APPENDIX I WATERS AND WETLANDS DELINEATION REPORT

LAURA CURRAN
NASSAU COUNTY EXECUTIVE

VINCENT FALKOWSKI, P.E.
DEPUTY COMMISSIONER OF
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COUNTY OF NASSAU
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November 22, 2019

Mr. Ronald Pinzon, Eastern Section Chief
U.S. Army Corps of Engineers, New York District
Attn: Regulatory Branch (CENAN-OP-R)
26 Federal Plaza, Room 16-406
New York, NY 10278-0090

Re: Long Beach Water Pollution Control Plant Consolidation Project in City of Long Beach and Town of Hempstead, Nassau County, NY
Wetland Delineation and Jurisdictional Determination

Dear Mr. Pinzon:

As stated during a conference call with the U..S. Army Corps of Engineers (the Corps) New York District Regulatory Branch staff, NYSDEC Region 1 staff, Nassau Department of Public Works (the County) staff and its PM-JV consultants, and others on October 23, 2019, the County has completed a delineation of wetlands on South and North Black Banks and Pearsalls Hassocks within West Hempstead Bay. The delineation was completed to support the current Joint Application submitted by the County to the Corps for review and issuance of authorization of activities for the geotechnical investigation under Nationwide Permit No. 6. The wetland delineation will also support a future Joint Application to the Corps and NYSDEC for permits to conduct activities within the Hassocks and adjacent waters associated with construction of the force main.

Enclosed for your review and consideration is a package that includes the following:

- Cover Letter from the County's PM-JV consultant, Hazen-Arcadis that requests a Jurisdictional Determination of the delineated wetlands and waters.
- Checklist of Information Included with Jurisdictional Determination
- Waters and Wetlands Delineation Report, Long Beach Water Pollution Control Plant Consolidation Project, Nassau County, New York, dated October 2019

It is important to note that the boundary of the wetlands and waters identified during the field delineation and shown in the enclosed Report are the same as the wetlands and water boundaries shown on the permit plans included in Appendix C of the Joint Application, already submitted to the Corps for the proposed geotechnical investigation.

A copy of the enclosed package is being filed with NYSDEC Region 1 for information related to their review of the Joint Application for Excavation and Fill in Navigable Waters and Tidal Wetlands

Re: Long Beach Water Pollution Control Plant Consolidation Project
Wetland Delineation and Jurisdictional Determination

A copy of the enclosed package is being filed with the U.S. Army Corps of Engineers New York District Regulatory Branch for their information and review.

Should you have any questions regarding the above, please contact the undersigned at 516-571-7508.

Thank you for your assistance,

Very truly yours,

Vincent Falkowski, P.E.
Deputy Commissioner of Environmental Programs

VF:rp

c: Ronald Pinzon, U.S. Army Corps of Engineers, New York District, Regulatory Branch
Ken Arnold, P.E, Commissioner Department of Public Works
Jane Houdek, Counsel to the Department of Public Works
Ed Visone, Assistant Superintendent of Sanitary Construction
Matt Accardi, Governor's Office of Storm Recovery
Peter Glus, Khanhtran Do, Richard Gilmour, Rodrigo Pena-Lang, Hazen-Arcadis PM-JV
Eric Mills, Mark Hanson, Hazen-Arcadis PM-JV

LAURA CURRAN
NASSAU COUNTY EXECUTIVE

KENNETH G. ARNOLD, P.E.
COMMISSIONER

COUNTY OF NASSAU
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1194 PROSPECT AVENUE
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December 6, 2019

Ms. Susan Ackerman
Regional Permit Administrator
New York State Department of Environmental Conservation
Division of Environmental Permits, Region 1
SUNY @ Stony Brook, 50 Circle Road
Stony Brook, NY 11790

Re: Long Beach Water Pollution Control Plant Consolidation Project in City of Long Beach and Town of Hempstead, Nassau County, NY
Wetland Delineation and Jurisdictional Determination

Dear Ms. Ackerman:

As stated during a conference call with NYSDEC Region 1 staff, the U..S. Army Corps of Engineers New York District Regulatory Branch staff, Nassau Department of Public Works (the County) staff and its PM-JV consultants, and others on October 23, 2019, the County has completed a delineation of wetlands on South and North Black Banks and Pearsalls Hassocks within West Hempstead Bay. The delineation was completed to support the current Joint Application submitted by the County to the NYSDEC for review and issuance of Excavation and Fill in Navigable Waters and Tidal Wetlands permits and a Water Quality Certification for activities associated with a geotechnical investigation of the proposed sewer force main within the Hassocks and adjacent waterways. The wetland delineation will also support a future Joint Application to the NYSDEC and USACE for permits to conduct activities within the Hassocks and adjacent waters associated with construction of the force main.

Enclosed for your review and consideration is a package that includes the following:

- Cover Letter from the County's PM-JV consultant, Hazen-Arcadis that requests a Jurisdictional Determination of the delineated wetlands and waters.
- Checklist of Information Included with Jurisdictional Determination
- Waters and Wetlands Delineation Report, Long Beach Water Pollution Control Plant Consolidation Project, Nassau County, New York, dated October 2019

It is important to note that the boundary of the wetlands and waters identified during the field delineation and shown in the enclosed Report are the same as the wetlands and water boundaries shown on the permit plans included in Appendix C of the Joint Application, already submitted to the NYSDEC for the proposed geotechnical investigation.

Re: Long Beach Water Pollution Control Plant Consolidation Project in
City of Long Beach and Town of Hempstead, Nassau County, NY
Wetland Delineation and Jurisdictional Determination

A copy of the enclosed package is being filed with the U.S. Army Corps of Engineers New York District Regulatory Branch for their information and review.

Should you have any questions regarding the above, please contact the undersigned at 516-571-7508.

Thank you for your assistance,

Very truly yours,

Vincent Falkowski, P.E.
Deputy Commissioner of Environmental Programs

VF:rp

c: Ronald Pinzon, U.S. Army Corps of Engineers, New York District, Regulatory Branch
Kenneth G. Arnold, P.E, Commissioner Department of Public Works
Jane Houdek, Counsel to the Department of Public Works
Edward Visone, Assistant Superintendent of Sanitary Construction
Matt Accardi, Governor's Office of Storm Recovery
Peter Glus, Khanhtran Do, Richard Gilmour, Rodrigo Pena-Lang, Hazen-Arcadis PM-JV
Eric Mills, Mark Hanson, Hazen-Arcadis PM-JV

Hazen ARCADIS
A JOINT VENTURE

Mr. Ronald Pinzon
United State Army Corps of Engineers
New York District Regulatory Branch
26 Federal Plaza, Room 1937
New York, NY 10278

Ms. Susan Ackerman
Regional Permit Administrator
New York Department of Environmental Conservation
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Date:
October 31, 2019

PM-JV Contact:
Doug Partridge, PWS

PM-JV Contact Phone:
203-489-3008

PM-JV Contact Email:
Doug.partridge@
arcadis.com

Our ref:
30001615

Subject:
USACE and NYSDEC Jurisdictional Waterbody Determination
Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Dear Mr. Pinzon and Ms. Ackerman:

Arcadis U.S., Inc. and Hazen and Sawyer in a program management joint venture (PM-JV) on behalf of Nassau County Department of Public Works (NCDPW) is submitting this jurisdictional waterbody request to the United States Army Corps of Engineers (USACE) and New York State Department of Environmental Conservation (NYSDEC) for review and formal concurrence of the federal and state jurisdictional status of identified waters and wetlands within the Long Beach Water Pollution Control Plant (WPCP) Consolidation Project (Consolidation Project) area. The purpose of the Consolidation Project is to pump sewage from the Long Beach barrier island to the Bay Park Sewage Treatment Plant (Bay Park STP) for treatment. The Consolidation Project is part of a transformative environmental and water quality program known as the Western Bays Resiliency Initiative. The overarching goal of this initiative aims to improve water quality, enhance coastal resiliency, and enhance the quality of life of residents and visitors.

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Points of Contact

The primary point of contact for NCDPW (**Applicant**) is:

Kenneth G. Arnold, P.E.
1194 Prospect Avenue
Westbury, NY 11590
(516) 571-5708
karnold@nassaucountyny.gov

The primary point of contact for the Town of Hempstead (**Property Owner**):

Thomas E. Doheny, Jr.
Town of Hempstead, Commissioner of Department of Conservation and Waterways
1401 Lido Boulevard, P.O. Box 180
Point Lookout, NY 11569
(516) 431-9200
thomdoh@ttohmail.org

The primary point of contact for the PM-JV, the **consultant** hired to evaluate potential federal and state jurisdiction of any waterbodies within the expected project area:

Douglas Partridge, PWS
27-01 Queens Plaza North, Suite 800
Long Island City, NY 11101
(206) 484-2743
Doug.partridge@arcadis.com

Site Description

The project is located within the Western Bays of Long Island south of the Bay Park Golf Course near the corner of Harbor Road and Marjorie Lane and continuing south across Pearsall's Hassock and Black Banks Hassock, south across Reynold's Channel to the Long Beach Waste Water Treatment Plant near the corner of W Pine Street and National Boulevard. The approximate center coordinate for the Consolidation Project area is 40°36'36.56"N, 40°36'36.56"N.

Overall, five parcels of land were assessed by wetland ecologists from the PM-JV during the October 2019 field study:

- Parcel ID 42 S 00200 is approximately 123 acres and owned by Nassau County.
- Parcel ID 42 S 00210 is approximately 139 acres and owned by Nassau County.
- Parcel ID 42 S 00190 is approximately 12 acres and owned by Nassau County.
- Parcel ID 43 F 8 is approximately 50 acres and owned by Town of Hempstead.
- Parcel ID 43 F 7 is approximately 91 acres and owned by Town of Hempstead.

In order to concentrate the study efforts on locations relevant to the proposed project, a study area of approximately 371 acres was assessed.

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Jurisdictional Waterbody Request

This package summarizes the PM-JV's findings of fact and judgments concerning the geographic extent of federal and state jurisdictional waters and wetlands within the proposed Consolidation Project area. A wetland delineation was completed in October 2019, and the formal delineation report is attached. All supporting information as required to support the jurisdictional waterbody request is included within the delineation report. To assist with the review of this jurisdictional waterbody request, a *Checklist of Information Included with Jurisdictional Determination* is included herein with a reference to where the required information can be found.

Please let us know if you wish to visit the site to confirm these findings prior to providing a formal response; this can be easily coordinated at your convenience. If you have any questions or require additional information regarding this formal submittal, please do not hesitate to contact me at 206.484.2743 or doug.partridge@arcadis.com.

Sincerely,

Arcadis of New York, Inc.

Douglas Partridge, PWS
Principal Ecologist

Copies:
Kenneth G. Arnold, NCDPW
Thomas E. Doheny, Jr., Town of Hempstead
Matt Accardi, GOSR
Peter Glus, PM-JV
Khanhtran Do, PM-JV
Richard Gilmour, PM-JV
William Wollman, PM-JV
Eric Mills, PM-JV
Rodrigo Pena-Lang, PM-JV

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CHECKLIST OF INFORMATION INCLUDED WITH REQUESTS FOR JURISDICTIONAL DETERMINATIONS (JD)*

1. Names (including POC if a corporation or other entity), complete mailing addresses and phone numbers of the following:
   - CURRENT PROPERTY OWNER (include a letter granting ACOE access to review the parcel) Cover Letter
   - APPLICANT (Project Sponsor) Cover Letter
   - WETLAND DELINEATOR (Consultant) Cover Letter

2. 8 ½-inch x 11-inch Size Location Map (preferably a copy of the USGS Quad or DEC Wetlands Map with site identified on it), coordinates of the approximate center point of site AND of each potentially jurisdictional waters of the U.S. feature on the site (either Latitude/Longitude or UTM Grid Coordinate), showing the stream orders of all streams in the vicinity of the site AND the location of each stream reach associated with the project review area. Please provide the coordinates of the start and end points of these reaches, and identify them as traditionally navigable waters [TNWs], non-navigable perennial relatively permanent waters [perennial RPWs], non-navigable seasonal relatively permanent waters [seasonal RPWs], or non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally [non-RPWs] Figure 1

3. Cover letter describing the purpose of the request, a general description of the proposed project, the size (acres) of the parcel, and the size of the limits of the project site or review area (if smaller than the parcel)** Cover Letter and Delineation Report

4. Delineation report, including the following supporting information: Delineation Report Included
   - Description of any current and/or historic land uses on the site Sections 1 & 2
   - DEC Wetlands Maps, NWI Maps, Soil Survey Maps Figures 3 &4, Attachment 2
   - Watershed size, drainage area size (for each stream reach), average annual rainfall/snowfall Section 2
   - Discussion of whether tributaries (streams) on the site are TNWs, perennial RPWs, seasonal RPWs, or non-RPWs. Include a description of general flow patterns, volume and frequency *** Section 4
   - Description of whether each wetland on the site either abuts or is adjacent to a tributary, identify which tributary (e.g. Wetland A directly abuts an unnamed tributary to Kayaderosseras Creek), and provide a discussion of the justification for this determination Section 4
   - Description of tributary connections to a TNW for each aquatic resource on the site, including a discussion of wetland and/or other connections (e.g. Wetland B connects to Wetland A via a culvert under Elm St. Wetland B abuts an unnamed tributary to Kayaderosseras Creek, which is a TNW) Section 4
   - River miles to a TNW; aerial (straight) miles to a TNW Section 4
   - Description of tributary substrate composition (e.g. silts, sands, gravel, etc.)
   - Identify potential pollutants Joint Application
   - Identify potential habitat for species Joint Application
   - Justification for proposed "isolated" (SWANCC) or non-jurisdictional determinations on any wetlands or streams N/A
   - Description of vegetative cover types on the site Section 2
   - Wetland Delineation Forms for each cover type Attachment 5
   - Color photographs of all representative areas of the site (taken during the growing season), including any connections between tributaries or between tributaries and wetlands Attachment 4

5. Surveyed delineation drawing, including the following: Attachment 1
   - Title block, including drawing date, scale, revision dates, north arrow, existing topographic contours (if available), benchmarks, and the stamp of a licensed surveyor or a narrative describing how the GPS data were obtained
   - Boundary lines of the parcel, AND of the project site, clearly marked with the acres shown on the drawing
   - Delineation flags shown as points that are connected by straight lines (or extend off-site at parcel boundaries), and are identified on the drawing with the corresponding number and/or letter that is written on the flag in the field ****
   - Appropriate hatching and/or shading to identify the extent of waters of the US, including jurisdictional wetlands, and any "isolated" or non-jurisdictional waterbodies or wetlands
   - All defined tributaries on the site, identified either via flagging or a standard tributary symbol that is in the legend, and locations of any other connections between waters (e.g. culverts, ditches and/or swales)
   - Table outlining the acres of the waters of the US, and "isolated" or non-jurisdictional waters, in addition to the linear feet of all tributaries within the boundaries of the project site or parcel

*** A JD is a determination of the extent of jurisdictional waterbodies and/or wetlands within the boundaries of a parcel of land *or a project site***

**** A project site is the limits of all lands expected to be disturbed for a single and complete project, or the initial phases of a phased project such as a subdivision**

***** For seasonal RPWs, non-RPWs and wetlands adjacent to RPWs and non-RPWs that require a significant nexus determination, please also provide information regarding whether the stream and/or wetland has more than an insubstantial or speculative effect on the chemical, physical and/or biological integrity of TNWs, such as a functional assessment of the aquatic resource functions that the stream and its adjacent wetlands provides**

****** Delineation flags may need to be replaced on a site prior to scheduling a site inspection with the ACOE**

Hazen ARCADIS
A JOINT VENTURE

Nassau County Department of Public Works

Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

WATERS AND WETLANDS DELINEATION REPORT

November 2019

WATERS AND WETLANDS DELINEATION REPORT

Long Beach Water Pollution Control Plant

Nassau County, New York

Douglas Partridge, PWS
Principal Ecologist

William Wollman
Ecologist

Prepared for:

Nassau County Department of Public Works
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Prepared by:

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Our Ref.:

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Date:

October 2019

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Hazen ARCADIS
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1 Site Location Map

2 Aerial Site Map

3 NWI Wetlands Map

4 NYSDEC Wetlands Map

5 Ecological Communities Map

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1 Wetland Delineation Maps

2 NRCS Soils Report

3 FEMA Flood Insurance Map

4 Site Photographs

5 Completed Routine Wetland Determination Data Sheets

1 INTRODUCTION

Arcadis U.S., Inc. and Hazen and Sawyer, in a program management joint venture (PM-JV), on behalf of Nassau County Department of Public Works (NCDPW) has prepared this Waters and Wetlands Delineation Report (Report) to support the Long Beach Water Pollution Control Plant (WPCP) Consolidation Project. The purpose of the Consolidation Project is to pump sewage from the Long Beach barrier island to the Bay Park Sewage Treatment Plant (Bay Park STP) for treatment. The Consolidation Project is part of a transformative environmental and water quality program known as the Western Bays Resiliency Initiative. The overarching goal of this initiative aims to improve water quality, enhance coastal resiliency, and enhance the quality of life of residents and visitors. The proposed route for a new force main that will connect the Long Beach WPCP with the Bay Park STP is included in **Figure 1**.

The Report summarizes the PM-JV's findings of fact and judgments concerning the geographic extent of federal and state jurisdictional waters and wetlands at the proposed corridor for sewage force main route (site). The report is intended to support required regulatory permitting from both the United States Army Corps of Engineers (USACE) and the New York State Department of Environmental Conservation (NYSDEC) to authorize the Consolidation Project; expected to occur within both federal and state protected waters and wetlands.

1.1 Site Description

The project is located within the Western Bays of Long Island south of the Bay Park Golf Course near the corner of Harbor Road and Marjorie Lane and continuing south across Pearsall's Hassock and Black Banks Hassock, south across Reynold's Channel to the Long Beach Waste Water Treatment Plant near the corner of W Pine Street and National Boulevard. The project will occur within both the Town of Hempstead and the City of Long Beach, Nassau County, New York. The total area across both Pearsall's Hassock and Black Banks Hassock is 327 acres; fieldwork focused on a portion of this area where construction activities are anticipated to occur to install the proposed force main route[1].

The Western Bays of Long Island contain the largest concentration of salt marshes in the interconnected South Shore Estuary Reserve (hereafter South Shore Estuary). These intertidal marshes were once highly productive (i.e., fishing and shellfishing) ecosystems. However, over time, the productivity of the South Shore Estuary has declined in part due to water quality and the densely urbanized surroundings. Both point source and non-point source pollution have contributed to the Estuary's existing conditions. The Consolidation Project is an essential part of a series of projects to meet the goal of restoring and enriching the Western Bays as a recreational, economic, social, and environmental resource to Long Island and the State of New York. By diverting sewage from the Long Beach barrier island to the Bay Park STP for treatment prior to discharge via the existing permitted Cedar Creek ocean outfall, the Consolidation Project will help to improve the quality of important aquatic habitat and with it, the lives of nearby communities in southern Long Island.

[1] Assumed to be installed using horizontal directional drilling (HDD).

A further description of site conditions is included in **Section 2**. The approximate center coordinate for the Consolidation Project area is 40°36'36.56"N, 40°36'36.56"N. A site location map and aerial site map are included as **Figures 1 and 2**, respectively.

1.2 Report Overview

This report is organized in the following sections to provide the necessary information necessary to support regulatory review by both USACE and NYSDEC:

- Existing Conditions
- Methodology
- Results
- Summary
- References

2 EXISTING CONDITIONS

This section summarizes environmental conditions within the project area based on publicly available information as well as site observations made in the field.

The project area occurs primarily within Pearsall's and Black Banks Hassocks within the Western Bays. The hassock islands are a set of low-lying salt marsh islands. Historically, portions of both hassocks were utilized for dredge disposal; activities that converted low lying marsh to upland habitats. The northern portion of the project occurs within Nassau County Bay Park Recreational Area. The southern extent of the project will occur within the Long Beach WPCP. Along the perimeter of the bay is best characterized as densely urban with both residential and light industrial land uses.

2.1 Climate and Growing Season

The climate of Nassau County can be characterized by moderately cold winters and warm summers. Precipitation in Nassau County is well distributed throughout the year. The total annual precipitation is 42 inches, of which 50 percent falls in April through September. Average seasonal snowfall is 27 inches, and on average 15 days of the year have at least one inch of snow on the ground. The sun shines 65 percent of days in the summer and 50 percent in the winter.

The length of the growing season influences the evaluation of wetland hydrology. Using the 28 ºF standards (as specified by USACE protocols), the growing season averages 245 days using the specified standard of 5 years in 10. This means that in order to satisfy the hydrology parameter for wetlands, wetland soils on the site need to be saturated to the surface for at least 10 days (5%) of the growing season (using the 28 ºF standards).

The data provided above can be referenced in the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Nassau County, New York (1987).

2.2 Topography and Geomorphology

Nassau County is part of the Atlantic Coastal Plain Physiographic Province of the United States (US) and includes geological deposits and regional aquifers that are bounded to the south by the Atlantic Ocean and the north by Long Island Sound. The county is characterized by rolling landscapes in the northern portion and a flat plain with gently southward silt in the southern portion, where the project is located. Elevation within the project area is flat, ranging from 8 to -8 feet. The wetland delineation maps included as **Attachment 1** contain site topography based on USGS 2014 1-foot LiDAR data.

2.3 Hydrology

The Consolidation Project is located within the Southern Long Island Watershed (HUC 02030202), which is approximately 1,961 square miles. Specifically, the project area is located within the Western Bays portion of the South Shore Estuary. The Western Bays is made up of a series of low-lying salt marsh islands, known as the Hassock Islands, between tidally influenced estuarine channels. The primary source of hydrology within the project area is the tidal influence. Water flows through the hassocks through a

complex network of intertidal channels, and depressions. As well, shallow groundwater influences site hydrology.

Hydrology within the project area is significantly influenced by historic anthropomorphic activities. Primary of which, dredging activities within the Western Bays historically resulted in dredged material being deposited on the Hassock Islands. The majority of upland features within the site are made up of deposited dredged material at an elevation above the highest extent of daily or spring high tides. Berms were also constructed from side cast fill material during construction of the existing submerged outfall pipeline that runs through both hassocks. Finally, historic mosquito control ditching occurred throughout the Hassock Islands. These activities that started in the 1930s, entailed the excavation of parallel drainage ditches throughout the low-lying marsh habitats in an effort to control the mosquito population.

Tidal elevations are relevant to this delineation report as they directly relate to the native vegetative communities that occur along this coastal shoreline, and further discussed in **Section 2.5**. Relative to the mean lower low water (MLLW) level, mean low water (MLW) is 0.19 feet, mean high water (MHW) is 4.82 feet, and mean higher-high water (MHHW) is 5.15 feet. Elevations are derived from Bay Park, New York, Tide Station 851 6661. For purposes of this Report, MHW and MHHW are assumed equivalent for mapping purposes based upon the scale of topographic contours (i.e., 1 foot) and the difference between these tidal datums of 0.33 feet.

A further description of delineated wetland and watercourse areas as it relates to potential federal and state jurisdiction of wetlands is provided in **Section 4**.

2.4 Soils

The United States Department of Agriculture Natural Resources Conservation Service (USDA - NRCS), Web Soil Survey (websoilsurvey.sc/egov.usda.gov) identifies four soil series occurring within the project area. **Attachment 2** presents a soils report from USDA - NRCS. A description of the soil series is provided below.

- Ip – Ipswich mucky peat: "This soil is very deep and very poorly drained. It is near the ocean in tidal marshes that are inundated by saltwater twice daily. The areas are round or irregular in shape and range from 3 to several hundred acres. The larger areas are separate islands in the bays adjacent to the Atlantic Ocean. The slope is less than 1 percent." (Soil Survey of Nassau County, New York; USDA NRCS 1987). This soil series has a hydric rating of 100%.

- Mc – Matunuck mucky peat: "This soil is very deep and very poorly drained. It is in tidal areas that are inundated by saltwater twice daily. The areas are long and narrow or irregular in shape and range from 2 to 30 acres. The slope is 0 to 1 percent." (Soil Survey of Nassau County, New York; USDA NRCS 1987). This soil series has a hydric rating of 100%.

- Ue – Udipsamments, wet substratum: "This unit consists mainly of nearly level low areas that have been filled with sandy material dredged primarily from adjacent waterways. The fill consists of sand 3.5 to 8 feet thick mostly over organic tidal marsh sediments and a few inland freshwater marshes. These soils are well-drained or moderately well-drained and are very deep. Most areas are long and narrow and range from 5 to 100 acres. The Slope ranges from 0 to 3 percent." (Soil Survey of

Nassau County, New York; USDA NRCS 1987). This soil series is not known to contain hydric soils.

- Uw – Udipsamments, wet substratum: "This unit consists of urbanized areas and excessively drained to moderately well-drained, very deep Udipsamments. This unit is in nearly level tidal areas, mostly adjacent to the Atlantic Ocean, that has been filled with sandy material dredged mainly from adjacent waterways and channels. The fill is 4 to 10 feet thick over organic tidal marsh sediments. Most areas of the unit are rectangular or crescent-shaped and range from 10 to 100 acres. The slope ranges from 0 to 2 percent. This unit consists of about 70 percent urbanized areas; 25 percent Udipsamments, wet substratum; and 5 percent other soils. The urbanized areas are houses, commercial buildings, roads, parking lots, and other manmade structures." (Soil Survey of Nassau County, New York; USDA NRCS 1987). This soil series is not known to contain hydric soils.

2.5 Vegetation Communities

The vegetative communities found within the project area can be classified into six plant communities as described in the Ecological Communities of New York State (Edinger, et al. 2014).

- Low salt marsh**:** A coastal marsh community extending from approximately mean high tide elevation down to mean low tide. Vegetation within the community includes both tall and short-form smooth cordgrass (*Spartina alterniflora*), depending on the tidal range. The tall form of smooth cordgrass occurs in habitats with large tidal ranges, while the short form occurs in areas with a more restricted tidal range. Glassworts (*Salicornia spp.*) are also present throughout low salt marshes.

- High salt marsh: A coastal marsh community extending from approximately mean high tide elevation to the limit of spring tides (or mean higher high-water line). Dominant native species within the community include salt meadow cordgrass (*Spartina patens*), saltgrass (*Distichlis spicata*), marsh elder (*Iva frutescens*), and glassworts. Other species included perennial saltmarsh aster (*Aster tunuifolius*), seaside goldenrod (*Solidago sempervirens*), and northern sea lavender (*Limonium nashii*).

  High salt marsh habitat has also been invaded throughout the Atlantic northeastern shoreline by common reed (*Phragmites australis*). This highly invasive species native to Europe has displaced native species and commonly forms expansive, monoculture stands. This habitat can be found throughout both hassocks.

- Salt shrub: A shrubland community present between salt marshes and upland vegetation. Salt shrub areas are generally higher in elevation than salt marshes. This habitat can be frequently found on historic earthen berms constructed throughout the hassocks. Dominant species include groundsel bush (*Baccharis halimifolia*), marsh elder and salt meadow cordgrass. Commonly common reed and poison ivy (*Toxicodendron radicans*) are found within this habitat.

- Salt panne: The Shallow depressions in a salt marsh where the marsh is poorly drained. Pannes generally lack vegetation and substrate is soft, silty mud. Pannes are irregularly flooded by spring or flood tides and do not drain into tidal creeks.

- Maritime shrubland: A shrubland community that occurs above mean higher high water, and commonly on dredge spoils within the project area. Dominant species include northern bayberry (*Myrica pensylvanica*), black cherry (*Prunus serotina*), white birch saplings (*Betula papyrifera*), winged sumac (*Rhus copallinum*) and poison ivy.

- Successional maritime forest: A successional hardwood forest that occurs in low areas near the seacoast. This community is a variable type that develops after vegetation has been disturbed and land has been cleared. This habitat is found on portions of the dredge disposal areas, and in various stages of succession. Tree canopies are shorter than more inland woodland habitats due to salt spray. Dominant tree species include black cherry, white birch, various species of oak (*Quercus* spp.), eastern cottonwood (*Populus deltoides*), eastern red cedar (*Juniperus virginiana*), and red maple (*Acer rubrum*). Shrubs identified above in the maritime shrubland can often be found throughout this habitat as well. Vines common in the understory include grape (*Vitus riparia*), poison ivy, and Virginia creeper (*Parthenocissus quinquefolia*).

In addition to the above-listed plant communities, it is worth recognizing a couple of additional habitat types critical to the intertidal coastal ecosystem. Tidal rivers, beaches, intertidal mudflats, and subtidal bottom habitats were observed within both hassocks. While these habitat types generally support no vegetation, they are each critical to either marsh hydrology or habitat complexity and wildlife usage within the hassocks. Habitat mapping is included in **Figure 5**.

2.6 Previous Wetland Mapping

Wetlands within the vicinity of the project area have been previously mapped by both US Fish and Wildlife Service National Wetlands Inventory (NWI) and NYSDEC. Respective mapping from each agency is included as **Figures 3 and 4**.

- NWI wetlands within the project area are primarily classified as Estuarine and Marine Wetland, Estuarine and Marine Deepwater, Freshwater Forested/Shrub Wetland, and Freshwater Pond.

- NYSDEC mapped wetlands within the project area include the categories intertidal marsh (IM), high marsh (HM), dredged spoil (DS), coastal shoals, bars, and mudflats (SM), and littoral zone (LZ). The NYSDEC mapped tidal wetlands are identified in NYSDEC Map Index 612_496, 612_494, and 610_494.

2.7 Flood Insurance Map

A Flood Insurance Map as prepared by the Federal Emergency Management Agency (FEMA) is included as part of **Attachment 3**. The project area is included within map numbers 36059C0218G, 36059C036G and 36059C0308G and effective September 11, 2009. The entire project area falls within Zone AE or Zone X. Zone AE is defined as “the base floodplain where base flood elevations are provided.” Zone X is defined

as “Areas determined to be outside the 0.2% annual chance floodplain.” The base flood elevation for the project area is 9 feet.

3 METHODS

A formal wetland delineation was performed in September and October 2019 by wetland scientists from the PM-JV. Investigators included Doug Partridge, Professional Wetland Scientist (PWS); Bill Wollman, Wetland Professional in Training (WPIT); and Michael Long.

Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

3.1 Delineation Methods

3.1.1 Office Methods

Prior to the field delineation, existing information relative to the project area was collected and reviewed. The information included but was not limited to, the U.S. Geological Survey (USGS) 1:24,000 maps, aerial photography, Nassau County Soil Survey (USDA NRCA 1987), regional climate data, and hydric soils lists.

In addition, a review of available wetland information was completed to determine the approximate extent of waters and wetlands at the project area, including a review of NWI and NYSDEC Environmental Resource Mapper (ERM) (**Figures 3 and 4**). In addition, MLLW and MHW were mapped based upon existing 1-foot contours and known tidal ranges for the Western Bays. For purposes of this Report, MHW and MHHW are assumed equivalent for mapping purposes based upon the scale of topographic contours (i.e., 1 foot) and the difference between these tidal datums of 0.33 feet.

3.1.2 Field Delineation

Waters and wetlands were delineated using the USACE Manual and the Regional Supplement as required by Section 404 of the Federal Clean Water Act. Waters of the state and freshwater wetlands were delineated using the NYSDEC Freshwater Wetlands Delineation Manual, as required under the New York Freshwater Wetland Act. All waters/wetland boundaries were flagged in the field with pink flagging, flag locations surveyed with a sub-meter accurate global positioning device (GPS) (i.e., Trimble R1), and data plots established to document site conditions relative to hydrology, soils, and vegetation in both wetland and upland positions.

Protocols for field identification of wetland hydrology, hydric soils, and hydrophytic vegetation are provided in the USACE Manual and Regional Supplement. The PM-JV used these protocols as the basis for waters and wetlands delineation on the project area.

4 RESULTS

The results discussed in this report focus on the findings of fact and judgment of the PM-JV field team from the 2019 wetland delineation. Results are summarized below, including a summary of the geographic extent of wetlands within the project area, as well as a preliminary federal and state jurisdictional determination for each feature. Wetland delineation maps are included as **Attachment 1**. site photographs are included as **Attachment 4** and Completed Routine Wetland Determination Data Sheets as **Attachment 5.**

4.1 Geographic Extent of Waters and Wetlands

The project area is made up of a mosaic of tidal wetland salt marshes across the hassock islands, and adjacent upland maritime shrubland and forest in various degrees of successional development on old dredge disposal areas. As anticipated, wetland boundaries typically followed the known MHW/MHHW elevation. Delineated wetlands are part of larger waters and wetland complexes found throughout the hassocks. In addition, for mapping purposes, the waterward extent of these complexes was bounded by the MLW.

Due to the scale of this project, and the complexity of open water habitats (i.e., intertidal channels, salt pannes, mosquito ditches) throughout the hassock islands, not all open water habitats could be formally delineated. the open water intertidal channels were field delineated within the anticipated project area when feasible[2]. Smaller features were delineated using remote imagery, known topography, and field notes and observations.

Site access was not always possible within the common reed high marsh and adjacent upland habitats due to the ubiquitous cover of poison ivy. A few points as noted in the delineation maps were estimated based upon existing mapping and known elevations due to health and safety concerns.

The delineation maps (**Attachment 1**) also include approximate wetland boundaries for areas outside the anticipated project area based upon known MHW/MHHW elevation, as well as field notes and observations. Finally, acreage of all delineated features is not presented at this time due to the field delineation being focused on only anticipated project areas within the hassocks and larger wetland complexes that continue outside of the project boundaries.

4.1.1 Bay Park Recreation Area

The MHHW was delineated on the northern extent of the project where the Bay Park Recreation Center meets Swift Creek, indicating a tidal waterway is present below the delineated elevation. This shoreline is delineated by line A3 (**Drawing 1, Attachment 1**). It is important to note fragmented patches of high marsh vegetation are found below this elevation associated with the tidal water. The habitat patches can be characterized by high marsh shoreline dominated by marsh elder.

The banks of the shoreline are exposed and actively eroding due to wave action from boat traffic in Swift Creek, as well as frequent recreational usage.

[2] Health and safety concerns prohibited detailed mapping of waters on Black Banks Hassock.

4.1.2 Pearsall's Hassock

Tidal wetland complexes within Pearsall's Hassock included a range of flood regime types and were dependent upon the complexity of intertidal channels and elevations across the hassock. Shorelines within the hassock can be characterized by shallow intertidal mudflats with little vegetative coverage, transitioning into low marsh dominated by smooth cordgrass (both tall and short form), transitioning to emergent high marsh dominated by salt grass or salt meadow cordgrass or common reed monocultures, and transitioning into common reed monocultures or scrub/shrub high marsh dominated by marsh elder.

Isolated salt pannes and pools were also present throughout the wetland complex. As noted above, the entire hassock was not delineated. The field delineation focused on anticipated work areas to support the proposed project.

The focus of the delineation on Pearsall's Hassock occurred within the existing submerged outfall pipeline corridor. Geotechnical borings are required throughout this pipeline corridor. Construction of the submerged outfall pipeline involved dredging and side casting fill material along the perimeters of the corridor. A berm constructed of this side cast fill occurs along the eastern and western boundary of this pipeline corridor and defines most of the wetland complex boundary within the anticipated project area. This eastern boundary is defined by lines E1 and F1. The western boundary is defined by lines A1, B1, D1, J1 and K1. Delineation maps for these areas are included as **Drawing 3 through 6** in **Attachment 1**. Larger open water habitats were field delineated were feasible in anticipated work areas and depicted on the delineation maps.

A historic dredge containment cell was also delineated along the western boundary of the hassock, given potential temporary disturbances associated with access required for geotechnical borings. This dredge cell is bounded by a man-made earthen berm that was constructed to contain the dredge sediments. This berm is approximately 3 to 4 feet in height. However, multiple breaches have historically occurred within the berm and restored tidal influence to these areas. As such, the upland boundaries delineated by the PM-JV field team primarily focus on these man-made berms and are delineated by lines B1, D1, G1, H1, I1, and J1. In addition, the southern boundary of this dredge cell that transitions into common reed monocultures, and maritime shrubland is delineated by line C1. Access along this boundary was limited by poison ivy.

Within the submerged outfall pipeline corridor of Pearsall's Hassock, four distinct sample plot transects were established to document both upland and wetland conditions along the delineated boundary. They include:

- Transect #1 (including sampling plots #1 and 2) is located in the southwestern portion of the pipeline corridor.

- Transect #2 (including sample plots #3 and 4) is located in the southeastern portion of the pipeline corridor.

- Transect #3 (including sample plots #5 and 6) is located in the central-western portion of the pipeline corridor.

- Transect #4 (including sample plots #7 & 8) is located in the northeast portion of the pipeline corridor.

4.1.2.1 Transect #1 (Drawing 6)

Sample plot #1 was established in a wetland position in the southeastern portion of the pipeline corridor. This plot location is best characterized as a low marsh habitat. Sample plot #1 demonstrated the following:

- Wetland hydrology through the identification of primary indicators (saturation, aquatic fauna, hydrogen sulfide odor, presence of reduced iron) and secondary indicators (saturation visible on aerial imagery, geomorphic position, and FAC-neutral test).
- Hydric soil through the identification of hydrogen sulfide (A4) and sandy gleyed matrix (S4).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW or FAC. Dominant species include smooth cordgrass and perennial glasswort (*Salicornia virginica*).

Sample plot #2 was established in an upland position immediately to the west of sample plot #1. This plot is located within a salt shrub habitat. Sample plot #2 demonstrated the following:

- No wetland hydrology.
- A bright (10YR 4/4) sand soil profile to a depth of 20 inches.
- Hydrophytic vegetation through 75% of dominant species that are OBL, FACW, or FAC. Dominant species include groundsel bush, common reed, Virginia creeper, and poison ivy.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

4.1.2.2 Transect #2 (Drawing 6)

Sample plot #3 was established in a wetland position in the southwestern portion of the pipeline corridor. This plot location is best characterized as a high marsh habitat. Sample plot #3 demonstrated the following:

- Wetland hydrology through the identification of primary indicators (high water table, saturation, aquatic fauna, hydrogen sulfide odor, and presence of reduced iron), and secondary indicators (saturation visible on aerial imagery, geomorphic position, and FAC-neutral test).
- Hydric soil through the identification of hydrogen sulfide (A4) and sandy gleied matrix (S4).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include salt meadow cordgrass, smooth cordgrass, and salt grass.

Sample plot #4 was established in an upland position immediately west of sample plot #3. This plot is located within the salt shrub transitional zone in between emergent intertidal marsh and mature maritime forest. Sample plot #4 demonstrated the following:

- No wetland hydrology.
- Soils that do not meet hydric indicators with a bright matrix color of 10YR 3/4 from a depth of 5 to 20 inches.
- Hydrophytic vegetation through 75% of dominant species that are OBL, FACW, or FAC. Dominant species include common reed, poison ivy, groundsel bush, and Virginia creeper.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

4.1.2.3 Transect #3 (Drawing 4)

Sample plot #5 was established in the upland position; located within the salt shrub community found along a manmade earthen berm in between the pipeline corridor and a historic dredge material containment cell. Sample plot #5 demonstrated the following:

- No wetland hydrology.
- A bright (10YR 3/3) loamy sand soil profile to a depth of 20 inches.
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include common reed, poison ivy, and groundsel bush.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

Sample plot #6 was established in low salt marsh habitat within the pipeline corridor, and immediately east of sample plot #5. Sample plot #6 demonstrated the following:

- Wetland hydrology through the identification of primary indicators (high water table, saturation, aquatic fauna, hydrogen sulfide odor) and secondary indicators (saturation visible on aerial imagery, geomorphic position, and FAC-neutral test).
- Hydric soil through the identification of hydrogen sulfide (A4).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include smooth cordgrass and salt grass.

4.1.2.4 Transect #4 (Drawing 2)

Sample plot #7 was established in a high marsh/salt shrub habitat in the northeastern portion of the pipeline corridor. Sample plot #7 demonstrated the following:

- Wetland hydrology through the identification of primary indicators (high water table, saturation, aquatic fauna, hydrogen sulfide odor, and presence of reduced iron) and secondary indicators (saturation visible on aerial imagery, geomorphic position, and FAC-neutral test).
- Hydric soil through the identification of hydrogen sulfide (A4).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include common reed, poison ivy, and groundsel bush.

Sample plot #8 was established in the upland position immediately to the west of sample plot #7. This plot is located within the maritime shrubland habitat. Sample plot #8 demonstrated the following:

- No wetland hydrology.
- A bright matrix in the soil profile from a depth of 4-6 inches (10YR 5/3) and 6-12 inches (10YR 3/4). The matrix color in the profile from 12-20 inches demonstrated a low chroma, but no redox features (10 YR 4/1).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include bayberry, common reed, and poison ivy.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

4.1.3 Black Banks Hassock

Tidal wetland complexes within Black Banks Hassock included a range of flood regime types and were dependent upon the complexity of intertidal channels and elevations across the hassock. Similar to Pearsall's Hassock, shorelines can be characterized by shallow intertidal mudflats with little vegetative coverage, transitioning into low marsh dominated by smooth cordgrass (both tall and short form), into emergent high marsh dominated by salt grass or salt meadow cordgrass or common reed monocultures, and into and common reed monocultures or scrub/shrub high marsh dominated by marsh elder. Isolated salt pannes and pools were also present throughout the wetland complex. As noted above, the entire hassock was not delineated. The field delineation focused on expected areas of operations to support the proposed project.

Similar to Pearsall's Hassock, an existing submerged outfall pipeline is present on Black Banks Hassock. However, perimeter berms due to side cast fill material were not the defining features for the delineation effort on this hassock. The delineation focused on mapping the wetland boundary around the perimeter of two large dredge disposal areas. The northwestern dredge disposal area was mapped by lines D2, E2, G2, H2, and I2. A depressional salt panne was delineated within the southwestern upland complex and is defined by the line F2. In addition, historic berms associated with dredge disposal were delineated in the northern extent of the hassock by lines H2 and I2. These areas can be referenced in **Drawings 7 - 9** in **Attachment 1**.

The southwestern dredge disposal area was mapped by lines A2, B2 and C2. In the southern portion of Black Banks Hassock, man-made berms from historic dredge disposal were also delineated by lines B2 and C2 in the southwest portion of the hassock, E2 and G2 in the central west portion of the hassock, and H2 and I2 in the northwest portion of the hassock. These areas can be referenced in **Drawings 9 – 11** in **Attachment 1.**

Open water habitats were not field delineated on Black Banks Hassock due extent of wetlands across the hassock and tide restrictions during field surveys which presented a health and safety hazard. Open water habitats where necessary will be based upon tidal elevations, aerial imagery interpolation, and field notes and observations.

Four distinct sample plot transects were established to document both upland and wetland conditions along the delineated boundaries within Black Banks Hassock.

- Transect #5 (including sampling plots #12, 13 and 14) is located in the south portion of the hassock, and along the northern boundary of the south of the southwestern dredge disposal area.
- Transect #6 (including sample plots #15 and 16) is located in and proximate to the depressional wetland area along the eastern border of the northwestern dredge disposal area.
- Transect #7 (including sample plots #17 and 18) is located proximate to a historic berm along with the southern extent of the northern western dredge disposal area on the hassock.

- Transect #8 (including sample plots #19, 20 and 21) is located proximate to a historic berm in the northernmost extent of the hassock.

4.1.3.1 Transect #5 (Drawing 9)

Sample plot #12 was established in an upland position along the northern boundary of the southwestern dredge disposal area. This plot is located within the salt shrub transitional zone in between emergent intertidal marsh and mature maritime forest. Sample plot #12 demonstrated the following:

- No wetland hydrology.
- A low chroma soil profile matrix lacking redox features (2.5YR 6/1 from 3-20 inches).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include marsh elder, groundsel bush, common reed, salt meadow cordgrass, and seaside goldenrod.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

Sample plot #13 was established immediately to the north within a high marsh habitat. Sample plot #13 demonstrated the following:

- Wetland hydrology through primary indicators (high water table, saturation, aquatic fauna) and secondary indicators (saturation visible on aerial imagery, geomorphic position, and FAC-neutral test).
- Hydric soil through the identification of a depleted matrix (F3).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include marsh elder and salt meadow cordgrass.

Sample plot #14 was established in an upland position to the northwest of sample plot #13. This plot is located within the salt shrub community present on a manmade earthen berm. Sample plot #14 demonstrated the following:

- No wetland hydrology.
- A low chroma soil profile matrix lacking redox features to a depth of 20 inches (10YR 2/2).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include marsh elder and common reed.

Again, while the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

4.1.3.2 Transect #6 (Drawing 7)

Sample plot #15 was established in a depressional wetland area within the northwestern dredge disposal area. Sample plot #15 demonstrated the following:

- Wetland hydrology through primary indicators (high water table, saturation, sparsely vegetated concave surface, water-stained leaves, and thick muck surface) and secondary indicators (soil surface cracks, geomorphic position, and FAC-neutral test).

- Hydric soil through the identification of a depleted matrix (F3).
- Hydrophytic vegetation through 66.667% of dominant species that are OBL, FACW, or FAC. Dominant species include common reed, Asiatic bittersweet (*Celastrus orbiculatus*), and poison ivy.

Sample plot #16 was established in an upland position immediately to the northwest of sample plot #15. Sample plot #16 demonstrated the following:

- No wetland hydrology.
- A low chroma soil profile matrix lacking redox features to a depth of 20 inches (10YR 2/2).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include common reed and poison ivy.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

4.1.3.3 Transect #7 (Drawing 7)

Sample plot #17 was established in the wetland proximate to a berm constructed of historic dredge sediments, associated with the northwestern dredge disposal area on Black Banks Hassock. This location is best characterized as a salt scrub habitat. Sample plot #17 demonstrated the following:

- Wetland hydrology through primary indicators (high water table, saturation, and aquatic fauna) and secondary indicators (saturation visible on aerial imagery, geomorphic position, and FAC-neutral test).
- Hydric soil through the identification of depleted matrix (F3).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include groundsel bush, marsh elder, salt grass, pickleweed, and common reed.

Sample plot #18 was established in the upland position immediately to the south of sample plot #17. This plot is located within the maritime shrubland community present on a manmade earthen berm in between a historic dredge material containment cell and low marsh habitat. Sample plot #18 demonstrated the following:

- No wetland hydrology.
- A low chroma soil profile matrix lacking redox features to a depth of 20 inches (10YR 2/2).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include groundsel bush, common reed, and poison ivy.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

4.1.3.4 Transect #8 (Drawing 5)

Sample plot #19 was established in the upland position associated with a historic berm in the northernmost extent of Black Banks hassock. Sample plot #19 demonstrated the following:

- No wetland hydrology.
- A low chroma soil profile matrix lacking redox features to a depth of 20 inches (10YR 4/2).

- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include marsh elder, groundsel bush, common reed, seaside goldenrod, and poison ivy.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

Sample plot #20 was established in the wetland portion of the complex immediately to the east of sample plot #19. This location is best characterized as a low marsh habitat. Sample plot #20 demonstrated the following:

- Wetland hydrology through primary indicators (high water table, saturation, aquatic fauna, and hydrogen sulfide odor) and secondary indicators (saturation visible on aerial imagery, geomorphic position, and FAC-neutral test).
- Hydric soil through the identification of hydrogen sulfide (A4).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include smooth cordgrass, salt meadow cordgrass, and saltgrass.

To document the northern boundary of the dredge disposal area, sample plot #21 was established in the upland position to the southeast of sample plot #20. This plot is located within a scrub/shrub transition area between the emergent low marsh and a mature maritime forest. Sample plot #21 demonstrated the following:

- No wetland hydrology.
- A low chroma soil profile matrix lacking redox features to a depth of 20 inches (10YR 2/1 from 0-2 inches and 10YR 4/3 from 2-20 inches).
- Hydrophytic vegetation through 100% of dominant species that are OBL, FACW, or FAC. Dominant species include groundsel bush, marsh elder, common reed, and poison ivy.

While the upland sample plot demonstrated hydrophytic vegetation, it did not meet the wetland criteria due to a lack of wetland hydrology and hydric soils.

4.2 Jurisdictional Determination

All wetlands delineated within the project area are a part of the same intertidal wetland complex associated with the greater Western Bays and the Atlantic Ocean. Wetlands identified are subject to twice-daily inundation or sub-surface saturation associated with the tidal influence of the surrounding Western Bays and are therefore hydrologically connected to a Traditional Navigable Water (TNW).

Given the hydrologic continuity to a TNW, the wetlands on the site meet the criteria for federal jurisdiction through the determination of a significant nexus to a TNW.

The overall wetland complex is identified by NYSDEC as mapped tidal wetlands in the categories intertidal marsh, high marsh, dredged spoil, coastal shoals, bars, and mudflats, and littoral zone. The NYSDEC mapped tidal wetlands complex is identified in NYSDEC Map Index 612_496, 612_494, and 610_494. The overall wetland complex has an overall acreage of greater than 12.4 and therefore, this wetland complex meets the criterion of 12.4 acres and is regulated by NYSDEC. As such, it is recognized that NYSDEC also has jurisdiction over a 300-foot adjacent area from the wetland boundary.

5 SUMMARY

Based upon the formal wetland delineation presented herein, the delineated waters and wetlands complexes meet the criteria for federal (USACE) and state (NYSDEC) jurisdiction. If representatives of USACE or NYSDEC wish to visit the project area to confirm these findings prior to providing a formal response, this can be coordinated at your convenience.

This Report and associated map products are conditional, pending a final determination by the USACE and NYSDEC.

6 REFERENCES

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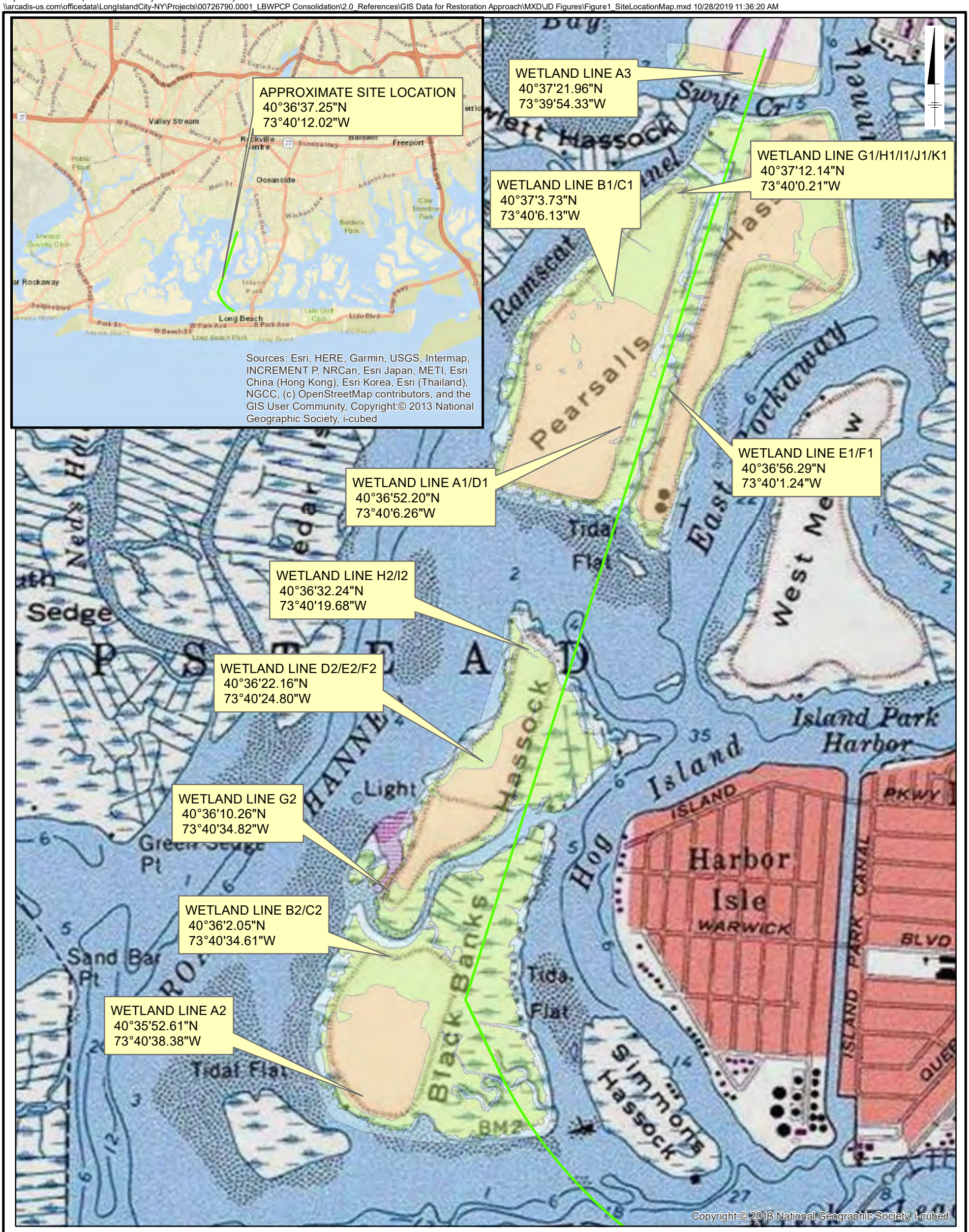
FIGURE 1

Site Location Map

City: CITRIX Div/Group: IMDV Created By: K.Ives Last Saved By: WWollman
\\arcadis-us.com\officedata\LongIslandCity-NY\Projects\00726790.0001_LBWPCP Consolidation\2.0_References\GIS Data for Restoration Approach\MXD\JD Figures\Figure1_SiteLocationMap.mxd 10/28/2019 11:36:20 AM



0 1,000 2,000 Feet

GRAPHIC SCALE

LEGEND

PROPOSED ROUTE

NOTES:
1. USGS 7.5 MINUTE TOPOGRAPHIC QUAD MAP FOR LAWRENCE ACCESSED VIA USGS NATIONAL MAP VIEWER.
2. WETLANDS DELINEATED BY ARCADIS WETLAND SCIENTISTS SEPTEMBER 23 - OCTOBER 4, 2019

NASSAU COUNTY
DEPARTMENT OF PUBLIC WORKS

LBWPCP Consolidation Project
Site Location Map

Hazen ARCADIS
A JOINT VENTURE

FIGURE
1

FIGURE 2

Aerial Site Map

City: CITRIX Div/Group: IMDV Created By: K.Ives Last Saved By: WWollman
\\arcadis-us.com\officedata\LongIslandCity-NY\Projects\00726790.0001_LBWPCP Consolidation\2.0_References\GIS Data for Restoration Approach\MXD\Report Figures\Figure2_AerialMap.mxd 10/25/2019 11:32:39 AM

0 1,000 2,000 Feet

GRAPHIC SCALE

LEGEND

PROPOSED ROUTE

NOTES:
1. 2016 AERIAL IMAGERY ACCESSED VIA ARCGIS ONLINE

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LBWPCP Consolidation Project
Site Location Map

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FIGURE
2

FIGURE 3

NWI Wetlands Map

City: CITRIX Div/Group: IMDV Created By: K.Ives Last Saved By: WWollman
\\arcadis-us.com\officedata\LongIslandCity-NY\Projects\00726790.0001_LBWPCP Consolidation\2.0_References\GIS Data for Restoration Approach\MXD\Report Figures\Figure3_NWI_Wetlands.mxd 10/25/2019 11:35:41 AM

0 1,000 2,000 Feet

GRAPHIC SCALE

LEGEND

PROPOSED ROUTE

NWI WETLAND CLASS

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

NOTES:
1. 2016 AERIAL IMAGERY ACCESSED VIA ARCGIS ONLINE
2. NWI WETLAND LAYER ACCESSED VIA USFWS

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DEPARTMENT OF PUBLIC WORKS

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NWI Wetlands Map

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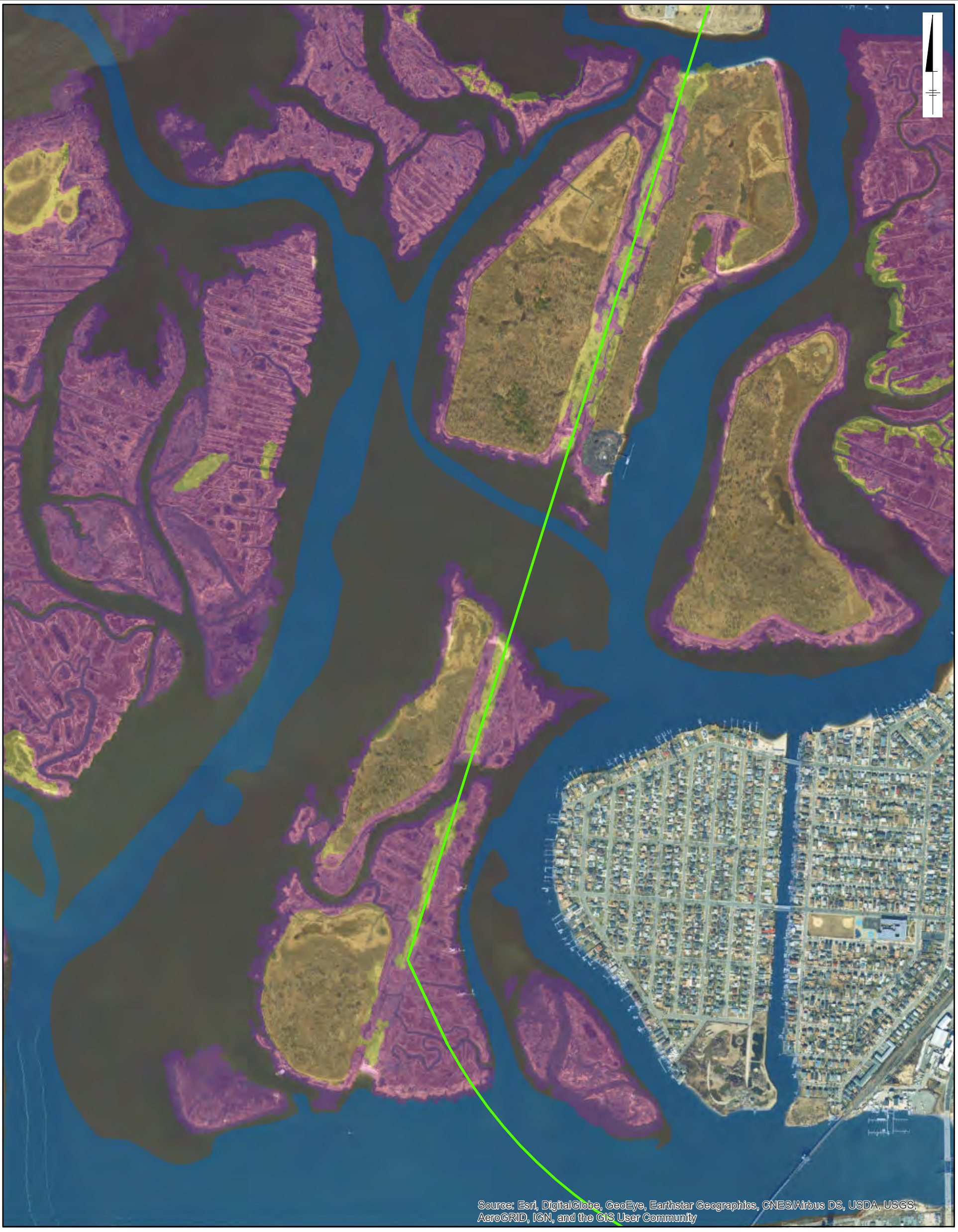
FIGURE
3

FIGURE 4

NYSDEC Wetlands Map

City: CITRIX Div/Group: IMDV Created By: K.Ives Last Saved By: WWollman
\\arcadis-us.com\officedata\LongIslandCity-NY\Projects\00726790.0001_LBWPCP Consolidation\2.0_References\GIS Data for Restoration Approach\MXD\Report Figures\Figure4_NYSDEC_Wetlands.mxd 10/25/2019 11:41:45 AM



LEGEND

PROPOSED ROUTE

NYSDEC TIDAL WETLANDS

- Dredged Spoil
- Formerly Connected
- High Marsh
- Intertidal Marsh
- Littoral Zone
- Coastal Shoals and Mud Flats

0 1,000 2,000 Feet

GRAPHIC SCALE

NOTES:
1. 2016 AERIAL IMAGERY ACCESSED VIA ARCGIS ONLINE
2. NYSDEC WETLAND LAYER ACCESSED VIA NY GIS CLEARINGHOUSE

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DEPARTMENT OF PUBLIC WORKS

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NYSDEC Wetlands Map

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FIGURE
4

FIGURE 5

Ecological Communities Map

City: CITRIX Div/Group: IMDV Created By: K.Ives Last Saved By: WWollman
\\arcadis-us.com\officedata\LongIslandCity-NY\Projects\00726790.0001_LBWPCP Consolidation\2.0_References\GIS Data for Restoration Approach\MXD\Report Figures\Figure5_EcologicalCommunities.mxd 10/28/2019 1:54:21 PM

LEGEND

- PROPOSED ROUTE
- Sandy Beach
- Open Water
- Salt Panne
- High Marsh
- Low Marsh
- Maritime Forest
- Salt Scrub
- Mud Flat

0 1,000 2,000 Feet

GRAPHIC SCALE

NOTES:
1. 2016 AERIAL IMAGERY ACCESSED VIA ARCGIS ONLINE

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LBWPCP Consolidation Project
Ecological Communities Map

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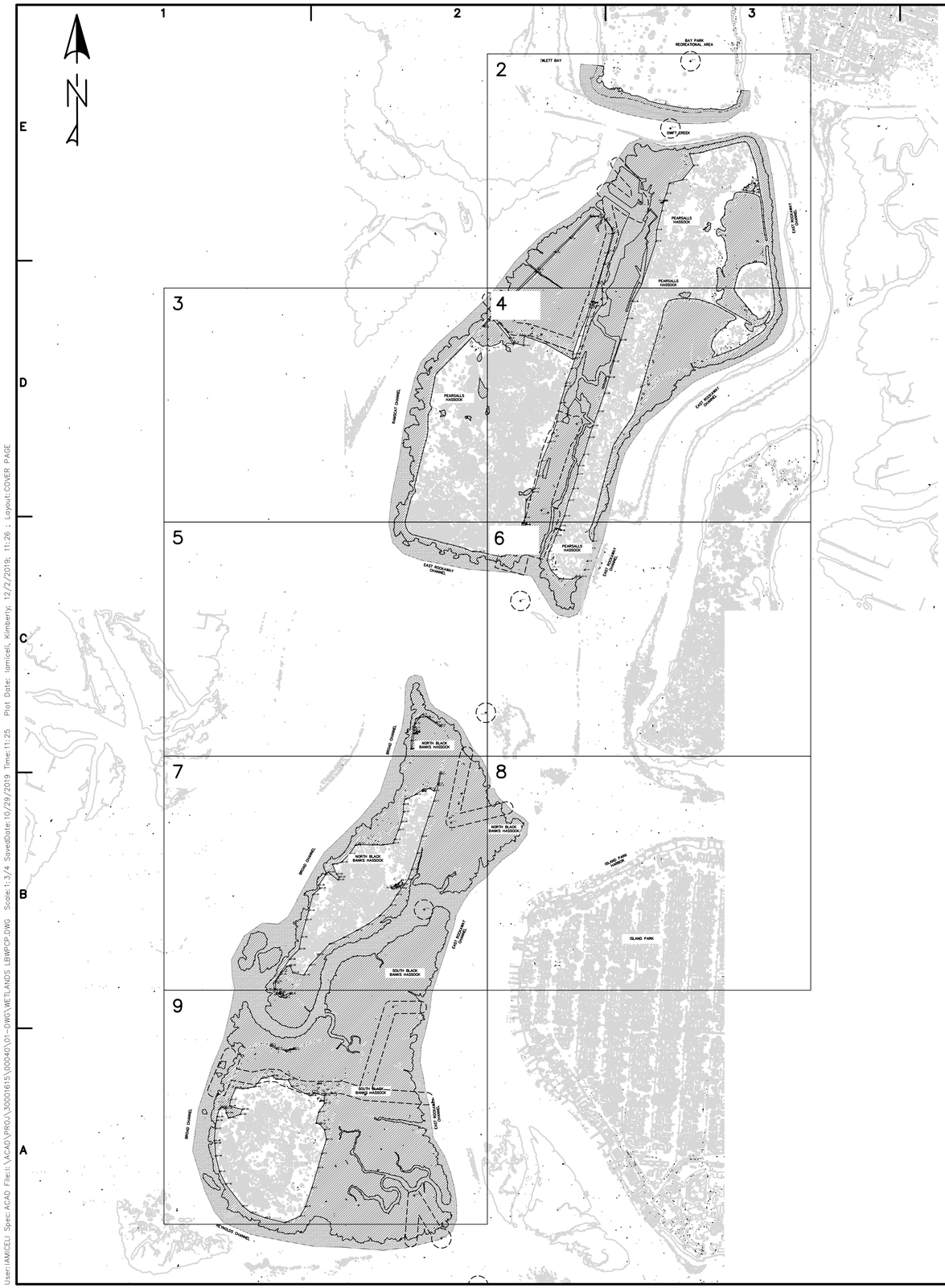
FIGURE
5

ATTACHMENT 1

Wetland Delineation Maps



LEGEND

- WETLANDS
- WATERS
- LIMITS OF PROJECT WORK AREA
- BORING LOCATIONS
- SAMPLE PLOT LOCATION
- WATERS FIELD LOCATION
- WETLAND FLAG LOCATION
- MEAN HIGH WATER (5')
- MEAN LOW WATER (0')
- WETLAND DELINEATION BOUNDARY
- WETLAND BOUNDARY APPROXIMATED BASED ON ELEVATION

NOTES:

1. THE HORIZONTAL DATUM IS THE NEW YORK LONG ISLAND STATE PLANE COORDINATE SYSTEM NAD 83.
2. THE VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. WETLANDS WERE DELINEATED BY ARCADIS WETLAND SCIENTISTS DURING THE WEEKS OF SEPTEMBER 23 AND SEPTEMBER 30. FIELD OBSERVATION POINTS WERE COLLECTED USING A TRIMBLE R1 GPS RECIEVER AND ARCGIS COLLECTOR.
4. WETLAND DELINEATION AND CLASSIFICATION SURVEY PERFORMED IN ACCORDANCE WITH MULTI-PARAMETER APPROACH DEVELOPED BY THE ENVIRONMENTAL LABORATORY OF THE UNTIED STATES ARMY ENGINEERING WATERWAYS EXPERIMENT STATION, PUBLISHED BY THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (1987), AND THE REGIONAL SUPPLEMENT TO THE CORPS OF THE ENGINEERS WETLAND DELINEATION MANUAL: ATLANTIC AND GULF COASTAL PLAIN REGION (VERSION 2.0) (2010).
5. ADJACENT AREA IS ASSUMED 300 FEET BEYOND DELINEATED WETLAND BOUNDARY.
6. CONTOUR LINES ACCESSED VIA NEW YORK STATE GIS CLEARINGHOUSE.
7. FOR PURPOSES OF THIS DELINEATION REPORT, THE MEAN HIGH WATER (4.90 FEET) AND MEAN HIGHER HIGH WATER (5.23 FEET) ARE MAPPED ALONG THE SAME CONTOUR INTERVAL.MEAN HIGH HIGH WATER, MEAN HIGH WATER AND MEAN LOW WATER PROVIDED VIA NOAA 2014 POST SANDY DEM.
8. THE MAPPED EXTENT OF OPEN WATER BOUNDARY IS MAPPED AS MEAN LOW WATER TO EXTENT OF APPROXIMATE STUDY AREA.

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DESIGNED BY:	B. WOLLMAN
DRAWN BY:	N. BAID
CHECKED BY:	D. PATRIDGE

WETLAND DELINEATION

0 500' 1000'
GRAPHIC SCALE

SHEET 1 OF 9

User:IAMICELI Spec:ACAD File:I:\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:10/29/2019 Time:11:25 Plot Date: Iamiceli, Kimberly; 12/2/2019; 11:26 ; Layout:COVER PAGE

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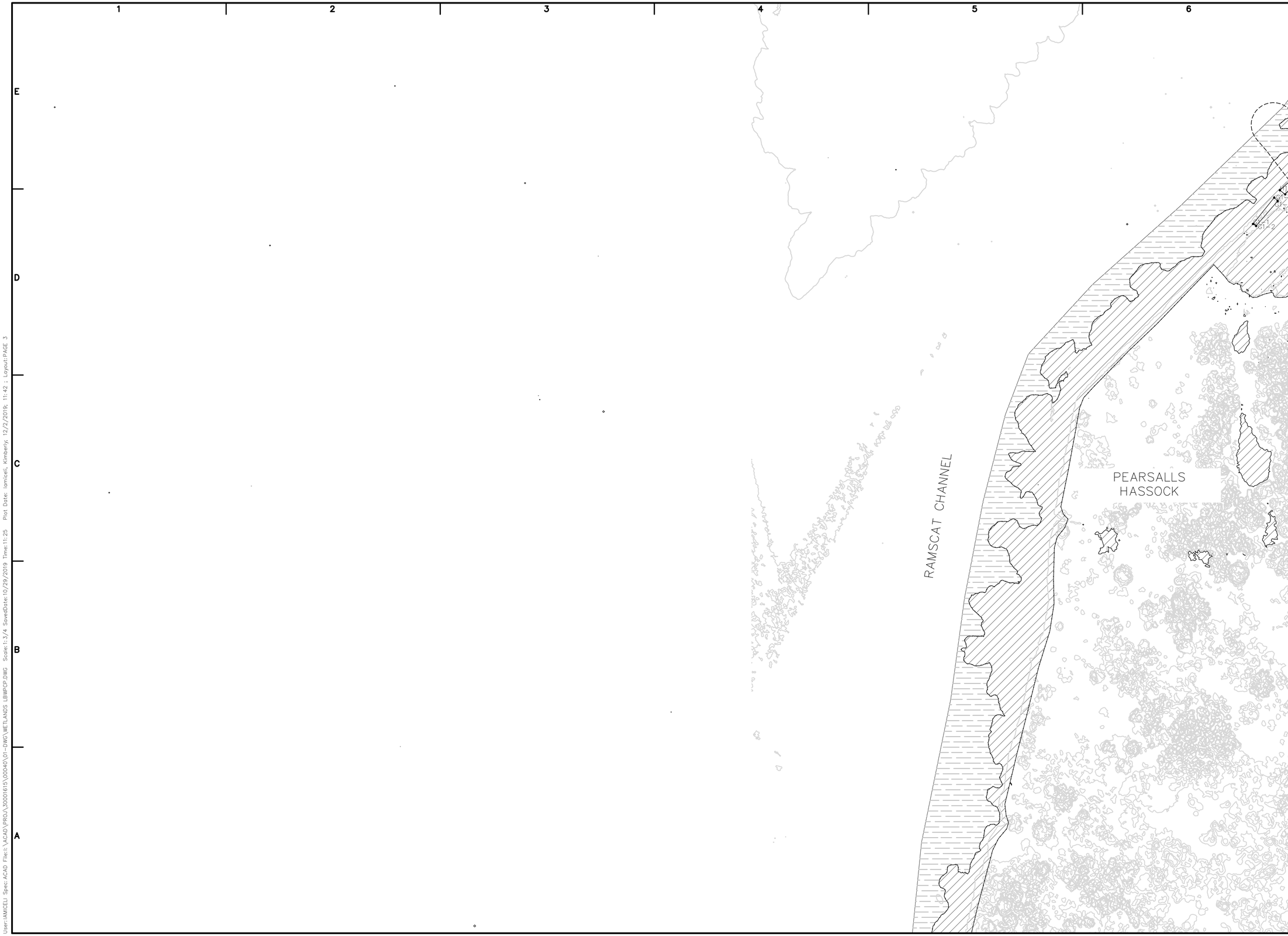
7. MEAN HIGH HIGH WATER, MEAN HIGH WATER AND MEAN LOW WATER PROVIDED VIA NOAA 2014 POST SANDY DEM.

0 100' 200'
GRAPHIC SCALE

SHEET 2 OF 9

User:IAMICELI Spec:ACAD File:I:\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:10/29/2019 Time:11:25 Plot Date: iamiceli, Kimberly: 12/2/2019; 11:24 ; Layout:PAGE 2



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0 100' 200'
GRAPHIC SCALE

SHEET 3 OF 9

User:IAMICELI Spec:ACAD File:I:\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:10/29/2019 Time:11:25 Plot Date: iamiceli, Kimberly; 12/2/2019; 11:42 ; Layout:PAGE 3

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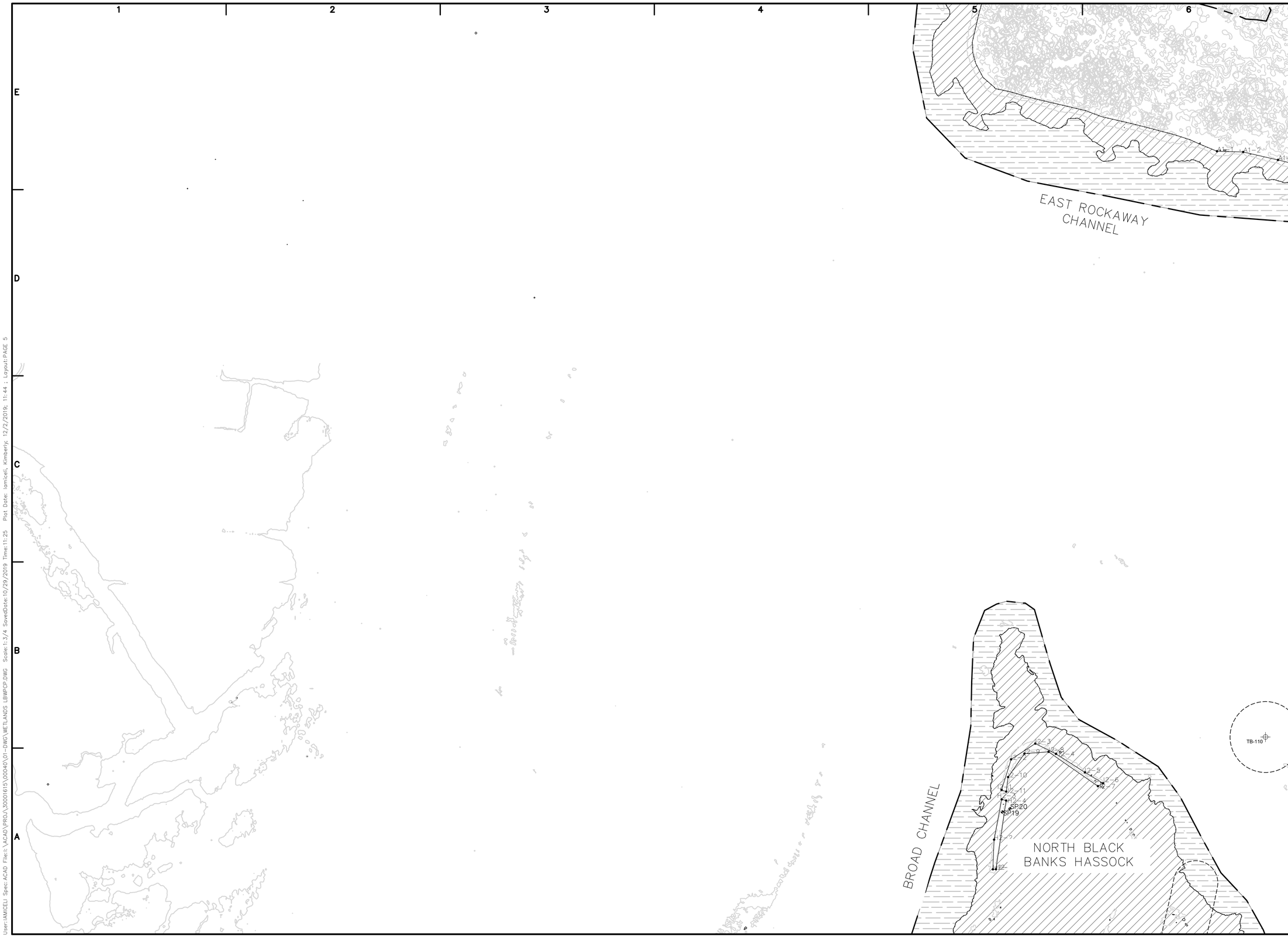
0 100' 200'
GRAPHIC SCALE

SHEET 4 OF 9

User:AMICELI Spec:ACAD File:\\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:12/2/2019 Time:12:04 Plot Date: lamicell, Kimberly; 12/3/2019; 12:32 ; Layout:PAGE 4



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0 100' 200'
GRAPHIC SCALE

SHEET 5 OF 9

User:IAMICELI Spec:ACAD File:I:\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:10/29/2019 Time:11:25 Plot Date: Iamiceli, Kimberly; 12/2/2019; 11:44 ; Layout:PAGE 5

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0 100' 200'
GRAPHIC SCALE

SHEET 6 OF 9

User:IAMICELI Spec:ACAD File:I:\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:10/29/2019 Time:11:25 Plot Date: iamiceli, Kimberly, 12/2/2019; 11:44 ; Layout:PAGE 6

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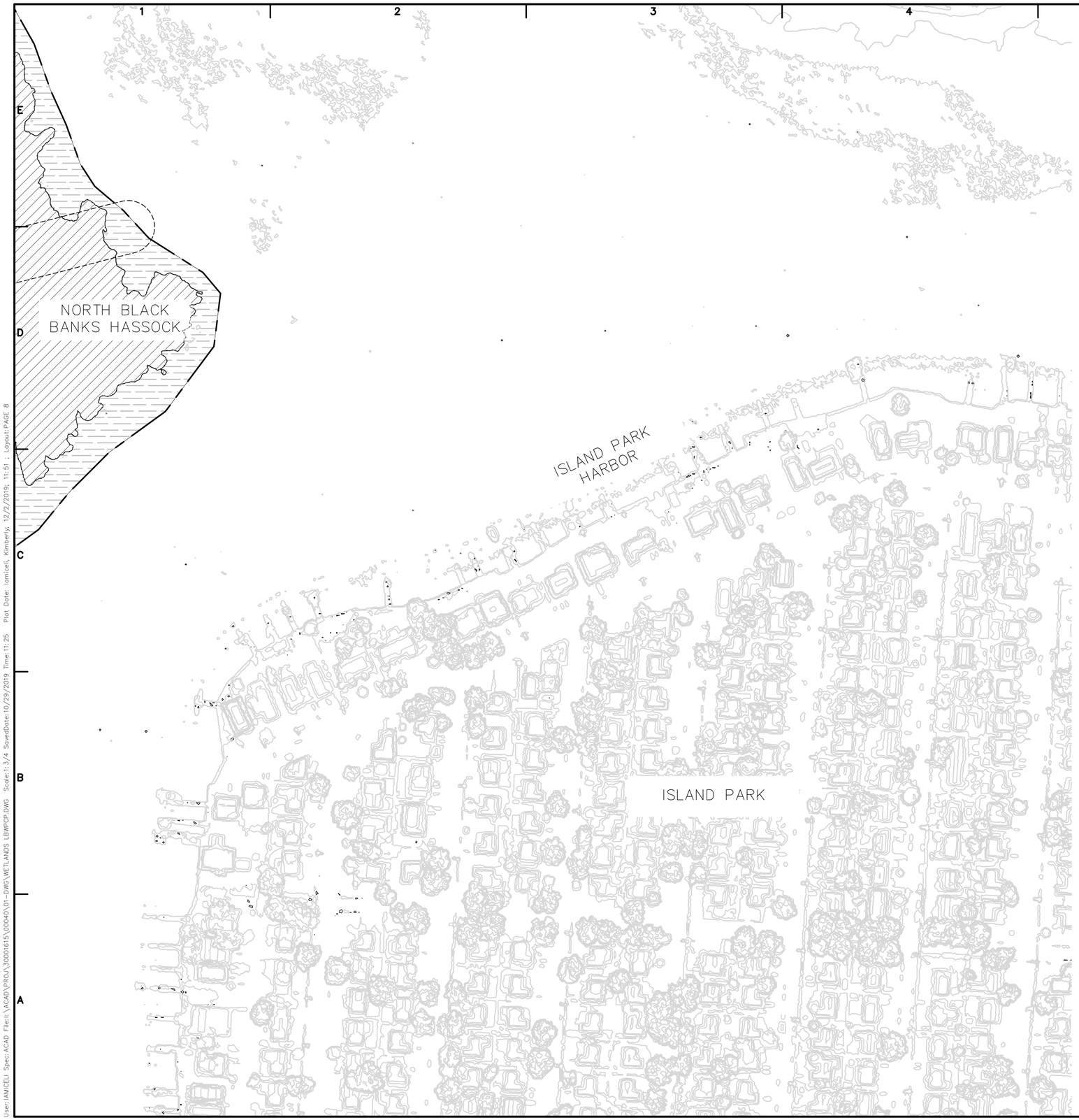
0 100' 200'
GRAPHIC SCALE

SHEET 7 OF 9

User:IAMICELI Spec:ACAD File:I:\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:10/29/2019 Time:11:25 Plot Date: Iamiceli, Kimberly; 12/2/2019; 11:45 ; Layout:PAGE 7



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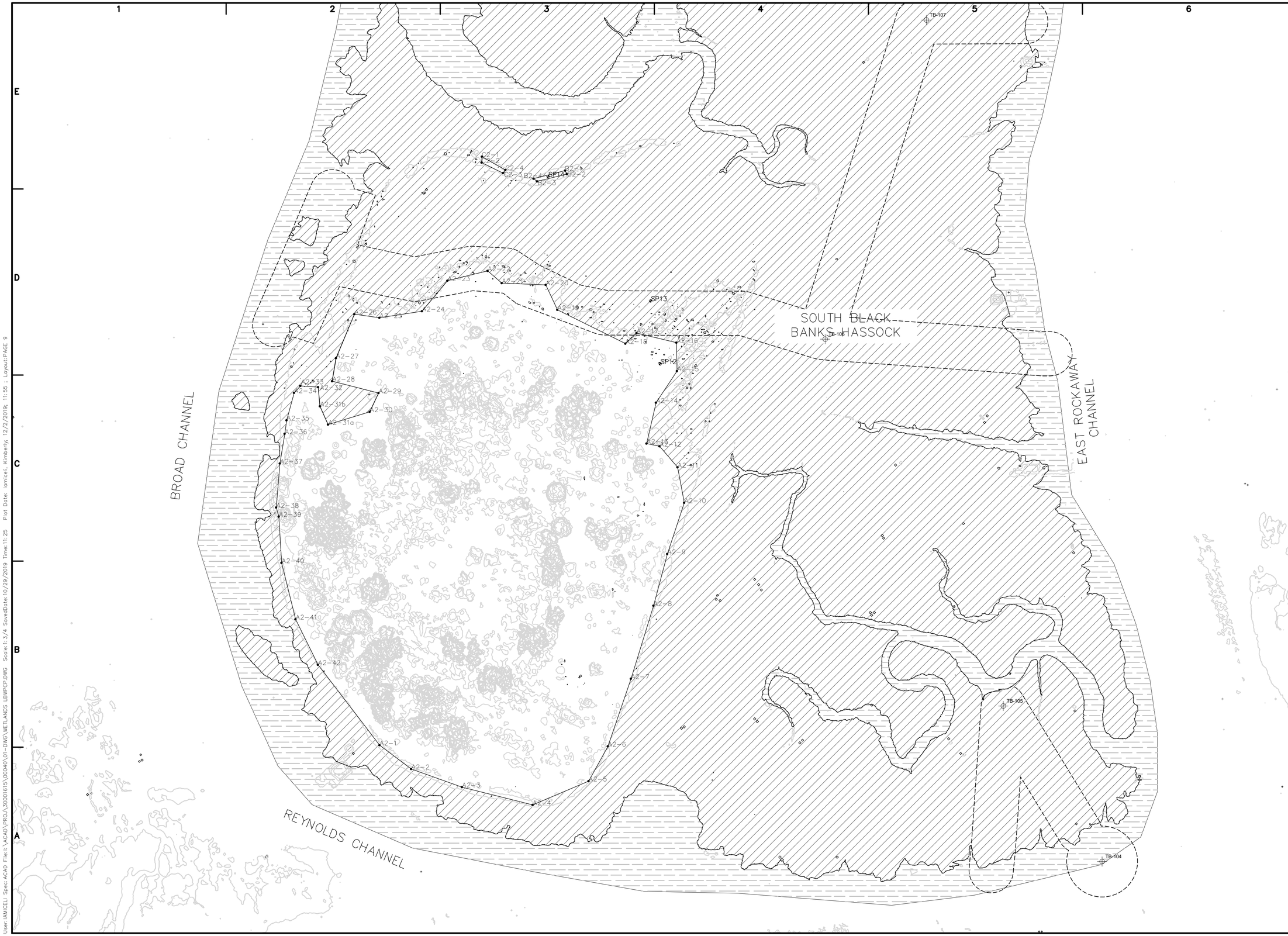
0 100' 200'
GRAPHIC SCALE

SHEET 8 OF 9

User:IAMICELI Spec:ACAD File:I:\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:10/29/2019 Time:11:25 Plot Date: iamiceli, Kimberly, 12/2/2019, 11:51 , Layout:PAGE 8



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0 100' 200'
GRAPHIC SCALE

SHEET 9 OF 9

User:IAMICELI Spec:ACAD File:I:\ACAD\PROJ\30001615\00040\01-DWG\WETLANDS LBWPCP.DWG Scale:1:3/4 SavedDate:10/29/2019 Time:11:25 Plot Date: iamiceli, Kimberly; 12/2/2019; 11:55 ; Layout:PAGE 9

ATTACHMENT 2

NRCS Soils Report

Map Scale: 1:20,900 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Nassau County, New York
Survey Area Data: Version 16, Sep 16, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 5, 2016

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ip	Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded	70.9	10.2%
Mc	Matunuck mucky peat, 0 to 2 percent slopes, very frequently flooded	4.0	0.6%
Pa	Pawcatuck mucky peat, 0 to 2 percent slopes, very frequently flooded	8.1	1.2%
Ue	Udipsamments, wet substratum	217.0	31.1%
Ug	Urban land	5.9	0.8%
Uw	Urban land-Udipsamments, wet substratum complex	9.6	1.4%
W	Water	382.3	54.8%
Totals for Area of Interest		**697.8**	**100.0%**

ATTACHMENT 3

FEMA Flood Insurance Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.0' North American Vertical Data of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations and Transect Data tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations and Transect Data tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

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NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3182
(301) 713-3242

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LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
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ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Limit of Moderate Wave Action

~~513~~ Base Flood Elevation line and value; elevation in feet*

(EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A Cross section line

3 — 3 Limited detail cross section line

23 - - - - - 23 Transect line

87°07'45", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

4276000mN 1000-meter Universal Transverse Mercator grid values, zone 18

600000 FT 5000-foot grid values: statename State Plane coordinate system, spzone (FIPSZONE fipszone), spherename projection

DX5510 × Bench mark (see explanation in Notes to Users section of this FIRM panel)

● M1.5 River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
April 2, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 11, 2009 - to change Base Flood Elevations, to change Special Flood Hazard Areas, to update map format, to change zone designations, to update the effects of wave action, to incorporate Primary Frontal Dune analysis, to reflect revised shoreline, to reflect the effects of coastal erosion, and to reflect updated topographic information

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

N

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0218G

FIRM

FLOOD INSURANCE RATE MAP

for NASSAU COUNTY, NEW YORK
(ALL JURISDICTIONS)

CONTAINS:

COMMUNITY	NUMBER
EAST ROCKAWAY, VILLAGE OF	360463
HEMPSTEAD, TOWN OF	360467
HEWLETT HARBOR, VILLAGE OF	360469
LYNBROOK, VILLAGE OF	360478
ROCKVILLE CENTRE, VILLAGE OF	360488

PANEL 218 OF 366
MAP SUFFIX: G
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36059C0218G

MAP REVISED
SEPTEMBER 11, 2009

Federal Emergency Management Agency

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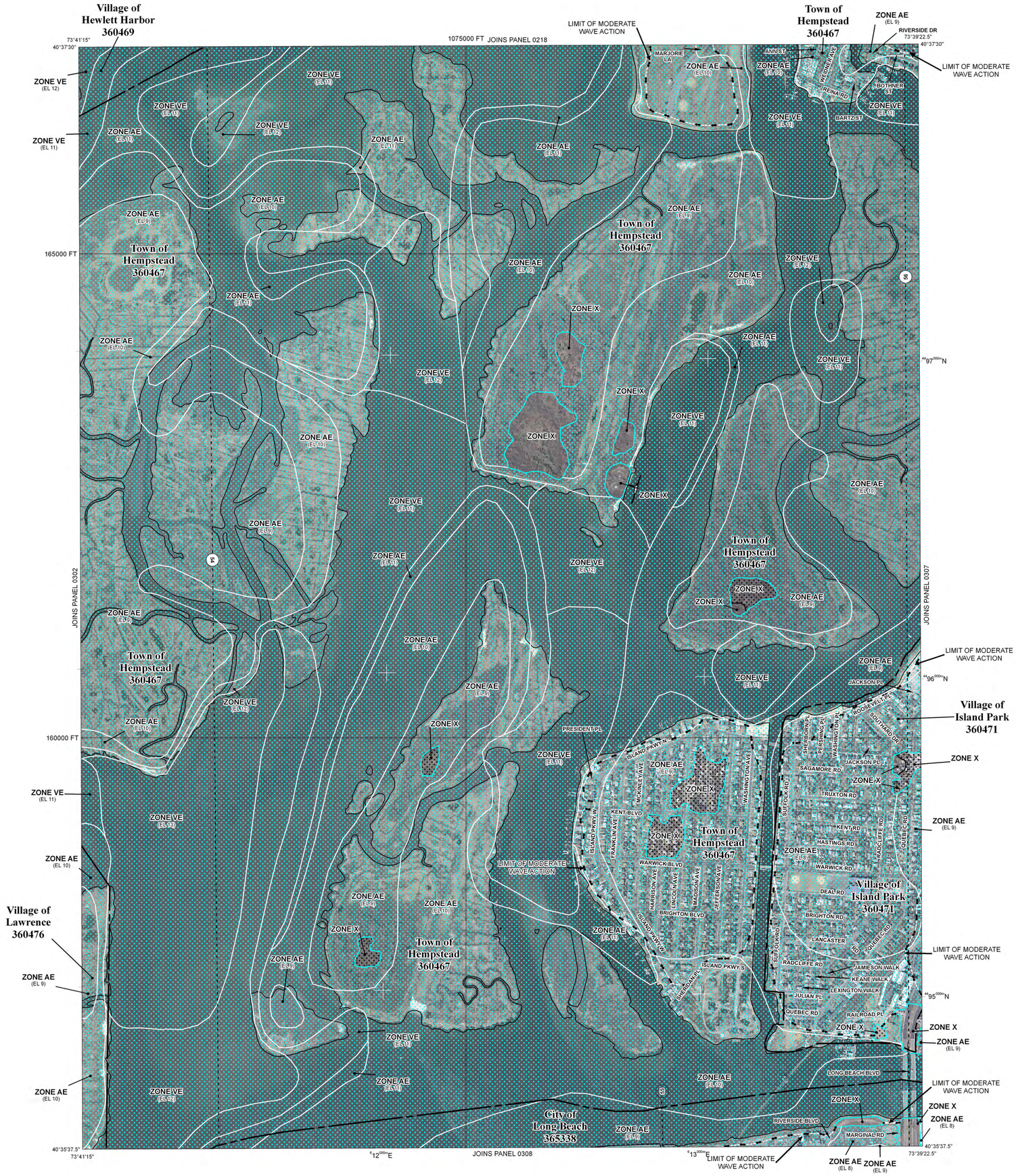

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

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ZONE A	No Base Flood Elevations determined.
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ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Limit of Moderate Wave Action

~~ 513 ~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

(A)———(A)	Cross section line
(3)- - - -(3)	Limited detail cross section line
(23)— — — —(23)	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4376000mN	1000-meter Universal Transverse Mercator grid values, zone 18
600000 FT	5000-foot grid values: statename State Plane coordinate system, spzone (FIPSZONE fipszone), spherename projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
April 2, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 11, 2009 - to change Base Flood Elevations, to change Special Flood Hazard Areas, to update map format, to change zone designations, to update the effects of wave action, to incorporate Primary Frontal Dune analysis, to reflect revised shoreline, to reflect the effects of coastal erosion, and to reflect updated topographic information

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MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0306G

FIRM

FLOOD INSURANCE RATE MAP

for NASSAU COUNTY, NEW YORK
(ALL JURISDICTIONS)

CONTAINS:

COMMUNITY	NUMBER
HEMPSTEAD, TOWN OF	360467
HEWLETT HARBOR, VILLAGE OF	360469
ISLAND PARK, VILLAGE OF	360471
LAWRENCE, VILLAGE OF	360476
LONG BEACH, CITY OF	365338

PANEL 306 OF 366
MAP SUFFIX: G
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36059C0306G

MAP REVISED
SEPTEMBER 11, 2009

Federal Emergency Management Agency

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0308G

FIRM

FLOOD INSURANCE RATE MAP

for NASSAU COUNTY, NEW YORK
(ALL JURISDICTIONS)

CONTAINS:

COMMUNITY	NUMBER
HEMPSTEAD, TOWN OF	360467
LAWRENCE, VILLAGE OF	360476
LONG BEACH, CITY OF	365338

PANEL 308 OF 366
MAP SUFFIX: G
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36059C0308G

MAP REVISED
SEPTEMBER 11, 2009

Federal Emergency Management Agency

ATTACHMENT 4

Site Photographs

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 1

Date:
September 24, 2019

Description:
View of wetland data point SP-1

Perspective:
Facing west.

Photo: 2

Date:
September 24, 2019

Description:
View of wetland data point SP-1 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 3

Date:
September 24, 2019

Description:
View of upland data point SP-2.

Perspective:
Facing East.

Photo: 4

Date:
September 24, 2019

Description:
View of upland data point SP-2 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 5

Date:
September 24, 2019

Description:
View of wetland data point SP-3.

Perspective:
Facing East.

Photo: 6

Date:
September 24, 2019

Description:
View of wetland data point SP-3 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 7

Date:
September 24, 2019

Description:
View of upland data point SP-4.

Perspective:
Facing West.

Photo: 8

Date:
September 17, 2019

Description:
View of upland data point SP-4 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 9

Date:
September 25, 2019

Description:
View of upland data point SP-5.

Perspective:
Facing West.

Photo: 10

Date:
September 25, 2019

Description:
View of wetland data point SP-5 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 11

Date:
September 25, 2019

Description:
View of wetland data point SP-6.

Perspective:
Facing East.

Photo: 12

Date:
September 25, 2019

Description:
View of wetland data point SP-6 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 13

Date:
September 25, 2019

Description:
View of wetland data point SP-7.

Perspective:
Facing South.

Photo: 14

Date:
September 25, 2019

Description:
View of wetland data point SP-7 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 15

Date:
September 25, 2019

Description:
View of upland data point SP-8.

Perspective:
Facing East.

Photo: 16

Date:
September 25, 2019

Description:
View of wetland data point SP-W5.

Perspective:
Facing Southwest.

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 17

Date:
September 26, 2019

Description:
View of upland data point SP-12.

Perspective:
Facing South.

Photo: 18

Date:
September 26, 2019

Description:
View of upland data point SP-12 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 19

Date:
September 26, 2019

Description:
View of wetland data point SP-13.

Perspective:
Facing West.

Photo: 20

Date:
September 26, 2019

Description:
View of wetland data point SP-13 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 21

Date:
September 26, 2019

Description:
View of upland data point SP-14.

Perspective:
Facing North.

Photo: 22

Date:
September 26, 2019

Description:
View of upland data point SP-14 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 23

Date:
September 27, 2019

Description:
View of wetland data point SP-15.

Perspective:
Facing East.

Photo: 24

Date:
September 27, 2019

Description:
View of wetland data point SP-15 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 25

Date:
September 27, 2019

Description:
View of upland data point SP-16.

Perspective:
Facing North.

Photo: 26

Date:
September 27, 2019

Description:
View of upland data point SP-16 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 27

Date:
September 27, 2019

Description:
View of wetland data point SP-17.

Perspective:
Facing West.

Photo: 28

Date:
September 27, 2019

Description:
View of wetland data point SP-17 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 29

Date:
September 27, 2019

Description:
View of upland data point SP-18.

Perspective:
Facing South.

Photo: 30

Date:
September 27, 2019

Description:
View of upland data point SP-18 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 31

Date:
September 27, 2019

Description:
View of upland data point SP-19.

Perspective:
Facing West.

Photo: 32

Date:
September 27, 2019

Description:
View of upland data point SP-19 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 33

Date:
September 27, 2019

Description:
View of wetland data point SP-20.

Perspective:
Facing North.

Photo: 34

Date:
September 27, 2019

Description:
View of wetland data point SP-20 soil boring.

Perspective:
N/A

Project Photographs

Nassau County Department of Public Works
Long Beach Water Pollution Control Plant Consolidation Project
Nassau County, New York

Photo: 35

Date:
September 27, 2019

Description:
View of upland data point SP-21.

Perspective:
Facing South.

Photo: 36

Date:
September 27, 2019

Description:
View of upland data point SP-21 soil boring.

Perspective:
N/A

ATTACHMENT 5

Completed Routine Wetland Determination Data Sheets

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-1

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None

Slope (%): 0% Lat: 40.61317 Long: -73.668085 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands werfde delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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)
- X Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X 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 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: SP-1

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. Spartina alterniflora	85	X	OBL
2. Salicornia virginica	20	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 = 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] Rapid Test for Hydrophytic Vegetation
- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					Silt	Root masses
8-20	GLEY1 2.5/5GY	100					Silty Sand	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-2

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): Convex

Slope (%): 5 Lat: 40.613165 Long: -73.667989 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-2

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')			
1. Baccharis halmifolia	38	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	38 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Phragmites australis	85	X	FACW
2. Phytolacca americana	5	X	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

Woody Vine Stratum (Plot size: 5')			
1. Toxicodendron radicans	38	X	FAC
2. Parthenocissus quinqufolia	38	X	FACU
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: 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:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-2

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
0-20	10YR 4/4						Sand	Fill material

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-3

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None

Slope (%): 0% Lat: 40.613271 Long: -73.668991 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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)
- X Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X 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 X	No ___	Depth (inches): 8
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: SP-3

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. Spartina patens	63	X	FACW
2. Spartina alterniflora	63	X	OBL
3. Distichlis spicata	20	X	OBL
4. Phragmites australis	10		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	156 = 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:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Silt	
6-20	GLEY1 4/10Y	100					Sand	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-4

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): Convex

Slope (%): 5 Lat: 40.613301 Long: -73.669091 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-4

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. Phragmites australis	85	X	FACW
2. Toxicodendron radicans	63	X	FAC
3. Baccharis halmifolia	20	X	FACW
4. Parthenocissus quinqufolia	20	X	FACU
5. Convulvulus sp.	3		
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	191 = 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: 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:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-4

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	10YR 2/1	100%					LmSand	
5-20	10YR 5/2	60					Sand	
5-20	10YR 3/4	40					Sand	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-5

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): Convex

Slope (%): 5 Lat: 40.618274 Long: -73.66698 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-5

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. Phragmites australis	63	X	FACW
2. Toxicodendron radicans	63	X	FAC
3. Baccharis halmifolia	36	X	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	162 = 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	0	x 1 = 0
FACW species	2	x 2 = 4
FAC species	1	x 3 = 3
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	3 (A)	7 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-5

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
0-20	10YR 3/3	100					LmSand	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-6

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None

Slope (%): 0 Lat: 40.618274 Long: -73.66698 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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)
- X 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X 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 X	No ___	Depth (inches): 6"
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: SP-6

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. Spartina alterniflora	85	X	OBL
2. Distichlis spicata	63	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 = 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	1	x 1 = 1
FACW species	1	x 2 = 2
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	2 (A)	3 (B)

Prevalence Index = B/A = 1.5

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					LmSand	
10-20	GLEY1 3/5GY	100					Silt	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- 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)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP7

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None

Slope (%): 0% Lat: 40.62052 Long: -73.664953 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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)
- X Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X 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 X	No ___	Depth (inches): 4
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: SP7

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. Spartina alterniflora	85	X	OBL
2. Salicornia virginica	36	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	121 = 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	2	x 1 =	2
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	2 (A)		2 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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 %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					Silt	
10-20	10YR 2/2	100					Silt	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- 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)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP8

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex

Slope (%): 10 Lat: 40.620554 Long: -73.664845 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum 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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP8

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')			
1. Morella pensylvanica	63	X	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	63 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Phragmites australis	85	X	FACW
2. Toxicodendron radicans	63	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	148 = 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	0	x 1 = 0
FACW species	1	x 2 = 2
FAC species	2	x 3 = 6
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	3 (A)	8 (B)

Prevalence Index = B/A = 2.66

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					L.Sand	
4-6	10YR 5/3	100					Sand	
6-12	10YR 3/4	100					Sand	
12-20	10YR 4/1	100					Silty Clay	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-12

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None

Slope (%): 5 Lat: 40.600302 Long: -73.675125 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-12

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')			
1. Iva frutescens	40	X	FACW
2. Baccharis halmifolia	25	X	FACW
3.			
4.			
5.			
6.			
7.			
	65 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Phragmites australis	60	X	FACW
2. Spartina patens	50	X	FACW
3. Solidago sempervirens	35	X	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	145 = 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	0	x 1 = 0
FACW species	5	x 2 = 10
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	5 (A)	10 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					Silt	
1-3	10YR 2/2	100					Silty Sand	
3-20	2.5Y 6/1	100					Sand	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-13

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None

Slope (%): 0% Lat: 40.600692 Long: -73.6752 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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)
- X 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X 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 X	No ___	Depth (inches): 4
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:
High marsh adjacent to shrub line

VEGETATION – Use scientific names of plants.

Sampling Point: SP-13

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')			
1. Iva frutescens	20	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	20 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Spartina patens	80	X	OBL
2. Phragmites australis	10	X	FACW
3. Iva frutescens	5		FACW
4. Salicornia virginica	2		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	97 = 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	2	x 1 =	2
FACW species	3	x 2 =	6
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	5 (A)		8 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-13

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
0-6	10YR 2/1	100					Silt	Root masses
6-20	10YR 3/2	95	10YR 3/6	5			Sand	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- 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**)
- ___ 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 (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-14

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): Convex

Slope (%): 10 Lat: 40.601465 Long: -73.676031 Datum: NAD83

Soil Map Unit Name: Ip - Ipswich mucky peat NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-14

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')			
1. Iva frutescens	40	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Phragmites australis	100	X	FACW
2. Salicornia virginica	20	X	OBL
3.			
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: 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	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	2 (A)		4 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-14

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
0-20	10YR 2/2	100					Sand	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-15

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 40.605127 Long: -73.672845 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum 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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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)
- 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)
- X Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X 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)
- X 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 X	No ___	Depth (inches): 8
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:
Sparsely vegetated depressional feature isolated within upland area.

VEGETATION – Use scientific names of plants.

Sampling Point: SP15

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. Phragmites australis	100	X	FACW
2. Salicornia virginica	20	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: 5')			
1. Celastrus orbiculatus	20	X	UPL
2. Toxicodendron radicans	15	X	FAC
3. Vitis sp.	10		
4.			
	40 = 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: 66.667% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	3 (A)		10 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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
0-8	10YR 2/1	85	10YR 3/6	15			Silty Clay	
8-20	GLEY1 3/10Y	100					Silt	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- 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**)
- ___ 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 (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP16

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): Convex

Slope (%): 10% Lat: 40.60516 Long: -73.672886 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-16

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. Phragmites australis	100	X	FACW
2. Salicornia virginica	20	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: 5')			
1. Toxicodendron radicans	10	X	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: 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	0	x 1 = 0
FACW species	1	x 2 = 2
FAC species	1	x 3 = 3
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	2 (A)	5 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-16

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
0-20	10YR 3/2	100					SndClLm	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-17

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None

Slope (%): 0% Lat: 40.602756 Long: -73.676315 Datum: NAD83

Soil Map Unit Name: Ip - Ipswich mucky peat NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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)
- X 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X 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 X	No ___	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:
Breached dredge material containment cell functioning as high marsh.

VEGETATION – Use scientific names of plants.

Sampling Point: SP-17

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')			
1. Baccharis halmifolia	10	X	FACW
2. Iva frutescens	10	X	FACW
3.			
4.			
5.			
6.			
7.			
	20 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Distichlis spicata	80	X	FACW
2. Salicornia virginica	30	X	OBL
3. Phragmites australis	20	X	FACW
4. Spartina alterniflora	10		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	140 = 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	2	x 1 = 2
FACW species	4	x 2 = 8
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	6 (A)	10 (B)

Prevalence Index = B/A = 1.667

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/2	100					Silt	
3-6	10YR 4/1	90	10YR 3/6	10	C	M	SndLoam	
6-20	10YR 3/1	95	10YR 3/6	5	C	M	Silty Clay	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- 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**)
- ___ 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 (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-18

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): Convex

Slope (%): 10 Lat: 40.602728 Long: -73.676333 Datum: NAD83

Soil Map Unit Name: Ip - Ipswich mucky peat NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-18

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')			
1. Baccharis halmifolia	30	X	FACW
2. Iva frutescens	10		FACW
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Phragmites australis	100	X	FACW
2. Salicornia virginica	20	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: 5')			
1. Toxicodendron radicans	5	X	FAC
2.			
3.			
4.			
	5 = 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	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	4 (A)		9 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-18

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	100					Silty Clay	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-19

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): Convex

Slope (%): 10 Lat: 40.608587 Long: -73.672316 Datum: NAD83

Soil Map Unit Name: Ip - Ipswich mucky peat NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-19

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')			
1. Iva frutescens	60	X	FACW
2. Baccharis halmifolia	10	X	FACW
3.			
4.			
5.			
6.			
7.			
	70 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Phragmites australis	40	X	FACW
2. Solidago sempervirens	20	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		

Woody Vine Stratum (Plot size: 5')			
1. Toxicodendron radicans	5	X	FAC
2.			
3.			
4.			
	5 = 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	0	x 1 = 0
FACW species	4	x 2 = 8
FAC species	1	x 3 = 3
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	5 (A)	11 (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-19

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 2.5/2	100					Silt	
1-20	10YR 4/2	100					Silt	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: SP-20

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None

Slope (%): 0% Lat: 40.608607 Long: -73.672254 Datum: NAD83

Soil Map Unit Name: Ip - Ipswich mucky peat NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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)
- X 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X 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 X	No ___	Depth (inches): 2
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:
High marsh within dredged spoil containment cell.

VEGETATION – Use scientific names of plants.

Sampling Point: SP-20

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. Spartina alterniflora	40	X	OBL
2. Spartina patens	30	X	FACW
3. Distichlis spicata	25	X	FACW
4. Salicornia virginica	5		OBL
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: 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	2	x 1 = 2
FACW species	2	x 2 = 4
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	4 (A)	6 (B)

Prevalence Index = B/A = 1.5

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-20

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					Silt	
10-20	5YR 2.5/2	100					Silty Clay	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- 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)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: LBWPCP Consolidation Project City/County: Nassau County Sampling Date: 9/25/2019

Applicant/Owner: Nassau County Department of Public Works State: NY Sampling Point: _____

Investigator(s): Doug Partridge, Bill Wollman Section, Township, Range: Bay Park

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None

Slope (%): 2 Lat: 40.607273 Long: -72.672067 Datum: NAD83

Soil Map Unit Name: Ue - Udipsamments, wet substratum NWI classification: E2EM1P

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 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.)
Waters and wetlands were delineated within the project area using "routine" methods recommended in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual) and 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement). Based upon guidance provided in the 1987 Manual and in Regulatory Guidance Letters 82-2, 86-9, 90-7, 92-3 and 98-7, waters and wetlands that have been disturbed through natural and/or anthropogenic alteration of hydrology, soils, and/or vegetation do not necessarily exist under "normal circumstances." Best professional judgment was used to determine that no circumstances exist that would require an atypical approach for this project area.

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): Surface

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: SP-21

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')			
1. Baccharis halmifolia	35	X	FACW
2. Iva frutescens	25	X	FACW
3. Morella pensylvanica	5		FAC
4.			
5.			
6.			
7.			
	65 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Phragmites australis	70	X	FACW
2. Iva frutescens	10	X	FACW
3. Toxicodendron radicans	5		FAC
4. Solidago sempervirens	5		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

Woody Vine Stratum (Plot size: 5')			
1. Toxicodendron radicans	10	X	FAC
2.			
3.			
4.			
	10 = 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	0	x 1 = 0
FACW species	5	x 2 = 10
FAC species	3	x 3 = 9
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	8 (A)	19 (B)

Prevalence Index = B/A = 2.37

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 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: SP-21

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					Loam	
2-20	10YR 4/3	100					Sand	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

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