Photo No. 4	Date: July, 2012

Description:

Wetland D – An emergent wetland located in a field in the northern portion of the Development Area.



AECOM	PHOTOGRAPHIC LOG

Photo No. 5	Date: July, 2012

Description:

Wetland E – A large emergent wetland located in the northern portion of the Development Area. The wetland is approximately one foot lower in elevation than the surrounding uplands.

Photo No. 6	Date: July, 2012

Description:

Wetland F – Located in the central portion of the Development Area, the emergent wetland was created by surface by drainage impounded by the presence of small berm and hummocks less than two feet in elevation.

AECOM	PHOTOGRAPHIC LOG

Photo No. 7	Date: July, 2012

Description:

Wetland G – Immediately south of the Wetland F, Wetland G largely consists of a depressional area within an unofficial internal path.

Photo No. 8	Date: December, 2012

Description:

Wetlands H and HA – located within a rip-rap lined drainage easement. Wetland H and HA are two discontinuous depressions dominated by hydrophytic vegetation.

AECOM	PHOTOGRAPHIC LOG

Photo No. 9	Date: December, 2012
Description: Wetland NA – Located in a former access road, Wetland A is a shallow depression in the center of the roadway.	

	PHOTOGRAPHIC LOG

Photo No. 10	Date: December, 2012
Description: Wetland NB – is shallow confined depression within and immediately adjacent to an onsite access way.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 11	Date: July, 2012
Description: Wetland NC – Small isolated depression located at the intersection of two onsite trails.	

Photo No. 12	Date: July, 2012
Description: Wetland ND is a small depression located adjacent to an onsite access way.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 13	Date: July, 2012
Description: Wetland NE – The wetland is within a small confined trench. The red line approximates the wetland boundaries.	

Photo No. 14	Date: July, 2012
Description: Wetland NF – small isolated depression within a former access road.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 15	Date: July, 2012
Description: Wetland NG – small depression located between an onsite horse trail and a small wooded slope.	

Photo No. 16	Date: July, 2012
Description: Wetland NH- isolated depression within a former access road.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 17	Date: July, 2012
Description: Wetland NI – isolated depression located at the junction of two onsite trails.	

Photo No. 18	Date: July, 2012
Description: Wetland NJ – remnants of a small man-made reflecting pond.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 19	Date: July, 2012
Description: Wetland NK – A small depression in an on-site trail. The red line in the photograph identifies the approximate boundaries of the wetland.	

Photo No. 20	Date: July, 2012
Description: Wetland NL – small isolated depression.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 21	Date: July, 2012
Description: Wetland NM - small emergent wetland confined by an artificial berm.	

Photo No. 22	Date: July, 2012
Description: Wetland NN – small emergent wetland located within an isolated depression.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 23	Date: July, 2012
Description: Wetland NO – Confined emergent wetland located south of Wetland E. Wetlands are separated by a berm.	

Photo No. 24	Date: July, 2012
Description: Wetland NP - wetland consists of a wet depression within an onsite trail.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 25	Date: July, 2012

Description:

Wetland NQ – wetland consists of a wet depression within an onsite trail (wetland is similar to Wetland NP).

Photo No. 26	Date: July, 2012

Description:

Wetland NR – a small depressional wetland located in an onsite access road.

AECOM	PHOTOGRAPHIC LOG

Photo No. 27	Date: July, 2012
Description: Wetland NS - wetland is confined within the depression of an onsite trail and an artificially created berm.	

Photo No. 28	Date: July, 2012
Description: Wetland NT – A small depressional wetland located between the hummocks of several trees.	

AECOM	PHOTOGRAPHIC LOG

Photo No. 29	Date: July, 2012
Description: Wetland NU – Wetland is a small depression within a ditch adjacent to an onsite trail.	

Photo No. 30	Date: July, 2012
Description: Wetland NW – Wetland dominated with common reed and soft rush. Wetland is an isolated depression at the base of a slope.	

3.2 Jurisdictional Determination

In January 2013, AECOM met with officials form the USACE for a jurisdictional determination of the delineated wetland lines. AECOM is currently awaiting the official correspondence from USACE; however, it is anticipated only Wetlands B, C, H, and HA will be determined as jurisdictional wetlands.

In September 2012, AECOM personnel met with an official from the NYSDEC for an inspection of the delineated wetland lines on site. In written correspondence, the NYSDEC indicated that Wetlands B and C are regulated by the state.

4.0 References

Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. La Roe. December 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31, U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Department of the Army, Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual.* Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Federal Register. 1980. "40 CFR Part 230: Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged of Fill Material, "Vol 45, No. 249, pp. 85352-85353, US Government Printing Office, Washington D.C.

Federal Register. 1982. "Title 33: Navigation and Navigable Waters: Chapter II, Regulatory Programs of the Corps of Engineers, "Vol 47, No. 138, P. 31810, US Government Printing Office, Washington, D.C.

Munsell Color. 1975. *Munsell Soil Color Charts*. Baltimore, Maryland.

NYSDEC. 2006. Website accessed to obtain information on tidal wetland categories http://www.dec.state.ny.us/website/dfwmr/marine/twcat.htm

National Resource Conservation Survey. Website accessed October 2006 to obtain soil data for Staten Island. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

National Technical Committee for Hydric Soils. 1991. *Hydric Soils of the United States,* (3rd edition). Misc. Publ. No. 1491. USDA. Soil Conservation Service. Washington, D.C.

US Department of Agriculture (USDA). 2012. United State Department of Agriculture's Natural Resource Conservation Services Plant Data Base (http://plants.usda.gov/).

Attachment C-1

Wetland Data Sheets

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WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: A

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: PUBh

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):
Water Table Present?	Yes X	No ____	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: A

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Leersia oryzoides	80	D	OBL
2. Polygonum pennsylcanicum	10	N	FACW
3. Ludwigia palustris	1	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	91 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL

Sampling Point: A

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR4/1	100					sandy silt	
5-10	2.5Y5/2	90	10YR5/2	10		M	silty sand	
10-12	2.5Y5/2	90	10YR5/2	10		M	silty sand	oxidized rhizospheres present
12-15	7.5YR4/1	100					silty sand	oxidized rhizospheres present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/9/12

Applicant/Owner: NYCEDC State: NY Sampling Point: A (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland?** **Yes _____ No x** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Sassafras albidum	15	D	FACU
2. Quercus palustris	10	D	FACW
3. Betual populifolia	10	D	FAC
4.			
5.			
6.			
7.			
	35	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

Woody Vine Stratum (Plot size: 15')			
1. Smilax rotundifolia	50	D	FAC
2.			
3.			
4.			
	50	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_x_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _x_ **No**

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

SOIL

Sampling Point: A (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR3/2	100					Loam	
6-12	10YR4/4	100					Loam	
12+								Auger refusal, unidentified odor.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: B

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: PFO1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.) Problematic hydric soil indicator/Red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):
Water Table Present?	Yes X	No _____	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes X	No 2	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: B

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	35	D	FAC
2. Liquidambar styraciflua	25	D	FAC
3. Betula nigra	5	N	FACW
4.			
5.			
6.			
7.			
	65	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (Plot size: 5 feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

Woody Vine Stratum (Plot size:)			
1. Smilax rotundifolia	2	N	FAC
2.			
3.			
4.			
	2	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL

Sampling Point: B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5YR3/1	100					organic	
2-7	2.5YR3/4	100					sandy loam	
7-16	2.5YR4/2	60	2.5YR3/4	40		M	loam	
16+	7.5YR5/6	100					silty sand	saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: _____ Sampling Point: B Upland

Investigator(s): Rollino J Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat Land Slope (%): <2

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil x, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** x
Hydric Soil Present?	Yes _____	No x	
Wetland Hydrology Present?	Yes _____	No x	If yes, optional Wetland Site ID: _____

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

Upland is a road embankment. Vergetation has FAC species, no evidence of hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? **Yes** _____ **No** x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: B upland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubra	40	D	FAC
2. Liquidambar stryaciflua	40	D	FACU
3. Populus grandidentata	25	N	FACU-
4.			
5.			
6.			
7.			
	100+	= Total Cover	

Sapling/Shrub Stratum (Plot size: 100 sq ft)			
no trees			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Herb Stratum (Plot size: 1 m)			
1. Glechoma hedercea	4	D	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2	= Total Cover	

Woody Vine Stratum (Plot size: 10 sq ft)			
1. Smilax rotundifolia	10	D	FAC
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

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

Hydric vegetation are all FAC

SOIL

Sampling Point: B upland

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	5YR 3/3						silt loam w/ organic material	
2-11	5YR 3/4						Silty sand	w/ gravel -historic fill
11-14	2.5YR						Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes _____ **No** x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/9/12

Applicant/Owner: NYCEDC State: NY Sampling Point: C

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: PFO1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil x , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.) Problematic soil/red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	X Water-Stained Leaves (B9)	___ Drainage Patterns (B10)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Moss Trim Lines (B16)
X Saturation (A3)	___ Marl Deposits (B15)	___ Dry-Season Water Table (C2)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Crayfish Burrows (C8)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Saturation Visible on Aerial Imagery (C9)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Stunted or Stressed Plants (D1)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Geomorphic Position (D2)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	X Microtopographic Relief (D4)
X Sparsely Vegetated Concave Surface (B8)		___ FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes x	No _____	Depth (inches): 2

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: C

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	D	FAC
2. Fraxinus pennsylvanica	5	N	FACW
3.			
4.			
5.			
6.			
7.			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes x** **No**

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

SOIL

Sampling Point: C

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR3/3	100					Loam	
1-5	2.5YR4/3	60	10YR3/4(15%), 2.5YR3/1(15%)			M	Silty sand	
5-12	5YR4/3	80	2.5YR3/4	2 0		M	Silt loam	
12-17	5YR4/2	60	5YR4/4	4 0	C	M	Silt loam	
17+	5YR3/2	80	5YR4/4	2 0	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes x No

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: _____ Sampling Point: C upland

Investigator(s): Rollino J Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat Land Slope (%): <2

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** x
Hydric Soil Present? Yes _____ No x	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present? Yes _____ No x	

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? **Yes** _____ **No** x

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: C

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubra	70	D	FAC
2. Sassafras	40	D	FACU
3. Prunus serotina	25	N	FAC
4.			
5.			
6.			
7.			
	100+ = Total Cover		

Sapling/Shrub Stratum (Plot size: 100 sq ft)			
no trees			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Herb Stratum (Plot size: 1 m)			
1. Glechoma hedercea	2	D	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2 = Total Cover		

Woody Vine Stratum (Plot size: 10 sq ft)			
1. Smilax rotundifolia	10	D	FAC
2.			
3.			
4.			
	10 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

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

SOIL

Sampling Point: C

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 3/2						silt loam w/ organic material	
3-12	7.5YR 3/3						sandy silt	
Depth of refusal								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** _____ **No** x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: D

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil x , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

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

Wetland D is a Palustrine Emergent and Scrub-Shrub complex wetland. Hydric soil indicators problematic/red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: D

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Juncus effusus	72	D	OBL
2. Phragmites australis	5	N	FACW
3. Carex scoparia	5	N	FACW
4. Eleocharis obtusa	15	N	OBL
5. Juncus tenis	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15 feet)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL Sampling Point: D

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/1	100					silty clay loam	with Oxidized root channels
2-5	7.5YR5/6	70	7.5YR5/2	30	D	M	silty clay loam	
5-12	7.5YR4/4	70	7.5YR4/2	30	D	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- X Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/9/12

Applicant/Owner: NYCEDC State: NY Sampling Point: D (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No x Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland? Yes _____ No x** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: D (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Juncus tenuis	20	D	FAC
2. Agrostis gigantea	25	D	FACW
3. Solidago canadensis	25	D	FACU
4. Euthamia gramnifolia	5	N	FAC
5. Carex scoparia	5	N	FACW
6. Angropogon virginicus	20	D	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 30	x 2 = 60
FAC species 25	x 3 = 75
FACU species 45	x 4 = 180
UPL species	x 5 =
Column Totals: 100 (A)	315 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **x**

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

SOIL

Sampling Point: D (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR5/2	100					Silty clay loam	
2-4	10YR5/3	95	10YR4/6	5	C	M	Silty clay loam	
4-8	7.5YR4/4	45	7.5YR5/8	40	C	M	Silty clay loam with red parent material increasing with	
			2.5YR4/6	15	C	M	depth	
8-13	2.5YR4/6	60	2.5YR5/2	40	D	M	Silty clay loam	
13+								auger refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/11/12

Applicant/Owner: NYCEDC State: NY Sampling Point: E

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes x No Wetland Hydrology Present? Yes x No	**Is the Sampled Area within a Wetland?** **Yes X No** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): Not at plot

Water Table Present? Yes _____ No X Depth (inches): Not at plot

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): Not at plot

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: E

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Juncus effusus	81	D	OBL
2. Juncus tenuis	2	N	FAC
3. Solidago rugosa	5	N	FAC
4. Euthania gramnifolia	2	N	FAC
5. Eleocharis obtusa	2	N	OBL
6. Phragmites australis	1	N	FACW
7. Persicaria pennsylcanica	1	N	FACW
8. Altisma subcordatum	1	N	OBL
9. Lidwigia palustris	5	N	OBL
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15 feet)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL

Sampling Point: E

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR3/2	100					organic	ox. root channels present
2-6	7.5YR5/1	80	7.5YR3/3	20	C	M	silty clay loam	
6-10	7.5YR4/1	90	7.5YR3/3	10	C	M	silty clay loam	
10-14	7.5YR5/1	50	7.5YR5/6	50	C	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/11/12

Applicant/Owner: NYCEDC State: NY Sampling Point: E (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No x Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland? Yes _____ No x** If yes, optional Wetland Site ID: _____

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

Soils around wetland have been modified historically.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: E (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Plantago lanceolata	25	D	FACU
2. Agrostis gigantea	35	D	FACW
3. Trifolium repens	25	D	FACU
4. Juncus tenuis	2	N	FAC
5. Lotus corniculatis	2	N	FACU
6. Cichorium intybus	1	ND	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 37	x 2 = 74
FAC species	x 3 =
FACU species 53	x 4 = 212
UPL species	x 5 =
Column Totals: 90 (A)	286 (B)

Prevalence Index = B/A = 3.17

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **x**

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

SOIL

Sampling Point: E (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+	Auger refusal, gravel substrate, highly compact							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: gravel

Depth (inches): 0

Hydric Soil Present? Yes ___ No x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/11/12

Applicant/Owner: NYCEDC State: NY Sampling Point: F

Investigator(s): J. Rollino/R. Wang Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: F

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula populifolia	20	D	FAC
2. Quercus palustris	20	D	FACW
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 feet)			
1. Vaccinium corymbosym	5	D	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	

Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

Woody Vine Stratum (Plot size: 15 feet)			
1. Smilax rotundifolia	95	D	FAC
2.			
3.			
4.			
	95	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_x_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _x_ **No**

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

SOIL

Sampling Point: F

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR2/1	100					oganic material	
1-12	10YR4/1	80	10YR4/6	20	C	M	silt loam	
12-16	7.5YR5/1	65	7.5YR4/4	35	C	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes x No_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/11/12

Applicant/Owner: NYCEDC State: NY Sampling Point: F (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes ____ No x Wetland Hydrology Present? Yes ____ No x	**Is the Sampled Area within a Wetland? Yes ____ No x** If yes, optional Wetland Site ID:

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches):

Water Table Present? Yes ____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches):

Wetland Hydrology Present? Yes ____ No x

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: F (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	20	D	FACW
2. Betula populifolia	10	D	FAC
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. Smilax rotundifolia	80	D	FAC
2.			
3.			
4.			
	80	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_x_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _x_ **No**

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

SOIL

Sampling Point: F (upland)

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5YR5/3	100					silt loam	
16-18	7.5YR5/1	80	7.5YR5/6	20	C	M	silt clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No x**

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/11/12

Applicant/Owner: NYCEDC State: NY Sampling Point: G

Investigator(s): J. Rollino/R.Wang Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes x	No _____	Depth (inches): 1-2"
Water Table Present?	Yes x	No _____	Depth (inches): Surface
Saturation Present? (includes capillary fringe)	Yes x	No _____	Depth (inches): Surface

Wetland Hydrology Present? Yes X No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: G

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	40	D	FACW
2. Betula populifolia	30	D	FAC
3.			
4.			
5.			
6.			
7.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. Vaccinium corymbosum	20	D	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	20	= Total Cover	
Herb Stratum (Plot size: 5 feet)			
1. Scirpus atrovierens	5	D	OBL
2. Euthamia gramnifolia	5	D	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_x_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **x** **No**

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

SOIL

Sampling Point: G

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR4/3	40	7.5YR4/1	30	D	M	silt loam	
			7.5YR4/6	20	C	M		
			2.5YR4/6	10	C	M		red parent material
3-7	7.5YR4/4	70	7.5YR5/3	30	D	M	silt loam	
7-17	7.5YR5/3	60	7.5YR4/6	40	C	M	silt loam	Increasing amounts of red parent material (2.5YR4/6) present throughout the profile.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- X Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/16/12

Applicant/Owner: NYCEDC State: NY Sampling Point: G (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum: n/a

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification:

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No x Hydric Soil Present? Yes ____ No x Wetland Hydrology Present? Yes ____ No x	**Is the Sampled Area within a Wetland? Yes ____ No x** If yes, optional Wetland Site ID:

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches):

Water Table Present? Yes ____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches):

Wetland Hydrology Present? Yes ____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: G (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus grandidentata	10	D	FACU
2. Betula populifolia	20	D	FAC
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Vaccinium angustifolium	20	D	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Juncus tenuis	10	D	FAC
2. Schizachyrium scoparium	20	D	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. Smilax rotundifolia	20	D	FAC
2.			
3.			
4.			
	20	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species		x 5 =	
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **x**

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

SOIL

Sampling Point: G (upland)

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR5/4	100					silt loam	
5-16	7.5YR5/6	95	7.5YR6/3	5	D	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ **No x**

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/22/12

Applicant/Owner: NYCEDC State: NY Sampling Point: H

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave (drainage easement) Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.) Hydric soil indicators problematic/red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: H

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet)			
1. Salix sp.	10	D	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Phragmites australis	30	D	FACW
2. Juncus effusus	40	D	OBL
3. Juncus tenuis	10	ND	FAC
4. Scirpus cyperinus	10	ND	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL

Sampling Point: H

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/2	100					silty loam	red parent material, trace gravel
6-13	5YR3/2	85	5YR3/4	15	C	M	silty loam	
13-16	7.5YR3/6	75	7.5YR4/6	20		M	silty loam with trace sand	
			7.5YR6/4	5		M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- X Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/22/12

Applicant/Owner: NYCEDC State: NY Sampling Point: H (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No x Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland? Yes _____ No x** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: H (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Artemisia vulgaris	10	D	NI
2. Populus deltoides	20	D	FAC
3. Panicum sp.	20	N	NI
4. Andropogon virginicus	40	D	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 20	x 3 = 60
FACU species 40	x 4 = 160
UPL species	x 5 =
Column Totals: 60 (A)	220 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No x**

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

SOIL

Sampling Point: H (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR4/3	100					Loam w/ trace gravel	
4-9	5YR3/4	100					Loam w/ trace gravel	
9+	auger refusal - riprap							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___Histosol (A1)
- ___Histic Epipedon (A2)
- ___Black Histic (A3)
- ___Hydrogen Sulfide (A4)
- ___Stratified Layers (A5)
- ___Depleted Below Dark Surface (A11)
- ___Thick Dark Surface (A12)
- ___Sandy Mucky Mineral (S1)
- ___Sandy Gleyed Matrix (S4)
- ___Sandy Redox (S5)
- ___Stripped Matrix (S6)
- ___Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___Loamy Gleyed Matrix (F2)
- ___Depleted Matrix (F3)
- ___Redox Dark Surface (F6)
- ___Depleted Dark Surface (F7)
- ___Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___Dark Surface (S7) (**LRR K, L, M**)
- ___Polyvalue Below Surface (S8) (**LRR K, L**)
- ___Thin Dark Surface (S9) (**LRR K, L**)
- ___Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___Red Parent Material (F21)
- ___Very Shallow Dark Surface (TF12)
- ___Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Riprap

Depth (inches): 9+

Hydric Soil Present? Yes _____ No x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/22/12

Applicant/Owner: NYCEDC State: NY Sampling Point: HA

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave (drainage easement) Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.) Wetland consists of hydric soils in a drainage easement

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: HA

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Juncus effusus	60	D	OBL
2. Phragmites australis	20	D	FACW
3. Euthamia gramnifolia	5	N	FAC
4. Scirpus cyperinus	5	N	OBL
5. Juncus tenuis	10	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No**

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

SOIL

Sampling Point: HA

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5YR3/2	100					Silt loam w/ gravel and red parent material	
6-14	7.5YR3/2	80	2.5YR2.5/4	20	C	M	Silt loam w/ 10% increasing trace sand	
14+	auger refusal/gravel							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes x No ____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/22/12

Applicant/Owner: NYCEDC State: NY Sampling Point: HA (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No x Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland? Yes _____ No x** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: HA (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Artemisia vulgaris	20	D	NI
2. Euthamia gramnifolia	20	D	FAC
3. Populus deltoides	5	N	FAC
4. Andropogon virginicus	20	D	FACU
5. Phleum pratense	20	D	FACU
6. Lespedeza sp.	15	N	NI
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 25	x 3 = 75
FACU species 40	x 4 = 160
UPL species	x 5 =
Column Totals: 65 (A)	235 (B)

Prevalence Index = B/A = 3.62

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No x**

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

SOIL

Sampling Point: HA (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	5YR3/3	60	2.5YR3/4	40	C	M	Sandy loam	Red parent material present throughout
7-11	2.5YR4/4	100					Sandy loam w/ gravel	
11-18	5YR4/4	80	5YR4/6	20	C	M	Sandy loam w/ gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___Histosol (A1)
- ___Histic Epipedon (A2)
- ___Black Histic (A3)
- ___Hydrogen Sulfide (A4)
- ___Stratified Layers (A5)
- ___Depleted Below Dark Surface (A11)
- ___Thick Dark Surface (A12)
- ___Sandy Mucky Mineral (S1)
- ___Sandy Gleyed Matrix (S4)
- ___Sandy Redox (S5)
- ___Stripped Matrix (S6)
- ___Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___Loamy Gleyed Matrix (F2)
- ___Depleted Matrix (F3)
- ___Redox Dark Surface (F6)
- ___Depleted Dark Surface (F7)
- ___Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___Dark Surface (S7) (**LRR K, L, M**)
- ___Polyvalue Below Surface (S8) (**LRR K, L**)
- ___Thin Dark Surface (S9) (**LRR K, L**)
- ___Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___Red Parent Material (F21)
- ___Very Shallow Dark Surface (TF12)
- ___Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No x_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NA

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil x , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.) Soil contains red parent material/problematic.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches):
Water Table Present?	Yes ____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: NA

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_X_ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No**

See below

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

Non-vegetated vernal pool, dry at the time of survey.

SOIL

Sampling Point: NA

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/2						silt	
4-6	2.5YR4/3	66	2.5YR4/4	33	C	M	loam	
6-12	2.5YR4/2&2.5YR4/4						loamy sand	double matrix
12+	Auger refusal							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** x (F21) **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NA Upland

Investigator(s): Rollino, J. Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRB 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No x	**Is the Sampled Area within a Wetland?**	**Yes** _____	**No** x
Hydric Soil Present?	Yes _____	No x			
Wetland Hydrology Present?	Yes _____	No x	If yes, optional Wetland Site ID: _____		

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

Plot adjacent to former access road, historic disturbance likely.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NA Upland

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populous deltoides	75	D	FAC
2. Quercus rubra	25	N	FACU
3. Ulmus sp.	25	N	NI
4.			
5.			
6.			
7.			
	100	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 sq ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 1 meter)			
1. Glechoma hederacea	3	D	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	3	= Total Cover	

Woody Vine Stratum (Plot size: 10 sq ft)			
1. Smilax rotundifolia	70	D	FAC
2. Lonicera sp.	10	-	NI
3.			
4.			
	80	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

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

Hydric species are FAC, limited understory and herbs are upland species.

SOIL

Sampling Point: NA Upland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5 YR 3/2	100					Loam	
1-3	7.5 YR 4/3	100					Sandy loam	
5-9	5YR 5/6	85					Silty Sand	15% Charcoal
9-14	5YR 5/6	100					Silty Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NB

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.) Problematic hydric soil indicators/red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NB

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	20	D	FACW
2. Populus deltoides	5	D	FAC
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet)			
1. Viburnum dentatum	5	D	FAC
2. Salix sp.	5	D	FACW
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		
Herb Stratum (Plot size:)			
1. Juncus effusus	5	D	OBL
2. Carex scoparia	5	D	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 15 feet)			
1. Smilax rotundifoia	50	D	FAC
2.			
3.			
4.			
	50 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No**

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

SOIL

Sampling Point: NB

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	5YR3/2	100					Root mass	
2-6	7.5YR4/2	90	7.5YR4/4	10	C	PL	Sandy loam w/ fibrous root material throughout	
6-9	7.5YR5/2	50	7.5YR5/6	50			Silt loam	Double matrix
9+	Auger refusal/rip-rap							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes x No

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/9/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NB (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No x Hydric Soil Present? Yes ____ No x Wetland Hydrology Present? Yes ____ No x	**Is the Sampled Area within a Wetland? Yes ____ No x** If yes, optional Wetland Site ID:

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches):

Water Table Present? Yes ____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches):

Wetland Hydrology Present? Yes ____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NB (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Baccharis halmnifolia	5	D	FACW
2. Pyrus communis	5	D	NI
3. Elaeagnus angustifolia	8	D	FACU
4.			
5.			
6.			
7.			
	18 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Fescue sp.	70	D	NI
2. Phleum pratense	1	N	FACU
3. Lotus corniculatus	5	N	FACU
4. Solidago sp.	10	N	NI
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	86 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 5	x 2 = 10
FAC species	x 3 =
FACU species 14	x 4 = 56
UPL species	x 5 =
Column Totals: 19 (A)	66 (B)

Prevalence Index = B/A = 3.47

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

SOIL

Sampling Point: NB (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	7.5YR4/4	100					Loam	Friable; anthropogenic debris
9+							Loam	Auger refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes _____ No _x_

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NC

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil x , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.) Soil contains red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches):
Water Table Present?	Yes ____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NC

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Persicaria pennsylvanica	1	N	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	1 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1. Wisteria frutescens	8	D	FACW
2. Toxicodendron radicans	3	N	FAC
3. Smilax rotundifolia	2	N	FAC
4.			
	13 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

Remarks: (Include photo numbers here or on a separate sheet.) Limited vegetation in wetland at time of delineation.

SOIL

Sampling Point: NC

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR2/1	100					organic root mass	
2-5	7.5YR5/3	50	7.5YR4/4	50	C	M	Loam	
5-8	7.5YR5/3	50	7.5YR5/6	50	C	M	Loam	
8-15	7.5YR5/2	30	7.5YR5/4	30	C	M	Loam	
			7.5YR5/6	40	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes x No

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/9/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NC (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland?** **Yes _____ No x** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NC (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size: 15')			
1. Wisteria frutensens	50	D	FACW
2. Smilax rotundifolia	10	N	FAC
3. Parthenocissis quinquefolia	2	N	FACU
4.			
	62 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No**

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

SOIL

Sampling Point: NC (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR3/2	100					Fiberous root mass	
2-9	7.5YR4/4	100					Loam	
9-14	5YR4/4	100					Loam	
14-16	7.5YR4/4	95	7.5YR4/6	5	C	M	Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes _____ No _x_

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: ND

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes x No Wetland Hydrology Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes X No** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches):

Water Table Present? Yes _____ No _____ Depth (inches):

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

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: ND

Tree Stratum (Plot size: 30 foot)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 foot)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 foot)			
1. Juncus effusus	30	D	OBL
2. Phragmites australis	20	D	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 15 foot)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes x** **No**

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

SOIL

Sampling Point: ND Wetland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	5 YR 3/2	90	5 YR 3/4	10			Sandy loam	
5-9	7.5 YR 3/2	85	7.5 YR 3/3	15			Sandy loam	
9-14	7.5 YR 3/2	85	7.5 YR 3/3	15			Loam with gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes x No_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: ND Upland

Investigator(s): Rollino, J. Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRB 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?**	**Yes _____ No x**
Hydric Soil Present?	Yes x	No	If yes, optional Wetland Site ID: _____	
Wetland Hydrology Present?	Yes _____	No X		

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches):	
Water Table Present?	Yes _____	No _____	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes _____	No _____	Depth (inches):	**Wetland Hydrology Present? Yes _____ No x**

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: ND Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 1 sq m)			
1. Gramineae	90	Yes	NI
2. Andropogon virginicus	5	No	FACU
3. Daucus carota	5	No	NI
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 10 sq ft)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species 5	x 4 = 20
UPL species	x 5 =
Column Totals: 5 (A)	20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **x**

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

SOIL

Sampling Point: ND Upland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/3	100					Loam	
4-9	7.5 YR 3/2	100					Sandy loam	
9-15	5 YR 3/3	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes x No_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NE

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NE

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Rumex crispus	8	D	FAC
2. Carex scoparia	2	N	FACW
3. Juncus effusus	5	D	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_x_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _x_ **No**

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

SOIL

Sampling Point: NE Wetland

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 3/3	100					Sandy loam	
2-7	7.5 YR 3/2	85	7.5 YR 4/6	15			Loam	
7-12	5 YR 4/1	85	5 YR 4/4	15			Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes _x_ No_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NE Upland

Investigator(s): Rollino, J. Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRB 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** x
Hydric Soil Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____	
Wetland Hydrology Present?	Yes _____	No X		

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NE Upland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Panicum virgatum	90	Y	FAC
2. Andropogon virginicus	5		FACU
3. Daucus carota	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

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

Subdominant species are non hydric.

SOIL

Sampling Point: NE Upland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/3	100					Loam	
4-9	7.5 YR 3/2	100					Sandy loam	
9-15	5 YR 3/3	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NF

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Red parent material. Wetland is a depression in former site access road.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NF

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	75	D	OBL
2. Phragmites australis	5	N	FACW
3. Eleocharis obtusa	5	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_x_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _x_ **No**

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

SOIL

Sampling Point: NF

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	5YR 3/2	100					Organic material w/ sand	
3-8	7.5YR 4/3	85	7.5YR 4/6	15			sand clay loam	small pieces of red parent material
8-14	7.5YR 5/4	80	7.5 YR 4/6	20			clay loam	gritty

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** x **No** _____

Remarks:

Soil in former access road. Wetland is a small, confined depression.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NG

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No (see below)	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.) Hydric soil indicators are problematic due to presence of red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NG

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	45	D	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Scirpus atrovierens	10	D	OBL
2. Juncus effusus	9	D	OBL
3. Agrostis gigantea	30	D	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	49	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_X_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _X_ **No**

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

SOIL

Sampling Point: NG Wetland

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	85	5 YR 3/4	15			Silty sand	
3-10	5 YR 4/6	85	2.5 YR 3/4	15			Silty sand	Depth to refusal - 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes x No_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NG Upland

Investigator(s): Rollino, J. Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRB 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____	
Wetland Hydrology Present?	Yes _____	No X		

Remarks: (Explain alternative procedures here or in a separate report.) Used road as comparitive upland habitat.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):
Water Table Present?	Yes _____	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NG Upland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Juncus tenuis	50	Y	FAC-
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2. Smilax rotundifolia	50	Y	FAC
3.			
4.			
	100 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

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

SOIL

Sampling Point: NG Upland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	5 YR 2.5/2	100					Friable	O Horizon
2-5	5 YR 4/4	90	5 YR 3/4	10			Sandy loam	
5-9	5 YR 3/4	100					Sandy loam	
9-12	2.5 YR 4/4	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/10/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NH

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.) Red parent material in soil. Wetland is depression in former site access road.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes x	No _____	Depth (inches): 10"

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NH

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Betula populifolia	5	D	FAC
2. Liquidambar styraciflua	2	N	FAC
3.			
4.			
5.			
6.			
7.			
	7 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Solidago rugosa	25	D	FAC
2. Euthamia gramnifolia	25	D	FAC
3. Scirpus cyperinus	2	N	OBL
4. Cyperus esculentus	10	N	FACW
5. Eleocharis acicularus	2	N	OBL
6. Agrostis gigantea	2	N	FACW
7. Smilax rotundifolia	2	N	FAC
8. Phragmites australis	2	N	FACW
9. Carex sp.	2	N	NI
10.			
11.			
12.			
	72 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No**

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

SOIL

Sampling Point: NH

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR3/2	100					Organic w/ trace silt	
1-5	7.5YR4/2	80	5YR3/4	2 0	C	M	Silty clay loam	
5-8	7.5YR4/3	85	7.5YR3/4	15	C	M	Silty clay loam	
8-16	7.5YR4/2	50	7.5YR5/6	35	C	M	Silty clay loam	
			7 . 5 Y R 5 / 1	1 5		M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes X No_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/9/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NH (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland?** **Yes _____ No x** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NH (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Betula populifolia	25	D	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Symphphyotrichum sp.	2	N	NI
2. Juncus tenuis	5	N	FAC
3. Agrostis gigantea	10	D	FACW
4. Euthamia gramnifolia	5	N	FAC
5. Andropogon virginicus	10	D	FACU
6. Potentilla sp.	10	D	NI
7. Pinus thunbergii	2	N	NI
8.			
9.			
10.			
11.			
12.			
	44 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1. Smilax rotundifolia	10	D	FAC
2.			
3.			
4.			
	10 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL

Sampling Point: NH (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR5/6	100					Clay loam	
8-12	7.5YR5/6	80	5YR4/6	20			Clay loam	
12-16	5YR4/6	60	5YR5/4	40			Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___Histosol (A1)
- ___Histic Epipedon (A2)
- ___Black Histic (A3)
- ___Hydrogen Sulfide (A4)
- ___Stratified Layers (A5)
- ___Depleted Below Dark Surface (A11)
- ___Thick Dark Surface (A12)
- ___Sandy Mucky Mineral (S1)
- ___Sandy Gleyed Matrix (S4)
- ___Sandy Redox (S5)
- ___Stripped Matrix (S6)
- ___Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___Loamy Gleyed Matrix (F2)
- ___Depleted Matrix (F3)
- ___Redox Dark Surface (F6)
- ___Depleted Dark Surface (F7)
- ___Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___Dark Surface (S7) (**LRR K, L, M**)
- ___Polyvalue Below Surface (S8) (**LRR K, L**)
- ___Thin Dark Surface (S9) (**LRR K, L**)
- ___Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___Red Parent Material (F21)
- ___Very Shallow Dark Surface (TF12)
- ___Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No x_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/11/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NI

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.) Wetland was mostly devoid of vegetation except at the perimeter of the wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches):
Water Table Present?	Yes ____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): Surface

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NI

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	2	N	FACW
2. Populous tremuloides	2	N	FACU
3.			
4.			
5.			
6.			
7.			
	4	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Viburnum dentatum	2	N	FAC
2. Vaccinium corymbosum	2	N	FACW
3. Salix sp.	2	N	NI
4. Cephalanthus occidentalis	2	N	OBL
5.			
6.			
7.			
	8	= Total Cover	
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. Smilax rotundifolia	2	N	FAC
2.			
3.			
4.			
	2	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	4	x 2 =	8
FAC species	4	x 3 =	12
FACU species	2	x 4 =	8
UPL species		x 5 =	
Column Totals:	12	(A)	30 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

x 3 - Prevalence Index is ≤3.0

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

Remarks: (Include photo numbers here or on a separate sheet.) No vegetation was present in the majority of this wetland, vegetation only found at perimeter.

SOIL

Sampling Point: NI

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR3/1	100					organic	
1-6	7.5YR3/2	50	7.5YR4/4	50	C	M	Silty clay loam with trace sand	
6-16	7.5YR4/2	55	7.5YR3/4	40	C	M	Silty clay loam with trace sand; hydrogen sulfide odor	
			7.5YR4/6	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes x No

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/9/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NI (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes x No Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland?** **Yes _____ No x** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NI (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Juncus tenuis	50	D	FAC
2. Solidago rugosa	5	N	FAC
3. Juncus canadensis	1	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size: 15')			
1. Smilax rotundifolia	50	D	FAC
2.			
3.			
4.			
	50 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes x** **No**

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

SOIL

Sampling Point: NI (upland)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR3/2	100					Organic	
1-6	7.5YR4/2	85	7.5YR4/4	15	C	M	Silt loam with trace sand	
6-12	7.5YR4/3	90	7.5YR3/4	10	C	M	Silt loam with trace sand	
12+	refusal							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes __x__ No_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/12/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NJ

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes X	No	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes X	No	

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

Problematic hydric soils; red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes x	No _____	Depth (inches): >12"

Wetland Hydrology Present? Yes x No

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

Remarks: Depression; man-made pond approximately 7 meters in diameter.

VEGETATION – Use scientific names of plants.

Sampling Point: NJ

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Cyperus esculentus	40	D	FACW
2. Phragmites australis	10	N	FACW
3. Juncus effusus	2	N	OBL
4. Eleocharis obtusa	<1	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	52 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

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

SOIL

Sampling Point: NJ

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	5YR 2/1	100					Silty sand with organic material	
9-16	5YR 4/4	100					Sand loam with gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- X Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/12/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NJ (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland?** **Yes _____ No x** If yes, optional Wetland Site ID: _____

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NJ (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylcanica	10	D	FACW
2. Polonia tomentosa	5	D	NI
3.			
4.			
5.			
6.			
7.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size: 15')			
1. Smilax rotundifolia	8	N	FAC
2. Wisteria frutescens	75	D	FACW
3. Vitis labrusca	2	N	FACU
4.			
	85	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_x_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _x_ **No**

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

SOIL

Sampling Point: NJ (upland)

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3/3	100					Loose, Friable	
4-10	5YR4/4	100					Silt loam with trace coarse sand	
10+	Rocky refusal							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes _____ No x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NK Wetland

Investigator(s): Rollino, J. Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRB 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation x, Soil x, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present? Yes X No	
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID: NK

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

Wetland is 0.005 acres in size

Wetland is in a field that has beed altered by previous filling and excavation. Natural clay deposits occur in the field. Also, site used as a hore pasture.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches): _____

Water Table Present? Yes _____ No x Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches): _____

Wetland Hydrology Present? **Yes** x **No**

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

Remarks:

Wetland is compressed depression in a field with natural clay deposits. Hydrology enough to promote hydrophytic vetation.

VEGETATION – Use scientific names of plants.

Sampling Point: NK Wetland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Elocharis obtusa	90		OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL

Sampling Point: NK Wetland

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/2	100					Sandy silt	
4-8	5 YR 4/4	100					Sandy loam	8"=Depth to refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: clay, hard packed material

Depth (inches): 8

Hydric Soil Present? **Yes** x **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NL Wetland

Investigator(s): Rollino, J. Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRB 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation x, Soil x, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

Are Vegetation _____, Soil x, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: NL

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland is in a field that has beed altered by previous filling and excavation. Natural clay deposits occur in the field. Also, site used as a hore pasture.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches):

Water Table Present? Yes _____ No _____ Depth (inches):

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NL Wetland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet)			
1. Juncus effusus	20	D	FACW+
2. Eleocharis obtusa	15	D	OBL
3. Juncus tenuis	5	n	FAC
4. Cyperus sp.	2	n	NL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	47 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL

Sampling Point: NL Wetland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	5 YR 5/1	90	5 YR 4/6	10			Clay	
3-12	10 YR 6/1	60	10 YR 6/2	30			Clay	
continued----------			5 YR 4/6	10			Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Clay

Depth (inches): at surface.

Hydric Soil Present? **Yes** x **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/11/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NM

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Flat land Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation x, Soil x, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No x

Are Vegetation ____, Soil x , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No (see below)	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.) Hydric soil indicators problematic/red parent material.
Wetland is in a field that has beed altered by previous filling and excavation. Natural clay deposits occur in the field. Also, site used as a hore pasture.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches):
Water Table Present?	Yes ____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 9

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NM

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	30	D	OBL
2. Eleocharis obtusa	50	D	OBL
3. Juncus sp.	10	N	NI
4. Euthamia gramnifolia	5	N	FAC
5. Juncus tenuis	5	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

_x_ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _x_ **No**

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

SOIL

Sampling Point: NM Wetland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 3/2	100					Silty sand	
2-8	7.5 YR 4/4	100					Silty sand 15% material	
8-14	5 YR 4/4	90	5 YR 3/4	10			Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- _x_ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes _x_ No_____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NM Upland

Investigator(s): Rollino, J. Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): Flat land Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): MLRB 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification:

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

Are Vegetation x, Soil x, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No x

Are Vegetation ____, Soil x, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No** X
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:	

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches):
Water Table Present?	Yes ____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches):

Wetland Hydrology Present? Yes ____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NM Upland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Gramineae	85		NI
2. Plantago sp.	15		NI
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

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

Hore

SOIL

Sampling Point: NM Upland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 3/2	100					Silty sand	
3-8	7.5 YR 5/4	100					Silty sand	
8-14	7.5 YR 4/4	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- X Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Active horse pasture. Herbaceous material is grazed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NN Wetland

Investigator(s): Rollino, J. Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRB 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation x, Soil x, or Hydrology x significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

Are Vegetation _____, Soil x, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: NN

Remarks: (Explain alternative procedures here or in a separate report.) Natural clay deposists in the soil.

Wetland is in a field that has beed altered by previous filling and excavation. Natural clay deposits occur in the field. Also, site used as a hore pasture.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? **Yes** x **No** _____

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NN Wetland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 1 sq m)			
1. Eleocharis obtusa	25	D	OBL
2. Juncus effusus	15	D	FACW+
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- x 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL

Sampling Point: NN Wetland

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	5 YR 3/2	100					Clay	
4-14	10 YR 6/2	70	10 YR 6/1	20			Clay	
continued----------			5 YR 4/6	10			Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** x **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NO Wetland

Investigator(s): Rollino J Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil x, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes x No Wetland Hydrology Present? Yes x No	**Is the Sampled Area within a Wetland?** **Yes x No** If yes, optional Wetland Site ID:

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches):

Water Table Present? Yes ____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches):

Wetland Hydrology Present? Yes ____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NO wet

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. no trees			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq ft)			
1. no trees			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Juncus effusus	70	D	OBL
2. Solidago rugosa	12	n	FAC
3. Eleocharis obtusa	9	n	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	91 = Total Cover		
Woody Vine Stratum (Plot size:)			
1. none			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

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

SOIL

Sampling Point: NO Wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 YR 3/2	100					sand loam	organic material with gravel
5-12	10YR 5/6	80	10 YR 4/6	20			Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** x **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NR Wetland

Investigator(s): Rollino J Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil x, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes x No Wetland Hydrology Present? Yes x No	**Is the Sampled Area within a Wetland?** **Yes x No** If yes, optional Wetland Site ID:

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches):

Water Table Present? Yes ____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches):

Wetland Hydrology Present? Yes x No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NR Wetland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. no trees			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq ft)			
1. no trees			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Juncus effusus	50	D	OBL
2. Cyperus sp. (Umbrella Sedge)	25	n	NL
3. Eleocharis obtusa	15	n	OBL
4. Carex sp.	10	n	NI
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1. none			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

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

SOIL

Sampling Point: NR

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 3/2	100					sand loam	organic material
3-8	7.5YR 4/3	85	7.5 YR 4/4	15			clay loam	
8-14	7.5YR 5/4	80	7.5YR 4/6	20			Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** x **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NR Upland

Investigator(s): Rollino J Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat Land Slope (%): <2

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification:

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil x, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No x Hydric Soil Present? Yes ____ No x Wetland Hydrology Present? Yes ____ No x	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X If yes, optional Wetland Site ID:

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

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches):

Water Table Present? Yes ____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches):

Wetland Hydrology Present? Yes ____ No x

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NR Upland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq ft)			
1. no trees			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Gramineae	60	D	NI
2. Andropogon virginicus	20	n	FACU
3. Agrostis Sp.	10	n	NL
4. Daucus carota	5	n	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1. Smilax rotundifolia	20	D	FAC
2.			
3.			
4.			
	20 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** x

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

Only dominat hydrophytic vegetation is Smilax, which is an oppurtunistic sepecies. Identified grass species are upland species.

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/4	100					Clay Loam	
4-11	7.5YR 4/3	85					sandy clay loam	
Depth of refusal								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NS Wetland

Investigator(s): Rollino J Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat Land Slope (%): <2

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil x, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland is confined trench behind the shallow rise of an embankment, portion of wetland is in an active recreational trail.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes x	No	Depth (inches): 2
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes x** **No**

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NS Wetland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Juncus effusus	15	D	OBL
2. Cyperus sp. (Umbrella Sedge)	2	n	NL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	17 = Total Cover		
Woody Vine Stratum (Plot size: 10 sq ft)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Hydric vegetation are all FAC

SOIL

Sampling Point: NS wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/4	90	7.5 YR 4/6				sandy clay	
5-12	5YR 4/6	100					sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** x **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NY Sampling Point: NS Upland

Investigator(s): Rollino J Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat Land Slope (%): <2

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil x, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes x No	**Is the Sampled Area within a Wetland?** Yes ____ No x
Hydric Soil Present? Yes ____ No x	
Wetland Hydrology Present? Yes ____ No x	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches):

Water Table Present? Yes ____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches):

Wetland Hydrology Present? Yes ____ No x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NS upland

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus grandidentata	60	D	FACU-
2. Quercus alba	20	N	FACU
3. Quercus rubra	10	N	FACU
4.			
5.			
6.			
7.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq ft)			
1. Betula populifolia	30	D	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Glechoma hedercea	2	D	FACU
2. Eupatorium serotinum	2	D	FAC-
3. Rubus sp.	1		NI
4. Lonicera sp.	1		NI
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	6 = Total Cover		
Woody Vine Stratum (Plot size: 10 sq ft)			
1. Smilax rotundifolia	70	D	FAC
2.			
3.			
4.			
	70 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** x

Remarks: (Include photo numbers here or on a separate sheet.)

Hydric vegetation are all FAC

SOIL

Sampling Point: NS upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2						loam w/ grit and organic material	
2-7	10YR 3/2	90	10YR 3/4	10			clay loam	
7-14	7.5 YR 4/4	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes _____ **No** x

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: NU Sampling Point: NU Wetland

Investigator(s): Rollino J Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat Land Slope (%):

Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation ____, Soil x, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland is a depression in a drainage ditch. The wetland is only 0.004 ac in size

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- x Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches):

Water Table Present? Yes ____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches):

Wetland Hydrology Present? **Yes x** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NU Wetland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. no trees			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq ft)			
1. no trees			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Juncus effusus	25	D	OBL
2. Cyperus sp. (Umbrella Sedge)	20	D	NL
3. Eleocharis obtusa	20	D	OBL
4. Carex sp.	2	n	NI
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	59 = Total Cover		
Woody Vine Stratum (Plot size:)			
1. none			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** x **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/1	100					silt loam	organic material
7-11	7.5YR 4/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** x **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Richmond Sampling Date: July 2012

Applicant/Owner: NYCEDC State: _____ Sampling Point: NU Upland

Investigator(s): Rollino J Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat Land Slope (%): <2

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** x
Hydric Soil Present?	Yes _____	No x	
Wetland Hydrology Present?	Yes _____	No x	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? **Yes** _____ **No** x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NU Upland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq ft)			
1. no trees			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Panicum virgatum	60	D	FAC
2. Andropogon virginicus	20	n	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** x

Remarks: (Include photo numbers here or on a separate sheet.)

Only dominat hydrophytic vegetation is Panicum, which is an oppurtunistic sepecies. Other identified grass species are upland species.

SOIL

Sampling Point: NU Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/2	100					Clay Loam	
4-11	7.5 YR 5/4	100					sandy clay loam	
Depth of refusal								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** x

Remarks:

Wetland is marked depression in site access way. Hydrology collects to promote hydrophytic vegetation in the depression only.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/22/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NW

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: wetland not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area within a Wetland?** **Yes x** **No**
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.) Problematic soil/red parent material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- x Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches):
Water Table Present?	Yes _____	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches):

Wetland Hydrology Present? Yes x No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NW

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	30	D	OBL
2. Apocynum cannabinum	25	D	FAC
3. Phalaris arundinacea	15	N	FACW
4. Phragmites australis	15	N	FACW
5. Graminaea	5	N	NI
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes x** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: NW

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR3/3	90	5YR3/4	1 0	C	M	silt loam	
4-10	7.5YR3/3	100					silt loam w/ trace sand. Anthro. debris, lg pieces red parent matl.	
10+	auger refusal							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

~~Hy~~dric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

~~In~~dicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- x Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Type: ___ Depth (inches): ___

Remarks: ___

Restrictive Layer (if observed):

Hydric Soil Present? Yes x No ___

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development City/County: Staten Island, Richmond Sampling Date: 7/22/12

Applicant/Owner: NYCEDC State: NY Sampling Point: NW (upland)

Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Flat land Slope (%): _____

Subregion (LRR or MLRA): MLRA 149B Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes x No Hydric Soil Present? Yes _____ No x Wetland Hydrology Present? Yes _____ No x	**Is the Sampled Area within a Wetland? Yes _____ No x** If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No x Depth (inches):

Water Table Present? Yes _____ No x Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No x Depth (inches):

Wetland Hydrology Present? Yes _____ No x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: NW (upland)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Juncus tenuis	20	D	FAC
2. Euthamia gramnifolia	20	D	FAC
3. Solidago spp.	5	N	NI
4. Andropogon virginicus	20	D	FACU
5. Phleum pratense	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: NW (upland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR3/4	100					Sandy loam w/ trace gravel	
6-18	7.5YR3/3	100					Sandy loam w/ gravel fill	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___Histosol (A1)
- ___Histic Epipedon (A2)
- ___Black Histic (A3)
- ___Hydrogen Sulfide (A4)
- ___Stratified Layers (A5)
- ___Depleted Below Dark Surface (A11)
- ___Thick Dark Surface (A12)
- ___Sandy Mucky Mineral (S1)
- ___Sandy Gleyed Matrix (S4)
- ___Sandy Redox (S5)
- ___Stripped Matrix (S6)
- ___Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___Loamy Gleyed Matrix (F2)
- ___Depleted Matrix (F3)
- ___Redox Dark Surface (F6)
- ___Depleted Dark Surface (F7)
- ___Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___Dark Surface (S7) (**LRR K, L, M**)
- ___Polyvalue Below Surface (S8) (**LRR K, L**)
- ___Thin Dark Surface (S9) (**LRR K, L**)
- ___Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___Red Parent Material (F21)
- ___Very Shallow Dark Surface (TF12)
- ___Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No x_____

Remarks:

ATTACHMENT C

VERNAL POOL SURVEY

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During the wetland delineation surveys conducted in 2012, natural resource scientists identified areas that had the potential to function as vernal habitat. These areas were subsequently evaluated in the Spring of 2013 using techniques adapted from the New Jersey Department of Environmental Protection's (NJDEP) Land Use Regulation Program (LURP) Freshwater Wetlands Vernal Habitat Protocol (see attachment). Potential vernal pool habitat was evaluated to determine whether or not they meet the following four determining criteria:

1. *Occurs in a confined basin depression without a permanent flowing outlet:* The scientists walked the circumference of the potential vernal habitat area to confirm the absence of an inlet or outlet.

2. *Features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions:* Visual and ocular observations were made to identify presence of obligate or facultative species individuals, larvae, egg masses, or breeding chorus'.

3. *Maintains ponded water for at least two continuous months between March and September of a normal rainfall year:*

4. *Is free of fish throughout the year, or dries up at some time during the year:* the area will be visually scanned for the presence of any fish species; for potential vernal pool areas contiguous with deep water habitats will require additional survey of the deep water habitats to determine the potential presence of fish species.

All delineated wetlands within the entire project area were reviewed for the presence of vernal habitat. Also, several low depressions that were not wetlands were also evaluated, including two within the Englewood Avenue Corridor south of the existing dirt path. These depressions were located approximately 425 ft and 925 ft east of Wetland C, respectively.

Natural resource scientists conducted the vernal habitat investigation on April 16th and April 17th, 2013. The surveys were conducted during the optimum time to identify areas that function as vernal pools and/or amphibian breeding habitat (in the spring, when evening low temperatures remain in the 40s Fahrenheit). The scientists targeted their search to start before sunrise to identify vocalizations of amphibians and during mid-day to identify potential basking herptofauna. Both days were warm and sunny.

During the 2012 Wetland Delineation, certain wetland parcels were identified as potentially serving as vernal pool habitat. Photographs of those wetlands are provided in the following pages.

AECOM

PHOTOGRAPHIC LOG

Photo No. 1	Date: April 16, 2013

Description:

Wetland A – Identified as likely supporting vernal pool habitat despite not meeting criteria at the time of survey.

Photo No. 2	Date: April 16, 2013

Description:

Wetland A – Redback salamander found in wetland A.

AECOM

PHOTOGRAPHIC LOG

Photo No. 3	Date: April 16, 2013

Description:

Wetland A – Redback salamander (leadback phase) found in wetland A.

Photo No. 4	Date: April 16, 2013

Description:

Wetland B – Identified as providing vernal pool habitat.

AECOM

PHOTOGRAPHIC LOG

Photo No. 5	Date: April 16, 2013

Description:

Wetland C – Did not present evidence of vernal pool habitat at the time of survey.

Photo No. 6	Date: April 16, 2013

Description:

Wetland C – Redback salamander (leadback phase) identified in wetland C.

AECOM

PHOTOGRAPHIC LOG

Photo No. 7	Date: April 16, 2013

Description:

Wetland D – Located adjacent to horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.

Photo No. 8	Date: April 16, 2013

Description:

Wetland E – Southern extent of wetland. Located in active horse pasture. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.

AECOM

PHOTOGRAPHIC LOG

Photo No. 9	Date: April 16, 2013

Description:

Wetland E – Northern extent of wetland. Located in active horse pasture. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.

Photo No. 10	Date: April 16, 2013

Description:

Wetland G – Located in horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.

AECOM

PHOTOGRAPHIC LOG

Photo No. 11	Date: April 16, 2013

Description:

Wetland NA – Located in horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.

Photo No. 12	Date: April 16, 2013

Description:

Wetland NB – Inundated portion located in horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.

AECOM

PHOTOGRAPHIC LOG

Photo No. 13	Date: April 16, 2013

Description:

Wetland NI – Identified as likely supporting vernal pool habitat despite not meeting criteria at the time of survey.

Photo No. 14	Date: April 16, 2013

Description:

Wetland NJ – Located in horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.

AECOM

PHOTOGRAPHIC LOG

Photo No. 15	Date: April 16, 2013

Description:

Wetland NM – Located in horse pasture south of Englewood Avenue. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.

Photo No. 16	Date: April 16, 2013

Description:

Wetland NP – Located in horse trail/path. Did not provide evidence of meeting vernal pool criteria at the time of survey.

AECOM

PHOTOGRAPHIC LOG

Photo No. 17	Date: April 16, 2013

Description:

Wetland NQ – Located in horse trail/path. Did not provide evidence of meeting vernal pool criteria at the time of survey.

Photo No. 18	Date: April 16, 2013

Description:

Wetland NR – Did not provide evidence of meeting vernal pool criteria at the time of survey.

AECOM

PHOTOGRAPHIC LOG

Photo No. 19	Date: April 16, 2013

Description:

Wetland NS – Located in horse trail/path. Did not provide evidence of meeting vernal pool criteria at the time of survey.

Photo No. 20	Date: April 16, 2013

Description:

Wetland NW – Did not provide evidence of meeting vernal pool criteria at the time of survey.

ATTACHMENT

NJ VERNAL POOLS PROTOCOLS

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Land Use Regulation Program
Freshwater Wetlands Vernal Habitat Protocol
(updated: 05/17/02)

Purpose: 54

Item 1: "Occurs in a confined basin depression without a permanent flowing outlet"
Item 2: "Features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions"
Item 3: "Maintains ponded water for at least two continuous months between March and September of a normal rainfall year"
Item 4: "Is free of fish throughout the year, or dries up at some time during the year"

1 Purpose:

This protocol will be used by the Land Use Regulation Program to determine whether an area meets the definition of a "vernal habitat" in N.J.A.C. 7:7A-1.4. If the application of this protocol results in a Department determination that an area meets the definition of a vernal habitat, the area will be placed on the list of certified vernal habitats, maintained by the Department. The Department will also develop digital mapping to show the locations of certified vernal habitats.

The definition of a vernal habitat includes four criteria that must be satisfied. Item 1 requires that the area occur in a confined basin depression without a permanently flowing outlet. Item 2 requires the documentation of obligate or facultative vernal habitat species (these species are identified in N.J.A.C. 7:7A, Appendix 1). Item 3 requires that the area maintain ponded water for at least two continuous months between March and September of a normal rainfall year. Item 4 requires that the area is free of fish populations throughout the year, or dries up at some time during a normal rainfall year. The elements required to satisfy each item are discussed below.

1.1.1 Item 1: "Occurs in a confined basin depression without a permanent flowing outlet"

The area must be a depression in the surrounding ground, confined by areas of higher upland or wetland ground. It must not have a permanently flowing outlet but may have a periodic outlet through which water flows during periods of heavy rain events, flooding or seasonally high water tables.

1.1.2 Item 2: "Features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions"

The area must feature evidence of breeding by vernal habitat species. These species are listed in N.J.A.C. 7:7A, Appendix 1, and are divided into obligate and facultative species. An obligate vernal habitat species is one for which vernal habitats are the only type of habitat used for breeding. A facultative species will use vernal habitat for various activities, for example breeding or foraging, but can also use other types of habitats.

Obligate species: For the purposes of item 2 of the definition of vernal habitat, the following will constitute evidence of breeding by a species listed as an obligate species at N.J.A.C. 7:7A, Appendix 1:

a. The following types of evidence of breeding adults:
i. Frog breeding chorus;
ii. Mated pairs of frogs;
iii. Salamander courting individuals; and/or
iv. Salamander spermatophores;
b. Two or more egg masses of any obligate species;
c. Frog tadpoles;
d. Mole salamander larvae; and/or
e. The following types of evidence of transforming juveniles:
i. Wood frogs with tail stubs evident; and/or
ii. Salamanders with gill remnants evident.

Facultative species: For the purposes of item 2 of the definition of vernal habitat, evidence of the presence of one or more members of the species within the area of the habitat listed as facultative species at N.J.A.C. 7:7A, Appendix 1 shall constitute evidence of breeding or foraging by that species.

1.1.3 Item 3: "Maintains ponded water for at least two continuous months between March and September of a normal rainfall year"

If an area satisfies item 2 by showing evidence of breeding by obligate species, the criteria in items 3 and 4 are presumed to be satisfied. (See flow chart below for an illustration of this.) This presumption does not apply if an area satisfies item 2 solely by showing evidence of breeding by facultative species. This application of the presumption reflects the fact that the species listed as obligate depend almost exclusively on vernal habitat for breeding, and cannot breed in other types of habitat. They must breed in an area that maintains water for certain time periods, and in which there are no fish to eat their eggs. Obligate species also tend to be site tenacious, meaning that succeeding generations of the species frequently return to their natal pond for breeding purposes. Therefore, if an area shows evidence of breeding by an obligate species, the area must meet the criteria in items 3 and 4.

However, the species listed as facultative do not depend exclusively on vernal habitat, although they do regularly use vernal habitats. These species also use other similar types of habitat that would not meet the definition of a vernal habitat. Therefore, the presumption that an area is ponded for at least two months and is free of fish populations (i.e., that the criteria in items 3 and 4 are met) does not apply where only facultative species have been found. In those cases, the ponding of water (Item 3) and the drying up or lack of fish populations (Item 4) must be independently demonstrated in accordance with this protocol.

To satisfy Item 3, an area that is not subject to the presumption discussed above (i.e., an area with evidence of facultative species only) must maintain ponded water continuously for at least two contiguous months (60 days) between March 1st and September 30th of a normal rainfall year.

1.1.4 Item 4: "Is free of fish throughout the year, or dries up at some time during the year"

As discussed above under Item 3, if an area satisfies item 2 by showing evidence of breeding by obligate species, the criteria in items 3 and 4 are presumed to be satisfied. (See flow chart below for an illustration of this.)

To satisfy Item 4, an area that is not subject to the presumption discussed above (i.e., an area with evidence of facultative species only) must be free of fish populations throughout the year, or dry up at some time during the year. Meeting either one of these criteria is sufficient to satisfy Item 4.

Required Field Observations for Certifying a Vernal Habitat

A. Item 1: Clear photographs are required to document that an area is a confined basin depression without a permanent flowing outlet. The photographs must be taken from several angles, and must be sufficient to clearly display the area's complete or intermittent hydric isolation.

B. Item 2: At least one of the following types of evidence is required to document each observation of a vernal habitat species:
1. Photograph(s). This is the preferred method. Prints, slides, or digital photographs are acceptable. The location, date of observation, and observer's name must be provided;
2. Videotape recording. The location, date, and recorder's name must be provided;
3. Taped audio recording of a frog breeding chorus. The location, date, and recorder's name must be provided; and/or
4. Detailed written description(s) of species observed, including a discussion of the criteria that were used to identify the species involved. Field notes, and/or a drawing of the animal, may be submitted as part of the description. It is preferred that the description and field notes be prepared by a biologist competent in animal identification.

C. Item 3: The following evidence is required to support observations that an area maintains ponded water for at least two contiguous months between March and September:
1. A logbook containing a record of observations, made approximately weekly, of the presence or absence of standing water in the area. For each observation date, the logbook shall state the approximate depth and dimensions of the area covered by standing water; and/or
2. A list of one or more amphibian and reptile species that were observed using the area for breeding purposes (including dates).

D. Item 4: At least one of the following types of evidence is required to demonstrate that an area is free of fish populations throughout the year, or dries up at some time during the year:
1. Clear photograph(s) and/or statement of direct observation, including date of observation, showing the area to be dried up; or
2. Scientific evidence sufficient to conclude that the area is free of fish populations.

Documenting The Location Of A Vernal Habitat

The following documentation is required to identify the location of a vernal habitat:
1. One or more of the items at i through iii below:
i. Metes and bounds description. Compass bearings and measured distances (the distances should be 1000 feet or less) of the habitat from at least two permanent landmarks, and the locations of landmarks. The compass bearings must account for the appropriate declination. The locations of the landmarks and the vernal habitat must be shown on the municipal tax map required in 2 below;
ii. Aerial photographs. The vernal habitat must be clearly visible on the aerial photograph; or
iii. Professional survey or GPS coordinates; and
2. A photocopy of an 8.5" by 11" section of the appropriate United States Geological Survey quadrangle map with the approximate site of the vernal habitat clearly marked should also be included (USGS quad maps are available from the Department's Office of Maps and Publications at (609) 777-1038); and
3. It is recommended that a sketch map and/or detailed description of features in the immediate vicinity (within 1000 feet) of the vernal habitat also be provided.

Use Of This Protocol In The Freshwater Wetlands Permit Program:

1. The Department will develop a list of certified vernal habitats. After the list is developed, the Department will develop digital GIS maps showing the locations of certified vernal habitats.

2. When an application for a freshwater wetlands permit is submitted, the Department will review the list of certified vernal habitats to determine if the site may contain a vernal habitat.

3. If the site contains a certified vernal habitat, the Department will inform the applicant of this fact.

4. For each permit application, LUR accepts public comment during the period of application review, in accordance with N.J.A.C. 7:7A-12.3. If the Department receives information indicating that an area may be a vernal habitat during the public comment period (whether the information is submitted by the public, discovered by staff during a site investigation, or obtained in some other way), the Department will evaluate this information. If the information is sufficient to certify the area as a vernal habitat in accordance with this protocol, the Department will do so. Alternatively, the Department may delay a final decision on the application in order to obtain further information. The Department's action in these cases will vary on a case by case basis depending upon the quality of information available to the Department and/or the credentials of the person providing the information.

5. If the Department does not receive or discover any information indicating that an area is a vernal habitat prior to the Department's final decision on the application, the area shall not be considered a vernal habitat for purposes of the final decision on that application.

6. An applicant may contest the certification of an area as a vernal habitat. In order to contest a certification, an applicant must demonstrate that the area no longer meets the criteria in items 1, 2, 3, or 4 of the definition of vernal habitat. If such a demonstration includes a survey for vernal habitat species, the survey must be conducted over a minimum of two normal rainfall years, and must show no evidence of the presence of any vernal habitat species during the survey period.

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ATTACHMENT D

AGENCY CORRESPONDENCE

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New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
Bureau of Wildlife
47-40 21st Street, Long Island City, New York 11101-4502
Phone: (718) 482-4922 • **Fax:** (718) 482-4502
Website: www.dec.ny.gov

Joe Martens
Commissioner

December 5, 2012

Matt Mason
Vice President
New York City Economic
Development Corporation
110 William Street
New York, New York 10038

Re: Freshwater Wetland AR - 11

Dear Sir;

Staff examined the parcels proposed for the Charleston Mixed-Use Development and provided information concerning the location of the mapped NYS Freshwater Wetland.

A survey prepared by J.S. Schmidt, Project N0559.002.00 Sheet 1, dated October 16, 2012rev. was submitted to this office for verification. This survey depicts the wetland boundary, flags B1-18, C1-19, CA1-9, approved by the Department

Please contact me if I can be of any further assistance.

Yours truly;

Joseph J. Pane
Principal Fish & Wildlife
Biologist

b\l\delin12

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
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Joe Martens
Commissioner

February 13, 2013

John Rollino
AECOM
20 Exchange Place
New York, NY 10005

Dear Mr. Rollino:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the Proposed Development, site as indicated on the map you enclosed, located in Richmond, New York City.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities, which our database indicates occur, or may occur, on your site or in the immediate vicinity of your site. For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

The enclosed report may be included in documents that will be available to the public. However, any enclosed maps displaying locations of rare species are considered sensitive information, and are intended only for the internal use of the recipient; they should not be included in any document that will be made available to the public, without permission from the New York Natural Heritage Program.

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.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,

Jean Pietrusiak, Information Services
NYS Department Environmental Conservation

Enc.
148
cc: Reg. 2 , Wildlife Mgr.

New York Natural Heritage Program

Report on Rare Animals, Rare Plants, and Significant Natural Communities

The following rare plants, rare animals, and significant natural communities have been documented at your project site, or in its vicinity.

We recommend that potential onsite and offsite impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following animals, while not listed by New York State as Endangered or Threatened, are of conservation concern to the state, and are considered rare by the New York Natural Heritage Program.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Dragonflies and Damselflies			
Comet Darner	*Anax longipes*	Unlisted	Imperiled in NYS

Comet Pond: The odonates were observed in the fields, marshs, and trails near a pond. 13441

The following plants are listed as Endangered or Threatened by New York State, and/or are considered rare by the New York Natural Heritage Program, and so are a vulnerable natural resource of conservation concern.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Fringed Boneset	*Eupatorium torreyanum*	Threatened	Imperiled in NYS

Clay Pit Ponds Bloomingdale Road: Groups 1-3: Sandy dry and sandy wet openings in the dense shrubland. The openings are human-made. The trails in the southern part of the site seem to be more wet. Groups 4-6: An open, dry oak woods with a high percentage of open, unvegetated sand. Group7: The plants are growing on the edge of a wooded area in a vegetated corridor between two roads. Eupatorium hyssopifolium var. hyssopifolium is also present at Groups 5, 6, and 7; there are good examples of both varieties, but also some intermediate forms present. 10719

Torrey's Mountain-mint	*Pycnanthemum torrei*	Endangered	Critically Imperiled in NYS and Globally Rare

Clay Pit Ponds Bloomingdale Road: A vegetated roadside about 4-6 feet wide. The plants are mostly native and it appears to be seldom mowed. Part of the roadside is dominated by Artemisia. The roadside is backed by a berm with trees. 10717

Virginia Pine	*Pinus virginiana*	Endangered	Critically Imperiled in NYS

Clay Pit Ponds Bloomingdale Road: Group 1: An upland forest in a clearing along the horse trail. Group 2: This tree is in dense vegetation. 10720

Willow Oak	*Quercus phellos*	Endangered	Critically Imperiled in NYS

Clay Pit Ponds Bloomingdale Road: The trees are growing in a wooded corridor along a major roadway. The corridor is bordered by lawn that is regularly maintained. 13247

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. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to http://www.dec.ny.gov/animals/29384.html and click on Draft Ecological Communities of New York State.

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 should include a search for these species, particularly for sites that are currently undeveloped and may still contain suitable habitat.

COMMON NAME	*SCIENTIFIC NAME*	*NYS LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
American Ipecac	*Euphorbia ipecacuanhae*	Endangered	Critically Imperiled in NYS
1882-06: Kreischerville.			4506
American Strawberry-bush	*Euonymus americanus*	Endangered	Critically Imperiled in NYS
1901-09-19: Kreischerville. Woods.			800
Bead Pinweed	*Lechea pulchella var. moniliformis*	Endangered	Critically Imperiled in NYS
1901-09-19: Kreischerville. Pine barrens.			2590
Dwarf Hawthorn	*Crataegus uniflora*	Endangered	Critically Imperiled in NYS
1907-06-05: Kreischerville. Close to shore line.			7112
Primrose-leaf Violet	*Viola primulifolia*	Threatened	Imperiled in NYS
1902-05-29: Kreischerville. Clay pits.			4265
Soapwort Gentian	*Gentiana saponaria*	Endangered	Critically Imperiled in NYS
1889-09-22: Pleasant Plains.			8849
Whorled Mountain-mint	*Pycnanthemum verticillatum var. verticillatum*	Endangered	Critically Imperiled in NYS
1869-07-22: Richmond Valley.			5662

New York Natural Heritage Program

Report on State-Listed Animals

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 and habitats have been documented at or near the project site, generally within 0.5 mile. Potential onsite and offsite impacts from the project may need to be addressed.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Reptiles				
Eastern Mud Turtle	*Kinosternon subrubrum*	Endangered		2855

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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.

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.