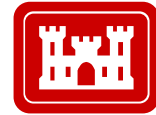




®

Regulatory Program



®

INTERIM APPROVED JURISDICTIONAL DETERMINATION FORM U.S. Army Corps of Engineers

This form should be completed by following the instructions provided
in the Interim Approved Jurisdictional Determination Form User Manual.

SECTION I: BACKGROUND INFORMATION

A. COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (AJD): November 25, 2019

B. ORM NUMBER IN APPROPRIATE FORMAT (e.g., HQ-2015-00001-SMJ): NAB-2019-60105 (Greensboro Elementary/Wetland Fill)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: MD

County/parish/borough: Caroline

City: Greensboro

Center coordinates of site (lat/long in degree decimal format): Lat. 38.98536°, Long. -75.801252°.

Map(s)/diagram(s) of review area (including map identifying single point of entry (SPOE) watershed and/or potential jurisdictional areas where applicable) is/are: ☒ attached ☐ in report/map titled .

☐ Other sites (e.g., offsite mitigation sites, disposal sites, etc.) are associated with this action and are recorded on a different jurisdictional determination (JD) form. List JD form ID numbers (e.g., HQ-2015-00001-SMJ-1): .

D. REVIEW PERFORMED FOR SITE EVALUATION:

☐ Office (Desk) Determination Only. Date: .

☒ Office (Desk) and Field Determination. Office/Desk Dates: August 26, 2019 Field Date(s): March 21, 2019 and April 3, 2019.

SECTION II: DATA SOURCES

Check all that were used to aid in the determination and attach data/maps to this AJD form and/or references/citations in the administrative record, as appropriate.

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant. Title/Date: "Overall Site lan"/February, 2019.

☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Data sheets/delineation report are sufficient for purposes of AJD form. Title/Date: .

☐ Data sheets/delineation report are not sufficient for purposes of AJD form. Summarize rationale and include information on revised data sheets/delineation report that this AJD form has relied upon: .

Revised Title/Date: .

☐ Data sheets prepared by the Corps. Title/Date: .

☐ Corps navigable waters study. Title/Date: .

☐ CorpsMap ORM map layers. Title/Date: .

☐ USGS Hydrologic Atlas. Title/Date: .

☐ USGS, NHD, or WBD data/maps. Title/Date: .

☐ USGS 8, 10 and/or 12 digit HUC maps. HUC number: .

☐ USGS maps. Scale & quad name and date: .

☒ USDA NRCS Soil Survey. Citation: Web Soil Survey.

☒ USFWS National Wetlands Inventory maps. Citation: The National Map Advanced Viewer.

☐ State/Local wetland inventory maps. Citation: .

☐ FEMA/FIRM maps. Citation: .

☒ Photographs: ☒ Aerial. Citation: Google Earth Pro, Aerial Imagery 2018; streetview 5/2018 . or ☒ Other.

Citation: Ground photographs taken by Corps on March 21, 2019 and April 3, 2019.

☒ LiDAR data/maps. Citation: The National Map Advanced Viewer.

☐ Previous JDs. File no. and date of JD letter: .

☐ Applicable/supporting case law:

☒ Applicable/supporting scientific literature:

- McDonough, O., M. Lang, and M. Palmer. 2014. The Impact of Agricultural Wetland Restoration on Surface Hydrologic Connectivity Between Depressional Wetlands and Adjacent Streams. Wetlands. doi 10.1007/s13157-014-0591-5.

- Natural Resources Conservation Service. 2015. Assessing Wetland Morphometrics and Ecosystem Functions in Agricultural Landscapes of the Atlantic Coastal Plain Using Fine Scale Topographic Information. CEAP Science Note.

-U.S. EPA. 2015. Connectivity Of Streams And Wetlands To Downstream Waters: A Review And Synthesis Of The Scientific Evidence (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-14/475F, 2015.

☐ Other information (please specify):

SECTION III: SUMMARY OF FINDINGS

Complete ORM "Aquatic Resource Upload Sheet" or Export and Print the Aquatic Resource Screen from ORM for All Waters and Features, Regardless of Jurisdictional Status – Required

A. RIVERS AND HARBORS ACT (RHA) SECTION 10 DETERMINATION OF JURISDICTION:

☐ "navigable waters of the U.S." within RHA jurisdiction (as defined by 33 CFR part 329) in the review area.

• Complete Table 1 - Required

NOTE: If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Section 10 navigable waters list, DO NOT USE THIS FORM TO MAKE THE DETERMINATION. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Section 10 RHA navigability determination.

B. CLEAN WATER ACT (CWA) SECTION 404 DETERMINATION OF JURISDICTION: "waters of the U.S." within CWA jurisdiction (as defined by 33 CFR part 328.3) in the review area. **Check all that apply.**

☐ (a)(1): All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide. (Traditional Navigable Waters (TNWs))

• Complete Table 1 - Required

☐ This AJD includes a case-specific (a)(1) TNW (Section 404 navigable-in-fact) determination on a water that has not previously been designated as such. Documentation required for this case-specific (a)(1) TNW determination is attached.

☐ (a)(2): All interstate waters, including interstate wetlands.

• Complete Table 2 - Required

☐ (a)(3): The territorial seas.

• Complete Table 3 - Required

☐ (a)(4): All impoundments of waters otherwise identified as waters of the U.S. under 33 CFR part 328.3.

• Complete Table 4 - Required

☐ (a)(5): All tributaries, as defined in 33 CFR part 328.3, of waters identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.

• Complete Table 5 - Required

☐ (a)(6): All waters adjacent to a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

• Complete Table 6 - Required

☐ Bordering/Contiguous.
Neighboring:

☐ (c)(2)(i): All waters located within 100 feet of the ordinary high water mark (OHWM) of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3.

☐ (c)(2)(ii): All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3 and not more than 1,500 feet of the OHWM of such water.

☐ (c)(2)(iii): All waters located within 1,500 feet of the high tide line of a water identified in paragraphs (a)(1) or (a)(3) of 33 CFR part 328.3, and all waters within 1,500 feet of the OHWM of the Great Lakes.

☒ (a)(7): All waters identified in 33 CFR 328.3(a)(7)(i)-(v) where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.

• Complete Table 7 for the significant nexus determination. Attach a map delineating the SPOE watershed boundary with (a)(7) waters identified in the similarly situated analysis. - Required

- ☐ Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.
- ☐ (a)(8): All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3 not covered by (c)(2)(ii) above and all waters located within 4,000 feet of the high tide line or OHWM of a water identified in paragraphs (a)(1)-(a)(5) of 33 CFR part 328.3 where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.
- **Complete Table 8 for the significant nexus determination. Attach a map delineating the SPOE watershed boundary with (a)(8) waters identified in the similarly situated analysis. - Required**
- ☐ Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.

C. NON-WATERS OF THE U.S. FINDINGS:

Check all that apply.

- ☐ The review area is comprised entirely of dry land.
- ☐ Potential-(a)(7) Waters: Waters that DO NOT have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.
- **Complete Table 9 and attach a map delineating the SPOE watershed boundary with potential (a)(7) waters identified in the similarly situated analysis. - Required**
- ☐ Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.
- ☐ Potential-(a)(8) Waters: Waters that DO NOT have a significant nexus to a water identified in paragraphs (a)(1)-(a)(3) of 33 CFR part 328.3.
- **Complete Table 9 and attach a map delineating the SPOE watershed boundary with potential (a)(8) waters identified in the similarly situated analysis. - Required**
- ☐ Includes water(s) that are geographically and physically adjacent per (a)(6), but are being used for established, normal farming, silviculture, and ranching activities (33 USC Section 1344(f)(1)) and therefore are not adjacent and require a case-specific significant nexus determination.
- ☐ Excluded Waters (Non-Waters of U.S.), even where they otherwise meet the terms of paragraphs (a)(4)-(a)(8):
- **Complete Table 10 - Required**
- ☐ (b)(1): Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA.
- ☐ (b)(2): Prior converted cropland.
- ☐ (b)(3)(i): Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
- ☐ (b)(3)(ii): Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
- ☐ (b)(3)(iii): Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1)-(a)(3).
- ☐ (b)(4)(i): Artificially irrigated areas that would revert to dry land should application of water to that area cease.
- ☐ (b)(4)(ii): Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds.
- ☐ (b)(4)(iii): Artificial reflecting pools or swimming pools created in dry land.¹
- ☐ (b)(4)(iv): Small ornamental waters created in dry land.¹
- ☐ (b)(4)(v): Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water.
- ☐ (b)(4)(vi): Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways.¹
- ☐ (b)(4)(vii): Puddles.¹
- ☐ (b)(5): Groundwater, including groundwater drained through subsurface drainage systems.¹
- ☐ (b)(6): Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.¹
- ☐ (b)(7): Wastewater recycling structures created in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water

¹ In many cases these excluded features will not be specifically identified on the AJD form, unless specifically requested. Corps Districts may, in case-by-case instances, choose to identify some or all of these features within the review area.

distributary structures built for wastewater recycling.

- ☐ Other non-jurisdictional waters/features within review area that do not meet the definitions in 33 CFR 328.3 of (a)(1)-(a)(8) waters and are not excluded waters identified in (b)(1)-(b)(7).

- **Complete Table 11 - Required.**

D. ADDITIONAL COMMENTS TO SUPPORT AJD: The review area only includes the project wetland and Wetlands 1 and 2 that were identified during field site visits. .

Jurisdictional Waters of the U.S.

Default field entry is "N/A". Delete "N/A" and fill out all fields in the table where applicable for waters/features present in the review area.

Table 1. (a)(1) Traditional Navigable Waters

(a)(1) Waters Name	(a)(1) Criteria	Rationale to Support (a)(1) Designation Include High Tide Line or Ordinary High Water Mark indicators, when applicable.
N/A	Choose an item.	N/A

Table 2. (a)(2) Interstate Waters

(a)(2) Waters Name	Rationale to Support (a)(2) Designation
N/A	N/A

Table 3. (a)(3) Territorial Seas

(a)(3) Waters Name	Rationale to Support (a)(3) Designation
N/A	N/A

Table 4. (a)(4) Impoundments

(a)(4) Waters Name	Rationale to Support (a)(4) Designation
N/A	N/A
N/A	N/A

Table 5. (a)(5) Tributaries

(a)(5) Waters Name	Flow Regime	(a)(1)-(a)(3) Water Name to which this (a)(5) Tributary Flows	Tributary Breaks	Rationale for (a)(5) Designation and Additional Discussion. Identify flowpath to (a)(1)-(a)(3) water or attach map identifying the flowpath; explain any breaks or flow through excluded/non-jurisdictional features, etc.
N/A	Choose an item.	N/A	Choose an item.	N/A
N/A	Choose an item.	N/A	Choose an item.	N/A
N/A	Choose an item.	N/A	Choose an item.	N/A
N/A	Choose an item.	N/A	Choose an item.	N/A

Table 6. (a)(6) Adjacent Waters

(a)(6) Waters Name	(a)(1)-(a)(5) Water Name to which this Water is Adjacent	Rationale for (a)(6) Designation and Additional Discussion. Identify the type of water and how the limits of jurisdiction were established (e.g., wetland, 87 Manual/Regional Supplement); explain how the 100-year floodplain and/or the distance threshold was determined; whether this water extends beyond a threshold; explain if the water is part of a mosaic, etc.
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Table 7. (a)(7) Waters

SPOE Name	(a)(7) Waters Name	(a)(1)-(a)(3) Water Name to which this Water has a Significant Nexus	Significant Nexus Determination Identify SPOE watershed; discuss whether any similarly situated waters were present and aggregated for SND; discuss data, provide analysis, and summarize how the waters have more than speculative or insubstantial effect on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water, etc.
UNT	Project Wetland	Choptank River (TNW)	Project Wetland, Wetland 1 and Wetland 2 were aggregated for SND. See Attachment 1 for discussion and data.
UNT	Wetland 1	Choptank River (TNW)	Project Wetland, Wetland 1 and Wetland 2 were aggregated for SND. See Attachment 1 for discussion and data.
UNT	Wetland 2	Choptank River (TNW)	Project Wetland, Wetland 1 and Wetland 2 were aggregated for SND. See Attachment 1 for discussion and data.

Table 8. (a)(8) Waters

SPOE Name	(a)(8) Waters Name	(a)(1)-(a)(3) Water Name to which this Water has a Significant Nexus	Significant Nexus Determination Identify SPOE watershed; explain how 100-yr floodplain and/or the distance threshold was determined; discuss whether waters were determined to be similarly situated to subject water and aggregated for SND; discuss data, provide analysis, and then summarize how the waters have more than speculative or insubstantial effect the on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water, etc.
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Non-Jurisdictional Waters

Default field entry is "N/A". Delete "N/A" and fill out all fields in the table where applicable for waters/features present in the review area.

Table 9. Non-Waters/No Significant Nexus

SPOE Name	Non-(a)(7)/(a)(8) Waters Name	(a)(1)-(a)(3) Water Name to which this Water DOES NOT have a Significant Nexus	Basis for Determination that the Functions DO NOT Contribute Significantly to the Chemical, Physical, or Biological Integrity of the (a)(1)-(a)(3) Water. Identify SPOE watershed; explain how 100-yr floodplain and/or the distance threshold was determined; discuss whether waters were determined to be similarly situated to the subject water; discuss data, provide analysis, and summarize how the waters did not have more than a speculative or insubstantial effect on the physical, chemical, or biological integrity of the (a)(1)-(a)(3) water.
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Table 10. Non-Waters/Excluded Waters and Features

Paragraph (b) Excluded Feature/Water Name	Rationale for Paragraph (b) Excluded Feature/Water and Additional Discussion.
N/A	N/A
N/A	N/A

Table 11. Non-Waters/Other

Other Non-Waters of U.S. Feature/Water Name	Rationale for Non-Waters of U.S. Feature/Water and Additional Discussion.
N/A	N/A

Waters_Name	State	Cowardin Code	Hgm Code	Meas Type	AMT	Units	Waters Type	Latitude	Longitude	Local Waterway	Sim Situated Aggregated Spoe	Adjcent Waters Sbجت 33usc1344	Func I Sediment Trapping	Func Ii Nutrient Recycling	Func Iii Pollutant Mlgnt	Func Iv Retntn Attenu Fld Wtrs	Func V Runoff Storage	Func Vi Contrib ution Of Flow	Func Vii Export Organic Matter	Func Viii Export Food Rsources	Func Ix Prov Life Cycle Depdnt
2019-60105 - Wetland 1	MD	PFO-PALUSTRINE, FORESTED	Depressional	AREA	1.13	AC	A7BAYS	38.98594	-75.80329	Choptank River	YES	NO	YES	YES	YES	YES					
2019-60105 - Wetland 2	MD	PFO-PALUSTRINE, FORESTED	Depressional	AREA	1.08	AC	A7BAYS	38.98707	-75.80493	Choptank River	YES	NO	YES	YES	YES	YES					
2019-60105-project wetland	MD	PEM-PALUSTRINE, EMERGENT	Depressional	AREA	0.75	AC	A7BAYS	38.9854	-75.80128	Choptank River	YES	NO	YES	YES	YES	YES					

Interim Approved Jurisdictional Determination Form: Attachment 1

The three wetlands identified on table 7 of the Interim Approved Jurisdictional Determination (AJD) Form were investigated for the similarly situated analysis and significant nexus determination required under paragraph (a)(7) of 33 CFR 328.3. A fourth wetland on the property and identified on the plans dated February, 2019 was not included in the investigation. However, it does fall within the single point of entry watershed and may be a Water of the United States (WoUS). The Project Wetland, Wetland 1 and Wetland 2 were determined to be WoUS as described in the following paragraphs.

Between 19 and 21 March 2019, Google Earth Imagery, topographic maps, National Wetlands Inventory maps and region specific wetlands research articles were studied. Aerial photography showed dense wetland signatures situated across the adjacent properties (Appendix A, Figure 1). The signatures were nearly round or elliptical shaped and situated so that the midlines generally ran from northeast to southwest. The shape and axis of the wetland identified in the proposed project also follows this pattern. These two features are commonly connected to Delmarva Bays (NRCS, 2015). Additionally, Delmarva Bays are found in abundance where located, occurring at densities between 5 and 69 bays per square mile. They can account for over 50% of the land area (NRCS, 2015). Delmarva Bays are identified at paragraph (a)(7) of the 2015 Clean Water Rule as a water that requires a case specific significant nexus determination. Delmarva Bays are considered similarly situated waters for purposes of significant nexus determination and a single point of entry delineation must be conducted to determine regulatory jurisdiction.

On the morning of 21 March 2019, the site visit between the Corps and MDE was conducted (Appendix A, Figures 3-12). The emergent wetland (Project Wetland) that is to be filled, the forested wetland area to the east (Wetland 1) and a third forested wetland (Wetland 2) were all examined during the site visit. All three wetlands had been farmed in the past. In the 1990s the USFWS, MDE, and Caroline County DPW contributed to creating and/or restoring wetlands on the property owned by the Board of Education of Caroline County. The site had been subject to heavy rains the week leading up to the site visit and during the site visit. All of the wetlands were inundated with standing water between 4 inches and 18 inches deep. The 2 forested wetland areas had a definitive surface connection at the time of the site visit. The project wetland, located in the farm field was isolated geographically. An upward slope to the northwest separates the emergent wetland from the two forested wetlands. A swell runs from the southern edge of the emergent wetland, across the small solar field and into a man-made ditch that conveys water from the wood line, southeast to the road. The farm equipment marks around the emergent wetland suggests that this area is no longer actively farmed.

On 3 April 2019 employees from the Corps revisited the site. There had not been substantial precipitation in at least 48 hours (Appendix A; Figures 13 – 16). All 3 wetlands that were previously examined contained standing water. The water depth had dropped approximately 4-10 inches since the 21 March site visit, depending on location. Surface connections were no longer present between the 2 forested wetland areas. The ditch leading from the wood line to the road was also dry. Soils were visually characterized at the project wetland. The A11 (Depleted Matrix Under a Dark Surface) and F3 (Depleted Matrix) field indicators of hydric soils were present (Appendix A, Figures 1-20). During this visit the adjacent property northeast of the project site was also examined. This area was a large agricultural field with multiple drainage ditches and a system of underdrains. There was no evidence of extensive ditching on the property owned by the Caroline County Board of Education.

1988-1994 Color Infrared DOQs, 1998 Panchromatic DOQs and NAIP Imagery available through the Maryland Environmental Resource and Land Information Network (MERLIN) as well as Google Earth Imagery available from different seasons and years, all show inundation during all seasons, strong hydrologic signatures and discontinued use of the Project Wetland for agricultural production (Appendix A; Figures 24-28).

A single point of entry watershed was determined using Streamstats and the National Map provided by USGS (Appendix A, Figure 21). The emergent wetland is situated approximately 2,500 feet west of the Choptank River, an interstate traditionally navigable water. There is a tributary to the Choptank River approximately 1,300 feet east of the wetland. A major highway sits between the wetland and the tributary. Multiple ditches, including the one observed during the 21 Mar site visit and those draining the agricultural field, collect water from the areas west of the highway and direct it to this tributary. Streamstats shows that the drainage basin of the tributary includes all 3 wetlands that were examined and most of the agricultural field. LiDAR information and elevation profiles were examined in the National Map Advanced Viewer to verify the Streamstats delineated basin.

During the review, the Corps determined that the isolated emergent wetland (Project Wetland) located in the field and both wetlands located in the forested areas (Wetlands 1 and 2) are Delmarva Bays. The wetlands have lost some of characterizing features often associated with Delmarva Bays such as a prominent sand rim, however they still provide the functions and services of Delmarva Bays. Such functions include flood water storage, ground and surface water recharge, carbon sequestration, nutrient removal and amphibian breeding habitat. During seasonally high precipitation events, the wetlands have surface connectivity to one another and the nearest tributary to the Choptank River, approximately 1,300 feet east of the wetlands. All three wetlands are included in the single point of entry (SPOE) drainage that was delineated for that tributary. The overall drainage area contains remnant signatures of Delmarva Bays that are currently being drained for agricultural purposes. Studies have been conducted to show that Delmarva Bays that have been drained and put into crop production are still

capable of storing carbon at approximately 50% the amount stored in natural bays (Fenstermacher, 2012). The signatures account for approximately 75%-80% of the aerial extent of the drainage area. There are no indications that the Project Wetland was physically drained for crop production. Given, the chemical, physical, and biological functions provided by the subject wetlands (described above), and given their close proximity to the downstream TNW, the Choptank River, the Corps has determined that the functions and services provided by the Bays within the watershed are more than speculative to the downstream TNW. In accordance with paragraph (a)(7) of the 2015 Clean Water Rule, a SPOE was delineated. All of the bays within that SPOE are similarly situated and since the tributary flows directly into the Choptank River, a traditional navigable, interstate tributary of the Chesapeake Bay, a significant nexus between the Delmarva Bays and the nearest TNW exists. For these reasons, the 3 wetlands observed on 21 March 2019 and 3 April 2019 are considered Waters of the United States and the Corps would have regulatory jurisdiction over them.

Appendix A: Supporting Figures

Figure 1: Google Earth Imagery Showing Wet Signatures

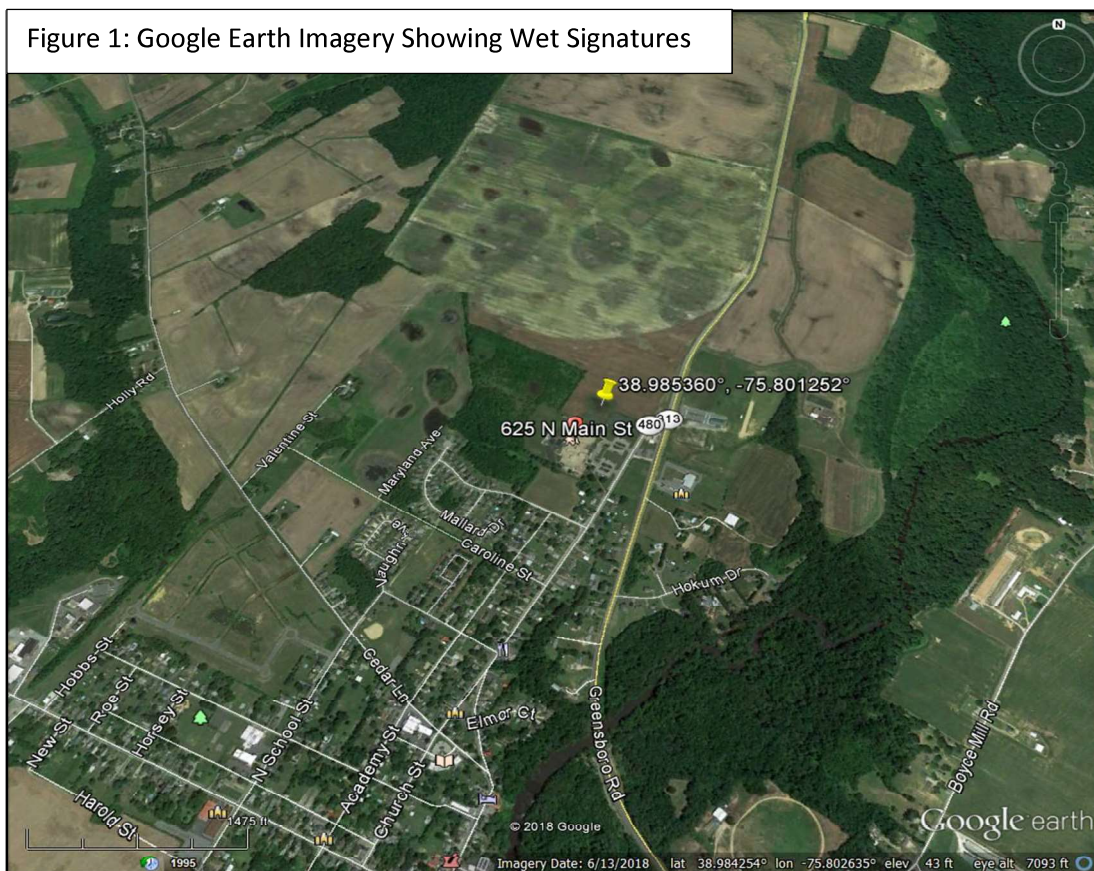


Figure 2: Web Soil Survey showing Hurlock sandy loam in project wetland and Hammonton-Fallsington-Corsica complex (Sandy Soils) in Wetlands 1 & 2.

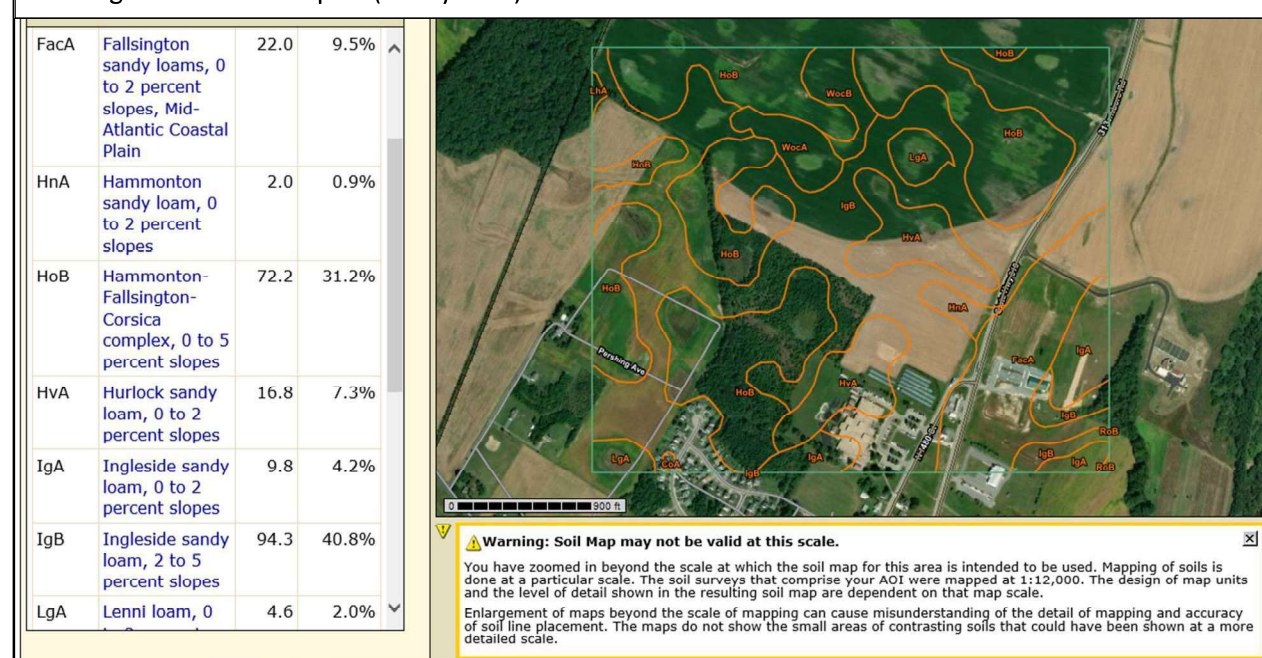


Figure 3: Project Wetland Facing Northwest (21 March 2019)



Figure 4: Project Wetland Facing Southwest (21 March 2019)



Figure 5: Project Wetland Facing South Towards swell (21 March 2019)



Figure 6: Project Wetland Facing Southeast Towards highway; vehicle tracks skirt wetland but do not go through it. (21 March 2019)



Figure 7: Ditch Running from Wood Line to Highway; Facing Southeast Towards highway
(21 March 2019)



Figure 8: Ditch Running from Wood Line to Highway; Facing Northwest Towards Wetland 1
(21 March 2019)



Figure 9: Wetland 1 Boundary Flagged by Consultant; Facing Northwest Towards Wetland 1 (21 March 2019)



Figure 10: Wetland 1 Boundary; Facing Northwest Towards Wetland 1 (21 March 2019)



Figure 11: Wetland 2; Facing Southwest (21 March 2019)



Figure 12: Wetland 2; Aquatic vegetation and algal growth (21 March 2019)



Figure 13: Project Wetland Facing Northwest (3 April 2019)



Figure 14: Northern Edge of Project Wetland Facing Northeast no evidence of crop planting within wetland (3 April 2019)



Figure 15: Wooded Area Between Wetlands 1 & 2; Dried Algal Mats (3 April 2019)



Figure 16: Wetland 2 Facing Southwest (3 April 2019)



Figure 17: Wetland 2 Facing Southwest (3 April 2019)



Figure 18: Soil Profile of Project Wetland (3 April 2019)



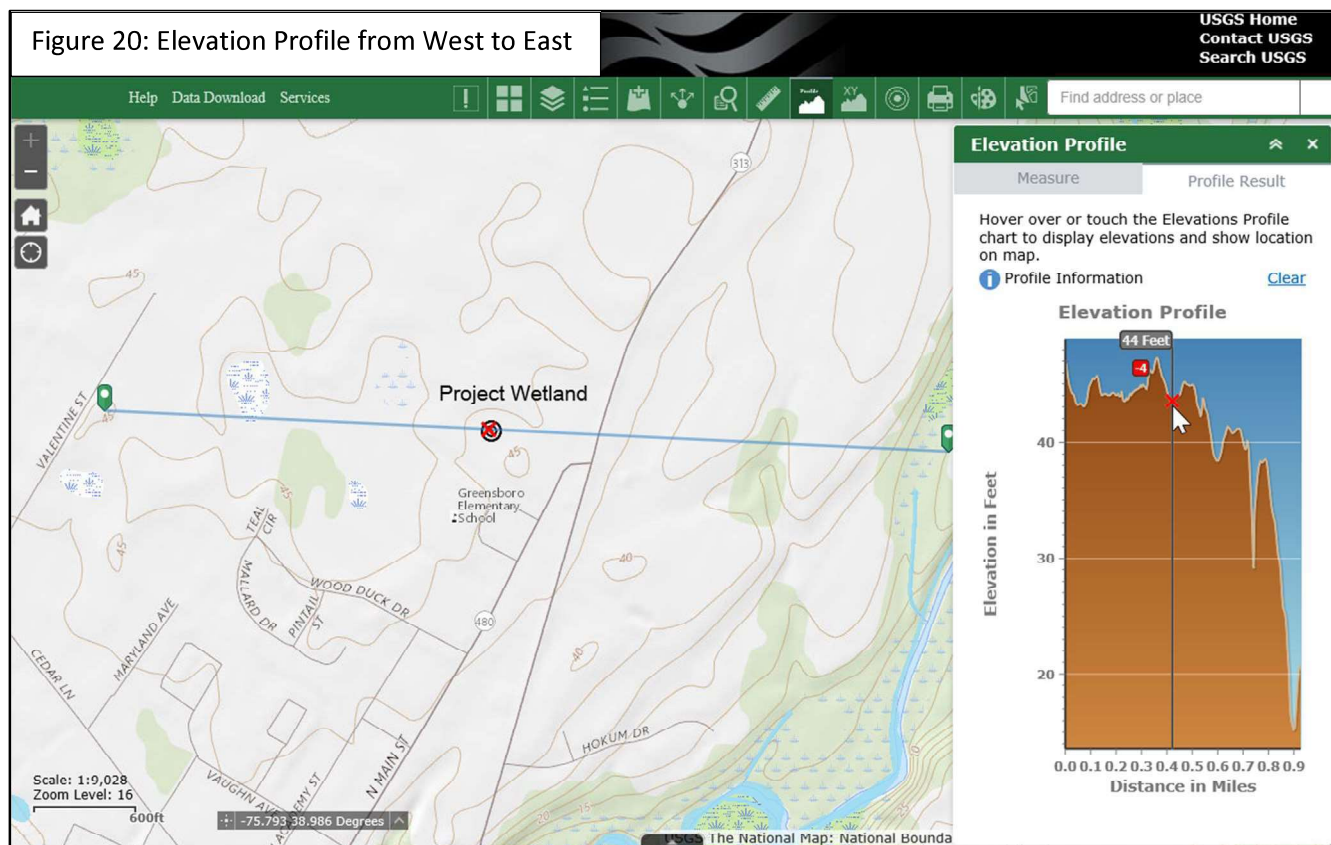
Figure 19: Soil Profile of Project Wetland, Depeleted Matrix Starts at Approximately 12 Inches (3 April 2019)

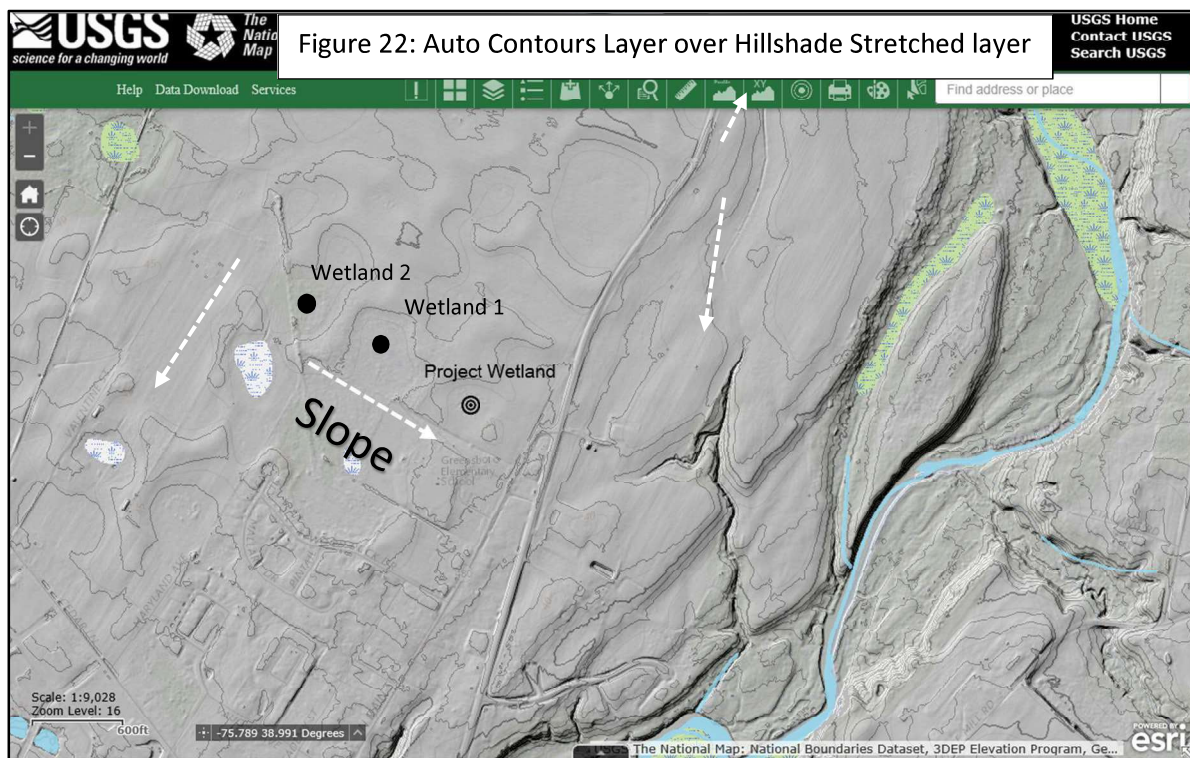
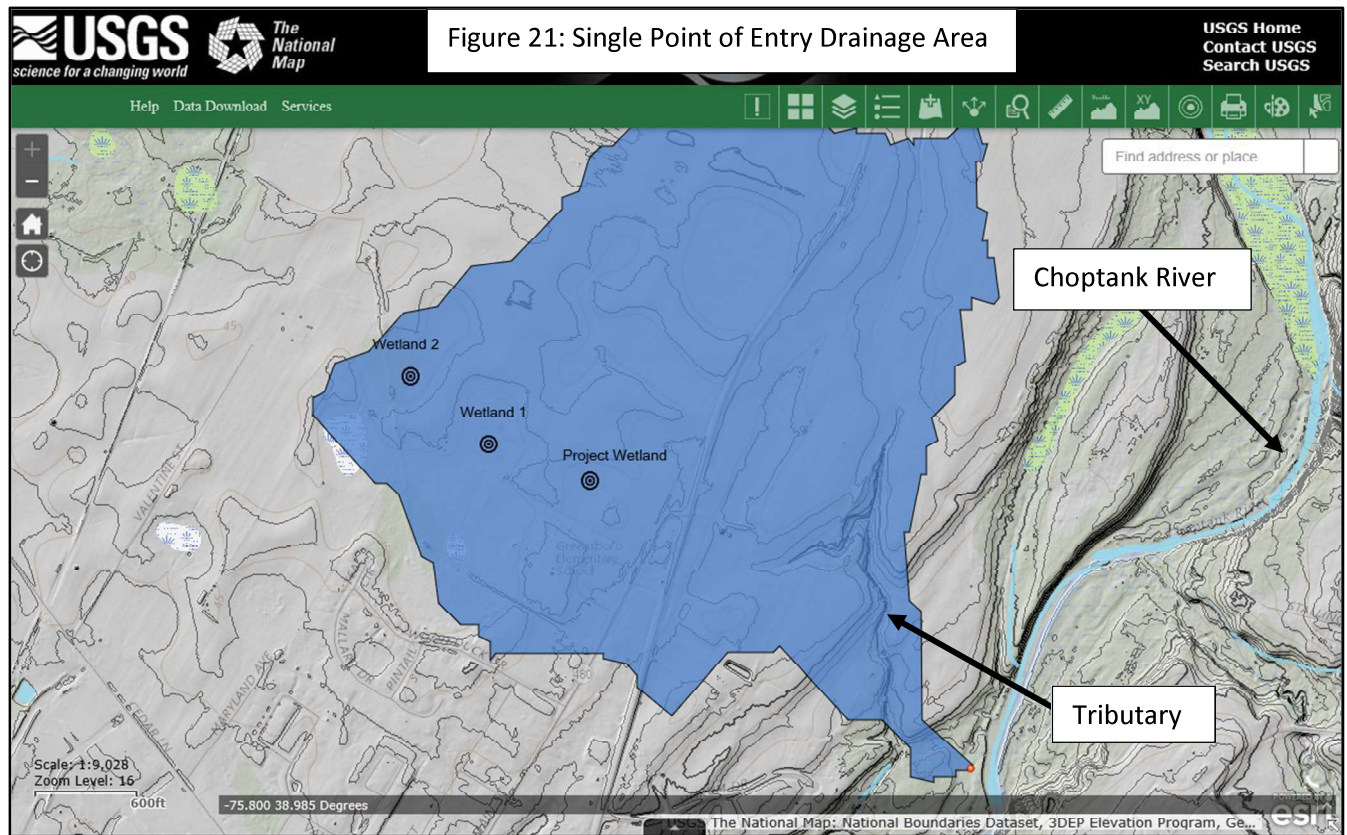


Figure 20: Soil Profile of Project Wetland; Alpha-Alpha Dipyrldyl Strips Indicates Presence of Reduced Iron (3 April 2019)



Figure 20: Elevation Profile from West to East





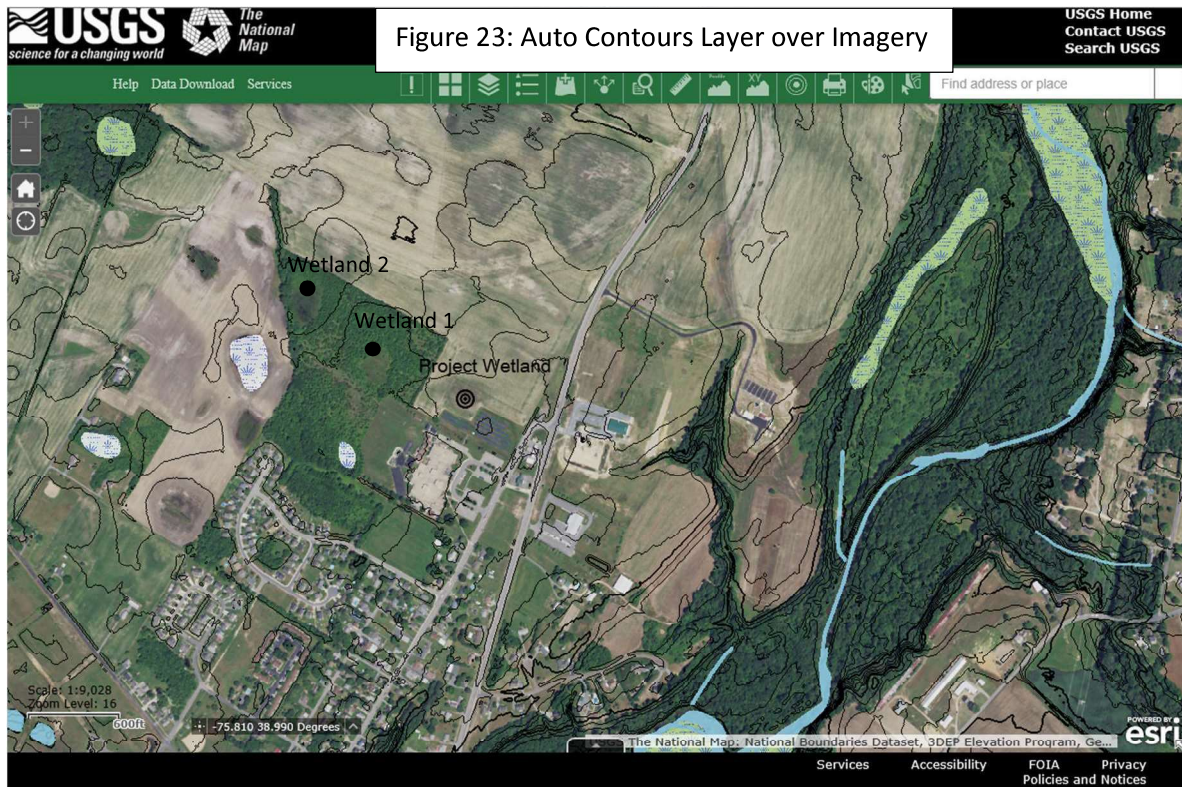


Figure 24: 1988-1994 Color Infrared DOQs from MERLIN; Red signature is an indication of live vegetation.



Figure 25: 1998 Panchromatic DOQs from MERLIN; Dark signatures is indicators of inundation



Figure 26: 2011 NAIP from MERLIN; Farm equipment lines stop at edges of Project Wetland; Woody vegetation is growing around Wetlands 1 and 2

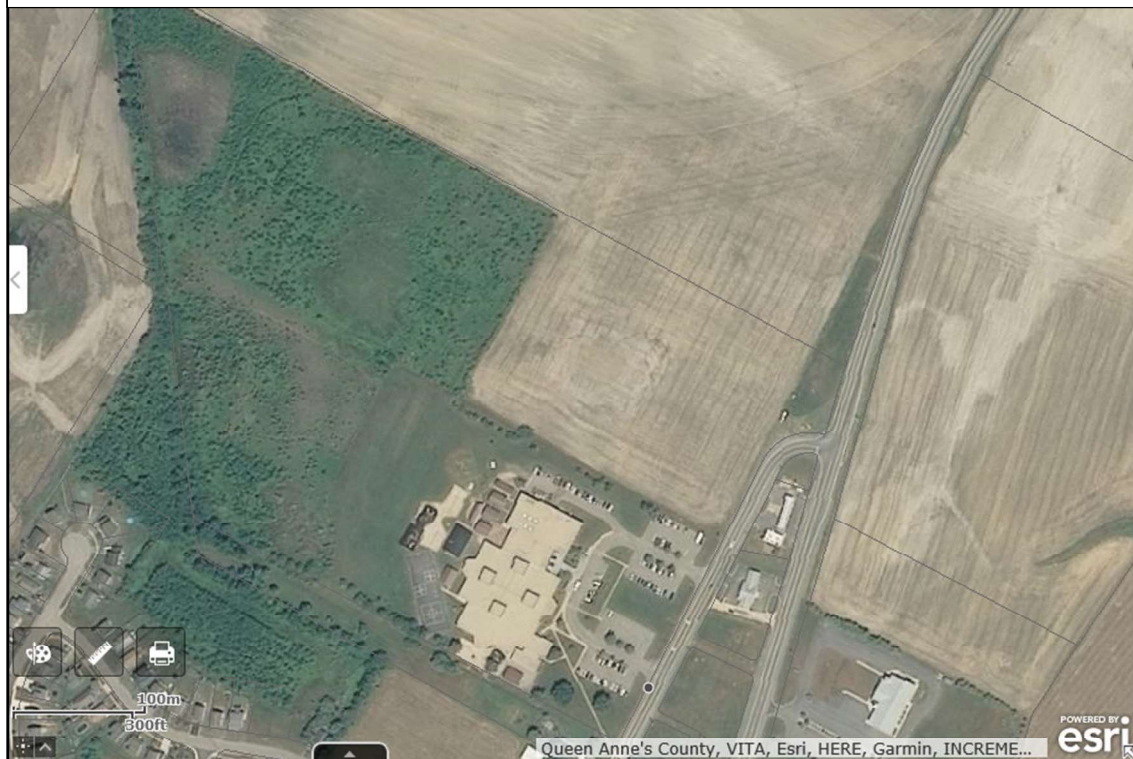


Figure 27: 2013 NAIP from MERLIN; Vegetation within Project Wetland is distinctly different than that of surrounding farmed area.



Figure 28: 2018 NAIP from MERLIN; Evidence of farming around, but not within Project Wetland.

