

March 28, 2022

Mr. Tim Jennette
Division of Water Resources
Tennessee Department of Environment and Conservation
711 R.S. Gass Boulevard
Nashville, TN 37216
Via email: Tim.Jennette@tn.gov

Subject: *Hydrologic Determination Report* for the Portland EPSC Project located in Sumner County, Tennessee (ERM No. 0615339)

Dear Mr. Jennette,

I, Michael Tincher (TN-QHP 1197-TN20), submit this report regarding a wet weather conveyance determination to the Tennessee Department of Environment and Conservation as a Qualified Hydrologic Professional (QHP) seeking to qualify for treatment provided in §69-3-108(r).

Environmental Resources Management, Inc. (ERM), on behalf of ABB Installation Products, Inc. (ABB) submits this Hydrologic Determination Report as a part of the due diligence activities associated with the proposed expansion of an existing industrial development on an approximately 28.6-acre property (Site) located in Sumner County, Tennessee, herein referred to as the proposed Portland EPSC Project.

ERM conducted a wetland and stream delineation and hydrologic determination on March 22, 2022. One perennial stream, two intermittent streams, two wet weather conveyances (stormwater ditches), and four palustrine forested (PFO) wetlands were identified within the Site. No previous assessments of hydrologic features are known to have occurred on site.

- Perennial Stream 1: Perennial Stream 1 is an unnamed tributary to Summers Branch that enters the Site at approximately 36.60117, -86.52694 and leaves the Site at 36.60253, -86.53174. Perennial Stream 1 flows for approximately 1,693 linear feet within the Site. The segment of stream observed during the field survey is located parallel to the northern boundary of the Site. This portion of the Perennial Stream 1 channel also appears to have been altered in the past. Perennial Stream 1 had a hydrological determination score of 33.
- Intermittent Stream 1: Intermittent Stream 1 originates on-Site on the down-gradient side of the main drive to the facility before the stream's hydrology fans out into Wetland 1 starting at approximately 36.60058, -86.53082. Intermittent Stream 1 flows for approximately 442 linear feet within the Site. The upstream portion of this stream appears to have been channelized or straightened during the development of the existing facility and now exhibits significant amounts of bank failure and erosion. Intermittent Stream 1 regains stream characteristics within Wetland 1 before draining into Perennial Stream 1 at approximately 36.60252, -86.53087. Intermittent Stream 1 had a hydrological determination score of 24.
- Intermittent Stream 2: Intermittent Stream 2 is an unnamed tributary to Summers Branch that enters the Site at approximately 36.60239, -86.52746 and flows southwest into Perennial Stream 1 at 36.60232, -86.52754. Intermittent Stream 2 flows for approximately 38 linear feet and appears to have been channelized and is culverted under the railroad system that borders the eastern boundary of the Site. Intermittent Stream 2 has a hydrological determination score of 20.5.

- Stormwater Ditch 1: Stormwater Ditch 1 is an ephemeral, concrete lined drainage ditch in the southwestern corner of the building and parcel boundary that flows northwest into Intermittent Stream 1. Stormwater Ditch 1 begins at approximately 36.60002, -86.52985 and ends at 36.60052, -86.53070. Stormwater Ditch 1 flows for approximately 310 linear feet within the Site. The drainage ditch services any stormwater overflow from the parking area and the entrance to the ABB facility. Based on topographic mapping, Stormwater Ditch 1 appears to be placed along a convex slope, indicating flow would not naturally occur here without the existing facility having designed a stormwater ditch. Stormwater Ditch 1 has a hydrological determination score of 9.5 and, therefore, is considered a wet weather conveyance/upland drainage feature.
- Stormwater Ditch 2: Stormwater Ditch 2 is an ephemeral, heavily eroded drainage ditch that begins in the southern corner of the building at approximately 36.60013, -86.52902 and flows northeast and ends at approximately 36.60135, -86.52792. Stormwater Ditch 2 flows for approximately 603 linear feet within the Site. The drainage ditch services any stormwater overflow at the ABB facility. The ditch is isolated and is separated from Wetland 2 by an upland area. Based on topographic mapping, Stormwater Ditch 2 appears to be placed along a convex slope, indicating flow would not naturally occur here without the existing facility having designed a stormwater ditch. Stormwater Ditch 2 has a hydrological determination score of 9.5 and, therefore, is considered a wet weather conveyance/upland drainage feature.
- Wetland 1: Wetland 1 is a bottomland hardwood floodplain area exhibiting crayfish burrows, oxidized rhizospheres, and depleted matrix hydric soils. Dominant overstory vegetation within the wetland area consists of red maple (*Acer rubrum*, FAC), slippery elm (*Ulmus rubra*, FAC), black willow (*Salix nigra*, OBL), and sweetgum (*Liquidambar styraciflua*, FAC). Vegetative composition within the sapling and herb strata lacks any dominant components. Dominant woody vine species within the wetland area include poison ivy (*Toxicodendron radicans*, FAC). Wetland 1 meets all three criteria of a wetland.
- Wetland 2: Wetland 2 is a depression area along the bermed railway that, at the time of the field survey, exhibited surface water and saturation at the surface, as well as oxidized rhizospheres on living roots. Dominant vegetation within Wetland 2 consists of a canopy comprised of sweetgum and green ash (*Fraxinus pennsylvanica*, FACW), and an herb layer comprised of Japanese stilt-grass (*Microstegium vimineum*, FAC). The soils within Wetland 2 exhibit characteristics that meet the criteria of the depleted matrix hydric soil indicator. Wetland 2 meets all three criteria of a wetland.
- Wetland 3: Wetland 3 is a bottomland hardwood floodplain area that exhibits oxidized rhizospheres on living roots, a high water table, and saturation at the surface. Dominant vegetation within Wetland 3 consists of pin oak (*Quercus palustris*, FACW) and curly dock (*Rumex crispus*, FAC). The soils within Wetland 3 exhibit characteristics that meet the criteria of the depleted matrix hydric soil indicator. Wetland 3 meets all three criteria of a wetland.
- Wetland 4: Wetland 4 is a bottomland hardwood floodplain area, exhibiting oxidized rhizospheres on living roots. Dominant vegetation consists of American sycamore (*Platanus occidentalis*, FACW). The soils within Wetland 4 exhibit characteristics that meet the criteria of the depleted matrix hydric soil indicator. Wetland 4 meets all three criteria of a wetland.

The current property owner is:
ABB Installation Products, Inc.
200 Challenger Drive
Portland, TN 37148
615-323-3231

The person requesting the hydrologic determination is:

Keith Lang and Jacob Wade
ABB Installation Products, Inc.
200 Challenger Drive
Portland, TN 37148
615-323-3231

Please see the attached supporting data for additional site details. Please do not hesitate to contact me if you have any questions or require additional information.

This report is being submitted to the Tennessee Department of Environment and Conservation by a Qualified Hydrologic Professional. All submitted information is true, accurate, and complete.

Sincerely,



Michael Tincher, PWS

TN-QHP 1197-TN20 (expiration date 2023-12-31)

Senior Consultant

(612) 337-3369

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ATTACHMENT A – WETLAND DELINEATION REPORT



Wetland Delineation Report

Portland EPSC Project

March 2022

Project No.: 0615339

Document details	The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.
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Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	00	Trey Trickett	Jaclyn Martin		10.18.2021	
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Draft	02	Jennifer Parsons	Michael Tincher		03.24.2022	

Signature Page

March 2022

Wetland Delineation Report

Portland EPSC Project



Michael Tincher, PWS, QHP
Senior Consultant/Scientist, ERM

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Acronyms and Abbreviations

<u>Name</u>	<u>Description</u>
ABB	ABB Installation Products, Inc.
ERM	Environmental Resources Management
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate
PEM	Palustrine emergent
PFO	Palustrine forested
Project	Portland EPSC Project
PSS	Palustrine scrub-shrub
Site	entirety of the ABB parcel
TDEC	Tennessee Department of Environment & Conservation
UPL	upland
USACE	United States Army Corps of Engineers
WOTUS	Waters of the United States

1. INTRODUCTION

ABB Installation Products, Inc. (ABB) proposes the Portland EPSC Project (Project) to perform maintenance to the on-Site stormwater ditches due to erosion and sediment control concerns, as well as to prepare for possible expansion of their facility. Environmental Resources Management (ERM) delineated the entirety of the ABB parcel (Site) in Portland, Sumner County, Tennessee (Figure 1). The Site is located at 200 Challenger Drive in Portland, Tennessee. The delineation was completed to determine if wetland or waterbody features were present within the Site.

2. METHODOLOGY

The wetland and waterbody delineation was conducted using methods outlined in the United States Army Corps of Engineers (USACE) *1987 Wetlands Delineation Manual* (USACE 1987), along with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont (Version 2.0)* (USACE 2012). Wetland boundaries within the Site were delineated using the determination method described in the *USACE Eastern Mountains and Piedmont Regional Supplement*, accompanied by the *National Wetland Plant List: 2018* (USACE 2018), *Field Indicators of Hydric Soils in the United States, Version 8.2* (Natural Resources Conservation Service 2018), and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) to classify wetlands. Wetlands are generally classified by the Cowardin system, which categorizes palustrine wetlands according to the relative coverage of vegetative strata apparent in the wetland (Cowardin et al. 1979). Below is a description of the three wetland classifications:

- Palustrine emergent (PEM): These wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens, that provide at least 30 percent areal cover;
- Palustrine scrub-shrub (PSS): These wetlands are dominated by woody vegetation less than 15 feet tall that provides at least 30 percent areal coverage; and
- Palustrine forested (PFO): These wetlands are dominated by woody vegetation 15 feet tall or taller with trunk diameter at breast height of three or more inches providing at least 30 percent areal coverage.

In Tennessee, the agencies with regulatory jurisdiction over wetland and waterbody resources are the USACE Nashville District and the Tennessee Department of Environment & Conservation (TDEC).

In determining wetlands, sample points are taken in representative upland and wetland locations to document the change in vegetation, soils, and hydrology across the wetland boundaries recorded. Methods for wetland delineations require evaluation of the three parameters (hydric soils, hydrophytic vegetation, and wetland hydrology), which must be present in order to determine the presence of a wetland, unless the Site being evaluated is characterized as a problem area or having an atypical situation present.

Hydric soils form under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil horizon (NRCS, 2018). ERM identified hydric soils by using field indicators of saturated soil conditions defined in the *Natural Resources Conservation Service (NRCS) Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS, 2018). Soil color was determined by comparing soil samples with *Munsell Soil Color Charts: with Genuine Munsell Color Chips* which identify the hue, value, and chroma of samples (Munsell Color, 2010). Soils pits were excavated to an approximate depth of 12 to 20 inches, or as deep as necessary, to determine presence or absence of hydric soils. Soil characteristics were observed (soil matrix/mottle colors, texture, etc.) and were recorded to document soil profile descriptions ultimately used to determine presence or absence of hydric soil indicators.

Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the species present (USACE, 1987). As described in the *Eastern Mountains and Piedmont Regional Supplement*, the current wetland plant list should be used when making a wetland determination and evaluating whether the hydrophytic vegetation criterion is satisfied. Therefore, ERM compared the plants identified at each data collection point with the *National Wetland Plant List: 2018* (USACE, 2018). The definitions for upland (UPL), facultative (FAC), facultative upland (FACU), facultative wetland (FACW), and obligate (OBL) wetland plant species are further described in the *National Wetland Plant List: 2018* (USACE, 2018). In the area immediately surrounding each soil pit,

the dominant plant species within the vegetative strata were documented by using visual estimation of percent cover.

Wetland hydrology is typically present in areas that are inundated or have soils that are saturated to the surface for sufficient duration during the growing season to develop hydric soils and support vegetation typically adapted for life in periodically anaerobic soil conditions (USACE, 1987). Hydrologic characteristics indicative of a wetland is where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Hydrology indicators, both primary (e.g., presence or absence of inundation, saturated soils, watermarks, etc.) and secondary (e.g., surface soil cracks, drainage patterns, stunted or stressed plants, etc.) were evaluated at each sample point. Spatial data were recorded utilizing a Trimble Geo 7X GNSS Surveyor unit capable of sub-meter accuracy. The photos are included in Appendix A. ERM used the pre-2015 regulatory regime definition of the waters of the United States (WOTUS), which is consistent with the updated guidance from the United States Environmental Protection Agency (USEPA, 2021). The USACE is the regulatory body that can validate if a water feature has connectivity.

Hydrologic determinations were conducted on linear hydrologic features to classify as a stream or wet weather conveyance following TDEC's *Guidance for Making Hydrologic Determinations* (TDEC, 2020). A Hydrologic Determination Datasheet was completed for each linear hydrologic feature and are included in Appendix B.

A walkthrough of the Site was conducted to determine the locations of any wetlands or waterbodies. Observation data points and photos were taken inside and outside of any identified features. The delineated features were mapped during the survey (Figure 1).

3. EXISTING DATA AND GENERAL SITE CONDITIONS

Prior to conducting the field survey, ERM's wetland field staff reviewed publically available online databases, including mapped soils within the NRCS database, waterbody features and topographic landscape features using the U.S. Geological Survey 7.5-minute quadrangle maps (Figure 2), National Wetlands Inventory (NWI) and the National Hydrography Dataset (NHD) (Figure 3). Soil map units identified within the Site included Guthrie silt loam and Bewleyville silty clay loam. Of these two soil types, Guthrie silt loam is considered hydric. The NHD and NWI data identified one mapped stream and associated riverine wetland located in the northwestern corner of the Site.

The Site consists of an existing and active commercial/industrial facility and attendant features, including a railway and parking lots. The undeveloped areas in the northeastern and northwestern portions of the Site consist mainly of early to mid-successional bottomland hardwood vegetation.

4. RESULTS AND DISCUSSION

The Site was evaluated for the presence of wetlands and waterbodies on September 29, 2021. A follow up Site visit for an approved jurisdictional determination with USACE occurred on March 22, 2022. During the field investigations, four wetlands, three streams, and two stormwater ditches (Figure 4) were delineated and summarized in Table 1 below:

- **Wetland 1:** Wetland 1 is a bottomland hardwood floodplain area exhibiting crayfish burrows, oxidized rhizospheres, and depleted matrix hydric soils. Dominant overstory vegetation within the wetland area consists of red maple (*Acer rubrum*, FAC), slippery elm (*Ulmus rubra*, FAC), black willow (*Salix nigra*, OBL), and sweetgum (*Liquidambar styraciflua*, FAC). Vegetative composition within the sapling and herb strata lacks any dominant components. Dominant woody vine species within the wetland area include poison ivy (*Toxicodendron radicans*, FAC). Wetland 1 meets all three criteria of a wetland.
- **Wetland 2:** Wetland 2 is a depression area along the bermed railway spur that, at the time of the field survey, exhibited surface water and saturation at the surface, as well as oxidized rhizospheres on living roots. Dominant vegetation within Wetland 2 consists of a canopy comprised of sweetgum and green ash (*Fraxinus pennsylvanica*, FACW), and an herb layer comprised of Japanese stilt-grass (*Microstegium vimineum*, FAC). Soils within Wetland 2 exhibit characteristics that meet the criteria of the depleted matrix hydric soil indicator. Wetland 2 meets all three criteria of a wetland.
- **Wetland 3:** Wetland 3 is a bottomland hardwood floodplain area that exhibits oxidized rhizospheres on living roots, a high water table, and saturation at the surface. Dominant vegetation within Wetland 3 consists of pin oak (*Quercus palustris*, FACW) and curly dock (*Rumex crispus*, FAC). Soils within Wetland 3 exhibit characteristics that meet the criteria of the depleted matrix hydric soil indicator. Wetland 3 meets all three criteria of a wetland.
- **Wetland 4:** Wetland 4 is a bottomland hardwood floodplain area, exhibiting oxidized rhizospheres on living roots. Dominant vegetation consists of American sycamore (*Platanus occidentalis*, FACW). Soils within Wetland 4 exhibit characteristics that meet the criteria of the depleted matrix hydric soil indicator. Wetland 4 meets all three criteria of a wetland.
- **Intermittent Stream 1:** Intermittent Stream 1 originates on-Site on the down-gradient side of the main drive to the facility before the stream's hydrology fans out into Wetland 1 starting at approximately 36.60058, -86.53082. The upstream portion of this stream appears to have been channelized or straightened during the development of the existing facility and now exhibits characteristics of bank failure and erosion. Intermittent Stream 1 regains natural stream characteristics within Wetland 1 before draining into Perennial Stream 1 at approximately 36.60252, -86.53087. Intermittent Stream 1 had a hydrological determination score of 24.
- **Intermittent Stream 2:** Intermittent Stream 2 is an unnamed tributary to Summers Branch that enters the Site at approximately 36.60239, -86.52746 and flows southwest into Perennial Stream 1 at 36.60232, -86.52754. Intermittent Stream 2 appears to have been unnaturally channelized and is culverted under the railroad system that borders the eastern boundary of the Site. Intermittent Stream 2 has a hydrological determination score of 20.5.
- **Perennial Stream 1:** Perennial Stream 1 is an unnamed tributary to Summers Branch that enters the Site at approximately 36.60117, -86.52694 and leaves the Site at 36.60253, -86.53174. The segment of stream observed during the field survey is located parallel to the northern boundary of the Site. This portion of the Perennial Stream 1 channel also appears to have been altered in the past. Perennial Stream 1 had a hydrological determination score of 33.
- **Stormwater Ditch 1:** Stormwater Ditch 1 is an ephemeral, concrete lined drainage ditch in the southwestern corner of the building and parcel boundary that flows northwest into Intermittent Stream

1. Stormwater Ditch 1 begins at approximately 36.60002, -86.52985 and ends at 36.60052, -86.53070. The drainage ditch conveys stormwater overflow from the parking area and the entrance to the ABB facility into Intermittent Stream 1. Based on topographic mapping, Stormwater Ditch 1 appears to be placed along a convex slope, indicating flow would not naturally occur here without the existing facility having designed a stormwater ditch. Stormwater Ditch 1 has a hydrological determination score of 9.5 and, therefore, is considered a wet weather conveyance/upland drainage feature.

- **Stormwater Ditch 2:** Stormwater Ditch 2 is an ephemeral, heavily eroded drainage ditch that begins in the southern corner of the building at approximately 36.60013, -86.52902 and flows northeast and ends at 36.60135, -86.52792. The drainage ditch services any stormwater overflow at the ABB facility. The ditch is isolated and is separated from Wetland 2 by an upland area. Based on topographic mapping, Stormwater Ditch 2 appears to be placed along a convex slope, indicating flow would not naturally occur here without the existing facility having designed a stormwater ditch. Stormwater Ditch 2 has a hydrological determination score of 9.5 and, therefore, is considered a wet weather conveyance/upland drainage feature.

Table 1. Delineated Features Summary Table

Feature Identification/Classification	Lat/Long	Length, Width, Acres	Resource Type	Receiving Water	Brief Description
Wetland 1 - PFO	36.601504°, -86.531250°	Acres: 3.36 ac.	Wetland	Unnamed tributary to Summers Branch	Bottomland hardwood wetland
Wetland 2 – PFO	36.601415°, -86.527512°	Acres: 0.59 ac.	Wetland	Unnamed tributary to Summers Branch	Shallow wetland feature associated with a bermed railway
Wetland 3 – PFO	36.602142°, -86.527904°	Acres: 0.88 ac.	Wetland	Unnamed tributary to Summers Branch	Bottomland hardwood wetland
Wetland 4 – PFO	36.602636°, -86.528426°	Acres: 1.67 ac.	Wetland	Unnamed tributary to Summers Branch	Bottomland hardwood wetland
Perennial Stream 1 - Perennial	36.602421°, -86.529203°	Length: 1,693 ft. Acres: 0.29	Non-Wetland	Summers Branch	Unnamed perennial tributary to Summers Branch. This stream partially forms the northern project boundary and appears to have been historically altered
Intermittent Stream 1 – Intermittent	36.600912°, -86.531148°	Length: 441.62 ft. Acres: 0.07	Non-Wetland	Unnamed tributary to Summers Branch	Channelized intermittent stream that drains into Wetland 1 before regaining stream status and draining into Perennial Stream 1
Intermittent Stream 2 – Intermittent	36.602344°, -86.527531°	Length: 38.00 ft. Acres: 0.00	Non-Wetland	Unnamed tributary to Summers Branch	Intermittent, heavily impacted by the railroad track

Feature Identification/Classification	Lat/Long	Length, Width, Acres	Resource Type	Receiving Water	Brief Description
Stormwater Ditch 1 - Ephemeral	36.600266°, -86.530319°	Length: 309.6 ft. Acres: 0.03	Non-Wetland	Unnamed tributary to Summers Branch	Ephemeral, heavily eroded stormwater drainage ditch
Stormwater Ditch 2 - Ephemeral	36.600615°, -86.528533°	Length: 602.76 ft. Acres: 0.15	Non-Wetland	Unnamed tributary to Summers Branch	Ephemeral, heavily eroded stormwater drainage ditch

The wetland and waterbody datasheets are included in Appendix C and associated photos are included in Appendix A.

5. CONCLUSIONS

All of the delineated waterbody and wetland features will likely be considered jurisdictional WOTUS. The facility stormwater ditches will likely be considered non-jurisdictional. It should be noted the USACE is the regulatory authority to officially determine the jurisdiction of WOTUS. ERM recommends requesting an approved jurisdictional determination request from the USACE Nashville District.

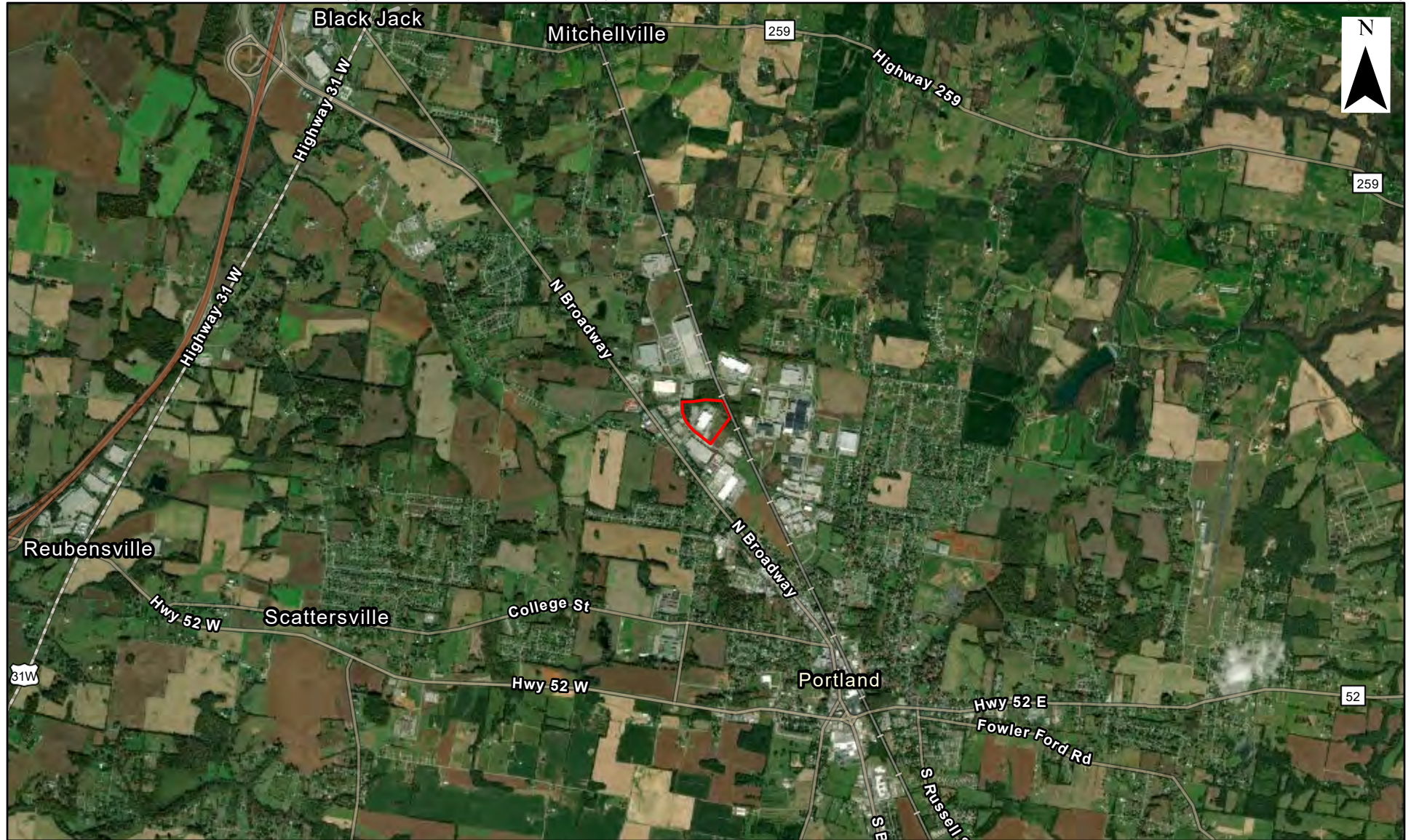
6. STAFF

The wetland delineation on September 29, 2021, was led by John Crosby, the report was prepared by Casey Brotman and reviewed by Jaclyn Martin. The additional delineation on March 22, 2022, during the approved jurisdictional determination site visit with USACE was led by Michael Tincher. The report was prepared by Jennifer Parsons, and reviewed by Michael Tincher. Staff qualifications are located in Appendix D.

7. REFERENCES


- Cowardin, L.M., V. Carter, F.C. Golet, E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center. (Version 04DEC1998).
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- USACE. 2018. *The National Wetland Plant List: 2018, version 3.4*. Effective 18 May 2020. Available online at https://cwbi-app.sec.usace.army.mil/nwpl_static/data/DOC/lists_2018/National/National_2018v1.pdf. Accessed October 2021.

FIGURES



 Property Boundary

Figure 1
General Location Map
Wetland Delineation Report
ABB Installation Products Inc.
Sumner County, TN


0 0.4 0.8 1.2
 Miles

Environmental Resources
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 Property Boundary

Figure 2
USGS Topographic Map
Wetland Delineation Report
ABB Installation Products Inc.
Sumner County, TN

0 140 280 420
 Feet

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- Property Boundary
- National Wetlands Inventory
- Palustrine
- Riverine

National Hydrography Dataset
— Stream-River

Figure 3 National Wetlands Inventory (NWI) National Hydrography Dataset (NHD) Map

Wetland Delineation Report
 ABB Installation Products Inc.
 Sumner County, TN

0 140 280 420
 Feet

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- Legend
- Outfall
 - Upland
 - Wetland
 - Flow Direction
 - Drainage Ditch
 - Ephemeral Stream
 - Intermittent Stream
 - Perennial Stream
 - PFO Wetland
 - Property Boundary

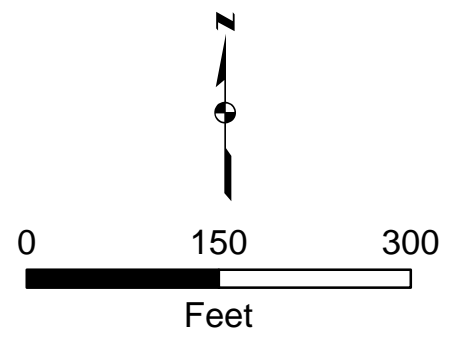


Figure 4. Wetland Delineation Map
ABB Installation Products Inc.
Sumner County, TN
March 2022



C:\Users\michael.tincher\Desktop\active_projects\ABB Portland TN\06152019\GIS\figure 4 - Delineation.mxd - Michael Tincher - 3/24/2022

APPENDIX A SITE PHOTOGRAPHS



- Legend
- Outfall
 - Upland
 - Wetland
 - Photo Direction
 - Drainage Ditch
 - Ephemeral Stream
 - Intermittent Stream
 - Perennial Stream
 - PFO Wetland
 - Property Boundary

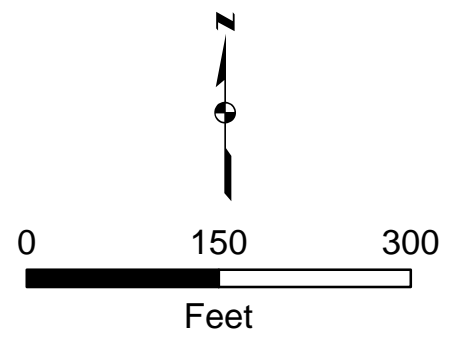


Figure 4. Wetland Delineation Map
ABB Installation Products Inc.
Sumner County, TN
March 2022



C:\Users\michael.lmitcher\Desktop\Projects\ABB Portland TN\06152019\GIS\Photo Location.mxd - Michael.Lmitcher - 3/28/2022



Photograph 1. Wetland 1 approximate boundary, facing south



Photograph 2. Wetland 1 facing west



Photograph 3. Wetland 2 area, facing northwest



Photograph 4. Wetland 2 area, facing southeast



Photograph 5. Perennial Stream 1 cross-section



Photograph 6. Perennial Stream 1, facing downstream



Photograph 7. Perennial 1, facing upstream



Photograph 8. Upstream segment Intermittent Stream 1 cross-section



Photograph 9. Upstream Segment Intermittent Stream 1, facing downstream



Photograph 10. Upstream segment Intermittent Stream 1, facing upstream culvert



Photograph 11. Downstream segment Intermittent Stream 1 cross-section



Photograph 12. Downstream segment Intermittent Stream 1, facing downstream where it converges with Perennial Stream 1



Photograph 13. Downstream segment of Intermittent Stream 1,
facing upstream towards Wetland 1



Photograph 14. Intermittent Stream 1, facing downstream



Photograph 15. Intermittent Stream 1, facing upstream



Photograph 16. Wetland 3, facing west



Photograph 17. Wetland 3, facing south



Photograph 18. Wetland 4, facing south



Photograph 19. Wetland 4, facing east



Photograph 20. Intermittent Stream 2, facing downstream



Photograph 21. Intermittent Stream 2, facing upstream



Photograph 22. Stormwater Ditch 1 facing upstream



Photograph 23. Stormwater Ditch 1 facing downstream



Photograph 24. Stormwater Ditch 2 facing upstream



Photograph 25. Stormwater Ditch 2 facing downstream

APPENDIX B HYDROLOGIC DETERMINATION FORMS

Normal Weather Conditions Calculations Table

		Long-term rainfall records								
	Month	Standard Deviation	Minus One Std. Dev. (DRY)	Normal (Mean inches)	Plus One Std. Dev. (WET)	Actual Rainfall	Condition (elevated, low, average)	Condition value	Month weight value	Product of previous two columns
1 st prior month*	February	1.97	1.83	3.80	5.77	9.31	Elevated	3	3	9
2 nd prior month*	January	2.34	1.71	4.05	6.39	5.74	Average	2	2	4
3 rd prior month*	December	2.69	1.57	4.25	6.94	3.9	Average	2	1	2
									Sum =	15

Note:

If sum is:	
6-9	then prior period has been abnormally dry
10-14	then prior period has been normal (average)
15-18	Then prior period has been abnormally wet

Condition value:	
Low =	1
Average =	2
Elevated =	3

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Unnamed Tributary to Summers Branch		Date/Time: 03/22/2022
Assessors/Affiliation: Michael Tincher / ERM		Project ID :
Site Name/Description:	Intermittent Stream 1	ABB Portland TN
Site Location:		
HUC (12 digit): 051302060101		Lat/Long: 36.6005892
Previous Rainfall (7-days) : 0.44 inches		-86.53082428
Precipitation this Season vs. Normal : <u>abnormally wet</u> elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : NOAA, CoCoRaHS		
Watershed Size : 13 acres	County: Sumner	
Soil Type(s) / Geology : Guthrie silt loam (Gu)		Source: WSS
Surrounding Land Use : Industrial, Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) :		
Severe <u>Moderate</u> Slight Absent		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Stream
Secondary Indicator Score (if applicable) = 24

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 11)

A. Geomorphology (Subtotal = 11)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	3	0	1	2	3
2. Sinuous channel	1.5	0	1	2	3
3. In-channel structure: riffle-pool sequences	1.5	0	1	2	3
4. Sorting of soil textures or other substrate	1	0	1	2	3
5. Active/relic floodplain	1.5	0	0.5	1	1.5
6. Depositional bars or benches	0	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	1	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	0.5	0	0.5	1	1.5
12. Natural valley or drainageway	1	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map	0	No = 0		Yes = 3	

B. Hydrology (Subtotal = 5)

B. Hydrology (Subtotal = 5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	0	1	2	3
15. Water in channel and >48 hours since sig. rain	2	0	1	2	3
16. Leaf litter in channel (January – September)	1	1.5	1	0.5	0
17. Sediment on plants or on debris	0	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0.5	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 8)

C. Biology (Subtotal =8)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	3	3	2	1	0
21. Rooted plants in the thalweg ¹	3	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0.5	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	0	0	1	2	3
27. Iron oxidizing bacteria/fungus	1	0	0.5	1	1.5
28. Wetland plants in channel bed ²	0.5	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

² Focus is on the presence of aquatic or wetland plants.

Total Points = 24

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Unnamed Tributary to Summers Branch		Date/Time: 03/22/2022
Assessors/Affiliation: Michael Tincher / ERM		Project ID :
Site Name/Description: Intermittent Stream 2		ABB Portland TN
Site Location:		
HUC (12 digit): 051302060101		Lat/Long: 36.60239132
Previous Rainfall (7-days) : 0.44 inches		-86.5274638
Precipitation this Season vs. Normal : <u>abnormally wet</u> elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : NOAA, CoCoRaHS		
Watershed Size : 14 acres		County: Sumner
Soil Type(s) / Geology : Guthrie silt loam (Gu)		Source: WSS
Surrounding Land Use : Industrial, Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) :		
Severe <u>Moderate</u> Slight Absent		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Stream
Secondary Indicator Score (if applicable) = 20.5

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 7)

A. Geomorphology (Subtotal = 7)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	3	0	1	2	3
2. Sinuous channel	0	0	1	2	3
3. In-channel structure: riffle-pool sequences	1	0	1	2	3
4. Sorting of soil textures or other substrate	0	0	1	2	3
5. Active/relic floodplain	0.5	0	0.5	1	1.5
6. Depositional bars or benches	0	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0.5	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	1	0	0.5	1	1.5
12. Natural valley or drainageway	1	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map	0	No = 0		Yes = 3	

B. Hydrology (Subtotal = 7.5)

B. Hydrology (Subtotal = 7.5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	1	0	1	2	3
15. Water in channel and >48 hours since sig. rain	1.5	0	1	2	3
16. Leaf litter in channel (January – September)	1.5	1.5	1	0.5	0
17. Sediment on plants or on debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	1.5	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal =6)

C. Biology (Subtotal =6)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	3	3	2	1	0
21. Rooted plants in the thalweg ¹	3	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	0	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28. Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹Focus is on the presence of terrestrial plants.

² Focus is on the presence of aquatic or wetland plants.

Total Points = 20.5

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Unnamed Tributary to Summers Branch		Date/Time: 03/22/2022
Assessors/Affiliation: Michael Tincher / ERM		Project ID :
Site Name/Description:	Perennial Stream 1	ABB Portland TN
Site Location:		
HUC (12 digit): 051302060101		Lat/Long: 36.60117758
Previous Rainfall (7-days) : 0.44 inches		-86.52694701
Precipitation this Season vs. Normal : <u>abnormally wet</u> elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : NOAA, CoCoRaHS		
Watershed Size : 14 acres	County: Sumner	
Soil Type(s) / Geology : Guthrie silt loam (Gu)		Source: WSS
Surrounding Land Use : Industrial, Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) :		
Severe <u>Moderate</u> Slight Absent		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Stream
Secondary Indicator Score (if applicable) = 33

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 17.5)

A. Geomorphology (Subtotal = 17.5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	3	0	1	2	3
2. Sinuous channel	1.5	0	1	2	3
3. In-channel structure: riffle-pool sequences	3	0	1	2	3
4. Sorting of soil textures or other substrate	3	0	1	2	3
5. Active/relic floodplain	1.5	0	0.5	1	1.5
6. Depositional bars or benches	1	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	1	0	0.5	1	1.5
9. Natural levees	1	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	1	0	0.5	1	1.5
12. Natural valley or drainageway	1.5	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map	0	No = 0		Yes = 3	

B. Hydrology (Subtotal = 9.5)

B. Hydrology (Subtotal = 9.5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	1.5	0	1	2	3
15. Water in channel and >48 hours since sig. rain	3	0	1	2	3
16. Leaf litter in channel (January – September)	1.5	1.5	1	0.5	0
17. Sediment on plants or on debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	1.5	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal =6)

C. Biology (Subtotal =6)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	3	3	2	1	0
21. Rooted plants in the thalweg ¹	3	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	0	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28. Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹Focus is on the presence of terrestrial plants.

² Focus is on the presence of aquatic or wetland plants.

Total Points = 33

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Unnamed Tributary to Summers Branch		Date/Time: 03/22/2022
Assessors/Affiliation: Michael Tincher / ERM		Project ID :
Site Name/Description:	Stormwater Ditch 1	ABB Portland TN
Site Location:		
HUC (12 digit): 051302060101		Lat/Long: 36.60002
Previous Rainfall (7-days) : 0.44 inches		-86.52985
Precipitation this Season vs. Normal : <u>abnormally wet</u> elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : NOAA, CoCoRaHS		
Watershed Size : 4.9 acres	County: Sumner	
Soil Type(s) / Geology : Guthrie silt loam (Gu)		Source: WSS
Surrounding Land Use : Industrial, Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) :		
<div style="display: flex; justify-content: space-around;"> <u>Severe</u> Moderate Slight Absent </div>		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Wet Weather Conveyance
Secondary Indicator Score (if applicable) = 9.5

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 4.5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	3	0	1	2	3
2. Sinuous channel	0	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	0	1	2	3
4. Sorting of soil textures or other substrate	0	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	1	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0.5	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	0	0	0.5	1	1.5
12. Natural valley or drainageway	0	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map	0	No = 0		Yes = 3	

B. Hydrology (Subtotal = 2)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0.5	0	1	2	3
15. Water in channel and >48 hours since sig. rain	1	0	1	2	3
16. Leaf litter in channel (January – September)	0	1.5	1	0.5	0
17. Sediment on plants or on debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel	0	No = 0		Yes = 1.5	

C. Biology (Subtotal = 3)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	0	3	2	1	0
21. Rooted plants in the thalweg ¹	1	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	1	0	0.5	1	1.5
25. Macroinvertebrates (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	1	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28. Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

² Focus is on the presence of aquatic or wetland plants.

Total Points = 9.5

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes : Concrete channel that primarily drains the adjacent facility and parking lot. Continuous bed and bank marked as strong due to the designed channelization. Multiple toe key drains outlet into the channel, with some appearing to have water trickling out. Last precipitation event occurred within 72 hrs of the site visit and included 0.37 inches of rain. A significant amount of sediment was observed in the channel, suggesting erosion from the surrounding upland areas were depositing sediment into the channel. Due to a nearby culvert inlet design and possibly flow velocity during stormwater runoff events, not all sediment is being transported downslope. Instead, it is being deposited/remaining in the concrete channel. In turn, this is impeding flow of stormwater runoff during runoff events and may be causing water to sit in the channel longer than originally designed. This likely explains the presence of algae and tadpoles in portions of the channel, while also having areas of upland vegetation being established on the sediment.

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Unnamed Tributary to Summers Branch		Date/Time: 03/22/2022
Assessors/Affiliation: Michael Tincher / ERM		Project ID :
Site Name/Description:	Stormwater Ditch 2	ABB Portland TN
Site Location:		
HUC (12 digit): 051302060101		Lat/Long: 36.60013
Previous Rainfall (7-days) : 0.44 inches		-86.52902
Precipitation this Season vs. Normal : <u>abnormally wet</u> elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : NOAA, CoCoRaHS		
Watershed Size : 6.7 acres	County: Sumner	
Soil Type(s) / Geology : Guthrie silt loam (Gu)		Source: WSS
Surrounding Land Use : Industrial, Commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) :		
<div style="display: flex; justify-content: space-around; align-items: center;"> <u>Severe</u> Moderate Slight Absent </div>		

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Wet Weather Conveyance
Secondary Indicator Score (if applicable) = 9.5

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	3	0	1	2	3
2. Sinuous channel	0.5	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	0	1	2	3
4. Sorting of soil textures or other substrate	0	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	1	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0.5	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	0	0	0.5	1	1.5
12. Natural valley or drainageway	0	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map	0	No = 0		Yes = 3	

B. Hydrology (Subtotal = 1.5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	0	1	2	3
15. Water in channel and >48 hours since sig. rain	1	0	1	2	3
16. Leaf litter in channel (January – September)	0	1.5	1	0.5	0
17. Sediment on plants or on debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel	0	No = 0		Yes = 1.5	

C. Biology (Subtotal = 3)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed ¹	1	3	2	1	0
21. Rooted plants in the thalweg ¹	1	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	1	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28. Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

² Focus is on the presence of aquatic or wetland plants.

Total Points = 9.5

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes : Designed swale/channel that primarily drains the adjacent facility and parking lot with erosion actively occurring on side slopes. Continuous bed and bank marked as strong due to the designed channelization.

Last precipitation event occurred within 72 hrs of the site visit and included 0.37 inches of rain.

APPENDIX C USACE WETLAND DETERMINATION FORMS

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	<i>OMB Control #: 0710-xxxx, Exp: Pending</i> <i>Requirement Control Symbol EXEMPT:</i> <i>(Authority: AR 335-15, paragraph 5-2a)</i>
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Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 9/29/2021

Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-01

Investigator(s): John Crosby, Casey Brotman - ERM Section, Township, Range: N/A

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 1-2%

Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 36.601400 Long: -86.530895 Datum: NAD 83

Soil Map Unit Name: Gu - Guthrie silt loam, 0 to 2 percent slopes, frequently flooded NWI classification: PFO

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

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

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	<table style="width: 100%;"> <tr> <td style="width: 60%;">Is the Sampled Area within a Wetland?</td> <td style="width: 40%;">Yes <u>X</u> No <u> </u></td> </tr> </table>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u> </u>
Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u> </u>		
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <u> </u> Surface Water (A1) <u> </u> High Water Table (A2) <u> </u> Saturation (A3) <u> </u> Water Marks (B1) <u> </u> Sediment Deposits (B2) <u> </u> Drift Deposits (B3) <u> </u> Algal Mat or Crust (B4) <u> </u> Iron Deposits (B5) <u> </u> Inundation Visible on Aerial Imagery (B7) <u> </u> Water-Stained Leaves (B9) <u> </u> Aquatic Fauna (B13) </div> <div style="width: 50%;"> <u> </u> True Aquatic Plants (B14) <u> </u> Hydrogen Sulfide Odor (C1) <u> x </u> Oxidized Rhizospheres on Living Roots (C3) <u> </u> Presence of Reduced Iron (C4) <u> </u> Recent Iron Reduction in Tilled Soils (C6) <u> </u> Thin Muck Surface (C7) <u> </u> Other (Explain in Remarks) </div> </div>	<u>Secondary Indicators (minimum of two required)</u> <u> </u> Surface Soil Cracks (B6) <u> </u> Sparsely Vegetated Concave Surface (B8) <u> </u> Drainage Patterns (B10) <u> </u> Moss Trim Lines (B16) <u> </u> Dry-Season Water Table (C2) <u> x </u> Crayfish Burrows (C8) <u> </u> Saturation Visible on Aerial Imagery (C9) <u> </u> Stunted or Stressed Plants (D1) <u> </u> Geomorphic Position (D2) <u> </u> Shallow Aquitard (D3) <u> </u> Microtopographic Relief (D4) <u> X </u> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <u> </u> No <u> x </u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u> x </u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u> x </u> Depth (inches): <u> </u> (includes capillary fringe)	<table style="width: 100%;"> <tr> <td style="width: 60%;">Wetland Hydrology Present?</td> <td style="width: 40%;">Yes <u> X </u> No <u> </u></td> </tr> </table>	Wetland Hydrology Present?	Yes <u> X </u> No <u> </u>
Wetland Hydrology Present?	Yes <u> X </u> No <u> </u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP-01

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. <u>Ulmus rubra</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Salix nigra</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>																	
4. <u>Liquidambar styraciflua</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>80</u> =Total Cover 50% of total cover: <u>40</u> 20% of total cover: <u>16</u>				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>20</u></td> <td>x 1 = <u>20</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>75</u></td> <td>x 3 = <u>225</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>95</u> (A)</td> <td><u>245</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.58</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>20</u>	x 1 = <u>20</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>75</u>	x 3 = <u>225</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>95</u> (A)	<u>245</u> (B)	Prevalence Index = B/A = <u>2.58</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>20</u>	x 1 = <u>20</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>75</u>	x 3 = <u>225</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>95</u> (A)	<u>245</u> (B)																			
Prevalence Index = B/A = <u>2.58</u>																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
_____ =Total Cover 50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
_____ =Total Cover 50% of total cover: _____ 20% of total cover: _____																				
Woody Vine Stratum (Plot size: <u>30</u>)																				
1. <u>Toxicodendron radicans</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>15</u> =Total Cover 50% of total cover: <u>8</u> 20% of total cover: <u>3</u>																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: DP-01

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	100					Loamy/Clayey	
2-12	10YR 4/2	95	7.5YR 5/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21) (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators 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 ☐

Remarks:

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	<i>OMB Control #: 0710-xxxx, Exp: Pending</i> <i>Requirement Control Symbol EXEMPT:</i> <i>(Authority: AR 335-15, paragraph 5-2a)</i>
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Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 9/29/2021

Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-02

Investigator(s): John Crosby, Casey Brotman - ERM Section, Township, Range: N/A

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): convex Slope (%): 3%

Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 36.601357 Long: -86.530806 Datum: NAD 83

Soil Map Unit Name: Gu - Guthrie silt loam, 0 to 2 percent slopes, frequently flooded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <u> </u> Surface Water (A1) <u> </u> High Water Table (A2) <u> </u> Saturation (A3) <u> </u> Water Marks (B1) <u> </u> Sediment Deposits (B2) <u> </u> Drift Deposits (B3) <u> </u> Algal Mat or Crust (B4) <u> </u> Iron Deposits (B5) <u> </u> Inundation Visible on Aerial Imagery (B7) <u> </u> Water-Stained Leaves (B9) <u> </u> Aquatic Fauna (B13) </div> <div style="width: 50%;"> <u> </u> True Aquatic Plants (B14) <u> </u> Hydrogen Sulfide Odor (C1) <u> </u> Oxidized Rhizospheres on Living Roots (C3) <u> </u> Presence of Reduced Iron (C4) <u> </u> Recent Iron Reduction in Tilled Soils (C6) <u> </u> Thin Muck Surface (C7) <u> </u> Other (Explain in Remarks) </div> </div>	<u>Secondary Indicators (minimum of two required)</u> <u> </u> Surface Soil Cracks (B6) <u> </u> Sparsely Vegetated Concave Surface (B8) <u> </u> Drainage Patterns (B10) <u> </u> Moss Trim Lines (B16) <u> </u> Dry-Season Water Table (C2) <u> </u> Crayfish Burrows (C8) <u> </u> Saturation Visible on Aerial Imagery (C9) <u> </u> Stunted or Stressed Plants (D1) <u> </u> Geomorphic Position (D2) <u> </u> Shallow Aquitard (D3) <u> </u> Microtopographic Relief (D4) <u> </u> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>x</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>x</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>x</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP-02

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Liquidambar styraciflua</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.6%</u> (A/B)																
2. <u>Fraxinus americana</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
35 =Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>2</u></td> <td>x 3 = <u>6</u></td> </tr> <tr> <td>FACU species <u>1</u></td> <td>x 4 = <u>4</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>3</u> (A)</td> <td><u>10</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.33</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>2</u>	x 3 = <u>6</u>	FACU species <u>1</u>	x 4 = <u>4</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>3</u> (A)	<u>10</u> (B)	Prevalence Index = B/A = <u>3.33</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>2</u>	x 3 = <u>6</u>																			
FACU species <u>1</u>	x 4 = <u>4</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>3</u> (A)	<u>10</u> (B)																			
Prevalence Index = B/A = <u>3.33</u>																				
50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>																				
Sapling/Shrub Stratum (Plot size: <u>30</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>30</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Woody Vine Stratum (Plot size: <u>30</u>)																				
1. <u>Toxicodendron radicans</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>Problematic Hydrophytic Vegetation¹ (Explain)</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
10 =Total Cover																				
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: DP-02

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 4/4	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21) (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators 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:

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	<i>OMB Control #: 0710-xxxx, Exp: Pending</i> <i>Requirement Control Symbol EXEMPT:</i> <i>(Authority: AR 335-15, paragraph 5-2a)</i>
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Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 9/29/2021
 Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-03
 Investigator(s): John Crosby, Casey Brotman - ERM Section, Township, Range: N/A
 Landform (hillside, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 3%
 Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 36.601758 Long: -86.528009 Datum: NAD 83
 Soil Map Unit Name: Gu - Guthrie silt loam, 0 to 2 percent slopes, Frequently flooded NWI classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; text-align: center;"> Is the Sampled Area within a Wetland? </td> <td style="width: 40%; text-align: center;"> Yes <u>X</u> No <u> </u> </td> </tr> </table>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u> </u>
Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u> </u>		
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <u>x</u> No <u> </u> Depth (inches): <u>0</u> Water Table Present? Yes <u> </u> No <u>x</u> Depth (inches): <u> </u> Saturation Present? Yes <u>x</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; text-align: center;"> Wetland Hydrology Present? </td> <td style="width: 40%; text-align: center;"> Yes <u>X</u> No <u> </u> </td> </tr> </table>	Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP-03

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Liquidambar styraciflua</u>	40	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. <u>Fraxinus pennsylvanica</u>	20	Yes	FACW																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
60 =Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species <u>90</u></td> <td>x 3 = <u>270</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>120</u> (A)</td> <td><u>350</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.92</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>20</u>	x 2 = <u>40</u>	FAC species <u>90</u>	x 3 = <u>270</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>120</u> (A)	<u>350</u> (B)	Prevalence Index = B/A = <u>2.92</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>20</u>	x 2 = <u>40</u>																			
FAC species <u>90</u>	x 3 = <u>270</u>																			
FACU species <u>10</u>	x 4 = <u>40</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>120</u> (A)	<u>350</u> (B)																			
Prevalence Index = B/A = <u>2.92</u>																				
50% of total cover: <u>30</u> 20% of total cover: <u>12</u>																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
_____ =Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Rubus argutus</u>	10	No	FACU	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> <u>2</u> - Dominance Test is >50% <input checked="" type="checkbox"/> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) _____ ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Microstegium vimineum</u>	50	Yes	FAC																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
60 =Total Cover																				
50% of total cover: <u>30</u> 20% of total cover: <u>12</u>																				
Woody Vine Stratum (Plot size: <u>30</u>)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
_____ =Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: DP-03

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/1	95	10YR 5/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators 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 ☐

Remarks:

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	<i>OMB Control #: 0710-xxxx, Exp: Pending</i> <i>Requirement Control Symbol EXEMPT:</i> <i>(Authority: AR 335-15, paragraph 5-2a)</i>
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Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 9/29/2021

Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-04

Investigator(s): John Crosby, Casey Brotman - ERM Section, Township, Range: N/A

Landform (hillside, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 3%

Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 36.601511 Long: -86.527794 Datum: NAD 83

Soil Map Unit Name: Gu - Guthrie silt loam, 0 to 2 percent slopes, Frequently flooded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	<table style="width: 100%;"> <tr> <td style="width: 60%;"> Is the Sampled Area within a Wetland? </td> <td style="width: 40%; text-align: right;"> Yes <u> </u> No <u>X</u> </td> </tr> </table>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>		
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <u> </u> Surface Water (A1) <u> </u> High Water Table (A2) <u> </u> Saturation (A3) <u> </u> Water Marks (B1) <u> </u> Sediment Deposits (B2) <u> </u> Drift Deposits (B3) <u> </u> Algal Mat or Crust (B4) <u> </u> Iron Deposits (B5) <u> </u> Inundation Visible on Aerial Imagery (B7) <u> </u> Water-Stained Leaves (B9) <u> </u> Aquatic Fauna (B13) </div> <div style="width: 50%;"> <u> </u> True Aquatic Plants (B14) <u> </u> Hydrogen Sulfide Odor (C1) <u> </u> Oxidized Rhizospheres on Living Roots (C3) <u> </u> Presence of Reduced Iron (C4) <u> </u> Recent Iron Reduction in Tilled Soils (C6) <u> </u> Thin Muck Surface (C7) <u> </u> Other (Explain in Remarks) </div> </div>	<u>Secondary Indicators (minimum of two required)</u> <u> </u> Surface Soil Cracks (B6) <u> </u> Sparsely Vegetated Concave Surface (B8) <u> </u> Drainage Patterns (B10) <u> </u> Moss Trim Lines (B16) <u> </u> Dry-Season Water Table (C2) <u> </u> Crayfish Burrows (C8) <u> </u> Saturation Visible on Aerial Imagery (C9) <u> </u> Stunted or Stressed Plants (D1) <u> </u> Geomorphic Position (D2) <u> </u> Shallow Aquitard (D3) <u> </u> Microtopographic Relief (D4) <u> </u> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <u> </u> No <u>x</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>x</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>x</u> Depth (inches): <u> </u> (includes capillary fringe)	<table style="width: 100%;"> <tr> <td style="width: 60%;"> Wetland Hydrology Present? </td> <td style="width: 40%; text-align: right;"> Yes <u> </u> No <u>X</u> </td> </tr> </table>	Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP-04

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>0</u> (A)</td> <td><u>0</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>0</u> (A)	<u>0</u> (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>0</u> (A)	<u>0</u> (B)																			
Prevalence Index = B/A = _____																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Festuca arundinacea</u>	<u>100</u>	<u>Yes</u>	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>																				
Woody Vine Stratum (Plot size: <u>30</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

Hydrophytic Vegetation Present? Yes No X

SOIL

Sampling Point: DP-04

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	7.5YR 4/4	70	2.5YR 4/6	30	C	M	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21) (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators 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 - Eastern Mountains and Piedmont Region

Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 3/22/2022
 Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-05
 Investigator(s): Michael Tinchner Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 1-3
 Subregion (LRR or MRLA): LRR N Lat: 36.60103566 Long: -86.53114097 Datum: NAD 83
 Soil Map Unit Name: Guthrie silt loam (Gu) NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks)
 Are vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present?
 Are vegetation No, Soil No, or Hydrology No naturally problematic? Yes ☒ No _____

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

Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	
Remarks: Explain alternative procedures here or in a separate report.) DP-05 is an upland plot located adjacent to the southern boundary of Wetland 1.			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required: Check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B18)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction Tiled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present?	
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Wetland hydrology is not present.			

VEGETATION - Use scientific names of plants

Sampling Point: DP-05

Tree Stratum (Plot Size: 30 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Liquidambar styraciflua	70	YES	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		70	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
			= Total Cover	

Herb Stratum (Plot Size: 5 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Hedera helix	15	YES	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		15	= Total Cover	

Woody Vine Stratum (Plot Size: 30 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤ 3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- 5 - Problematic Hydrophytic Vegetation ¹

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

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft. 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 3.26 ft. in height

Hydrophytic Vegetation Present?

Yes No ☒

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

Hydrophytic vegetation is not present.

SOIL

Sampling Point:

DP-05

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

[illegible]

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

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (**LRR N**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- ☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F17)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- ☐ Umbria Surface (F13) (**MLRA 136,122**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ☐ Red Parent Material (F21) (**MLRA 127,147**)

Indicators for Problematic Hydric Soils³

- | | |
|--------------------------|--|
| <input type="checkbox"/> | 2 cm Muck (A10) (LRR N) |
| <input type="checkbox"/> | Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> | Piedmont Floodplain Soils (F19) (MLRA 147, 148) |
| <input type="checkbox"/> | Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> | Other (Explain in Remarks) |

³Indicators 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 ☒

Remarks:

Hydric soil is not present.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 3/22/2022
 Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-06
 Investigator(s): Michael Tinchner Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 1-3
 Subregion (LRR or MRLA): LRR N Lat: 36.6014279 Long: -86.53132669 Datum: NAD 83
 Soil Map Unit Name: Guthrie silt loam (Gu) NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks)
 Are vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present?
 Are vegetation No, Soil No, or Hydrology No naturally problematic? Yes ☒ No _____

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

Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks: Explain alternative procedures here or in a separate report.) DP-06 is an upland plot located adjacent to the boundary of Wetland 1.		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: Check all that apply)		Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B18)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction Tiled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:				Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches):	_____	
Water Table Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches):	16	
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches):	_____	

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

Remarks:
 Wetland hydrology is not present.

VEGETATION - Use scientific names of plants

Sampling Point: DP-06

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	50	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
		= Total Cover	

Herb Stratum (Plot Size: 5 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Hedera helix	10	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	

Woody Vine Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤ 3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- 5 - Problematic Hydrophytic Vegetation ¹

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

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft. 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 3.26 ft. in height

Hydrophytic Vegetation Present?

Yes No ☒

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

Hydrophytic vegetation is not present.

SOIL

Sampling Point:

DP-06

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

[illegible]

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

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (**LRR N**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- ☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F17)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- ☐ Umbria Surface (F13) (**MLRA 136, 122**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ☐ Red Parent Material (F21) (**MLRA 127, 147**)

Indicators for Problematic Hydric Soils³

- ☐ 2 cm Muck (A10) (**LRR N**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 147, 148**)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators 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 ☒

Remarks:

Hydric soil is not present.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 3/22/2022
 Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-07
 Investigator(s): Michael Tinchner Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 1-3
 Subregion (LRR or MRLA): LRR N Lat: 36.60214224 Long: -86.52790435 Datum: NAD 83
 Soil Map Unit Name: Guthrie silt loam (Gu) NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks)
 Are vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present?
 Are vegetation No, Soil No, or Hydrology No naturally problematic? Yes ☒ No _____

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____		
Remarks: Explain alternative procedures here or in a separate report.) DP-07 is representative of PFO Wetland 3.				

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required: Check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B18)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction Tiled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present?	
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>0</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>0</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Wetland hydrology is present.			

VEGETATION - Use scientific names of plants

Sampling Point: DP-07

Tree Stratum (Plot Size: 30 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Quercus palustris	70	YES	FACW
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		70	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Quercus palustris	15	YES	FACW
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		15	= Total Cover	

Herb Stratum (Plot Size: 5 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Rumex crispus	10	YES	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		10	= Total Cover	

Woody Vine Stratum (Plot Size: 30 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

5 - Problematic Hydrophytic Vegetation ¹

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

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft. 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 3.26 ft. in height

Hydrophytic Vegetation Present?

Yes ☒ No

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

Hydrophytic vegetation is present.

SOIL

Sampling Point:

DP-07

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

[illegible]

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

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (**LRR N**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- ☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F17)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- ☐ Umbric Surface (F13) (**MLRA 136,122**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ☐ Red Parent Material (F21) (**MLRA 127,147**)

Indicators for Problematic Hydric Soils³

- | | |
|--------------------------|--|
| <input type="checkbox"/> | 2 cm Muck (A10) (LRR N) |
| <input type="checkbox"/> | Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> | Piedmont Floodplain Soils (F19) (MLRA 147, 148) |
| <input type="checkbox"/> | Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> | Other (Explain in Remarks) |

³Indicators 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

Remarks:

Hydric soil is present.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 3/22/2022
 Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-08
 Investigator(s): Michael Tinchner Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 1-3
 Subregion (LRR or MRLA): LRR N Lat: 36.60202998 Long: -86.52758545 Datum: NAD 83
 Soil Map Unit Name: Guthrie silt loam (Gu) NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks)
 Are vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present?
 Are vegetation No, Soil No, or Hydrology No naturally problematic? Yes ☒ No _____

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

Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks: Explain alternative procedures here or in a separate report.) DP-08 is an upland plot located adjacent to Wetland 3.		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: Check all that apply)		Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B18)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction Tiled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/> (includes capillary fringe)	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Wetland hydrology is not present.		

VEGETATION - Use scientific names of plants

Sampling Point: DP-08

Tree Stratum (Plot Size: 30 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Celtis occidentalis	40	YES	FACU
2.	Quercus palustris	25	YES	FACW
3.				
4.				
5.				
6.				
7.				
8.				
		65	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Lonicera maackii	15	YES	UPL
2.	Lonicera japonica	5	YES	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		20	= Total Cover	

Herb Stratum (Plot Size: 5 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
			= Total Cover	

Woody Vine Stratum (Plot Size: 30 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

5 - Problematic Hydrophytic Vegetation ¹

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

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft. 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 3.26 ft. in height

Hydrophytic Vegetation Present?

Yes No ☒

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

Hydrophytic vegetation is not present.

SOIL

Sampling Point:

DP-08

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

[illegible]

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

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Histosol (A1) |
| <input type="checkbox"/> | Histic Epipedon (A2) |
| <input type="checkbox"/> | Black Histic (A3) |
| <input type="checkbox"/> | Hydrogen Sulfide (A4) |
| <input type="checkbox"/> | Stratified Layers (A5) |
| <input type="checkbox"/> | 2 cm Muck (A10) (LRR N) |
| <input type="checkbox"/> | Depleted Below Dark Surface (A11) |
| <input type="checkbox"/> | Thick Dark Surface (A12) |
| <input type="checkbox"/> | Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) |
| <input type="checkbox"/> | Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> | Sandy Redox (S5) |
| <input type="checkbox"/> | Stripped Matrix (S6) |

- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F17)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136,122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127,147)**

Indicators for Problematic Hydric Soils³

- ☐ 2 cm Muck (A10) (**LRR N**)
- ☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 147, 148**)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators 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 ☒

Remarks:

Hydric soil is not present.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 3/22/2022
 Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-09
 Investigator(s): Michael Tinchner Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 1-3
 Subregion (LRR or MRLA): LRR N Lat: 36.60263604 Long: -86.52842607 Datum: NAD 83
 Soil Map Unit Name: Guthrie silt loam (Gu) NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks)
 Are vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present?
 Are vegetation No, Soil No, or Hydrology No naturally problematic? Yes ☒ No _____

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: Explain alternative procedures here or in a separate report.) DP-09 is representative of PFO Wetland 4.	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: Check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Moss Trim Lines (B18)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Recent Iron Reduction Tiled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Algal Mat or Crust (B4)	
<input type="checkbox"/> Iron Deposits (B5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Wetland hydrology is present.	

VEGETATION - Use scientific names of plants

Sampling Point: DP-09

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	80	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
		= Total Cover	

Herb Stratum (Plot Size: 5 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

Woody Vine Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤ 3.0¹
- ☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Problematic Hydrophytic Vegetation ¹

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

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft. 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 3.26 ft. in height

Hydrophytic Vegetation Present?

Yes ☒ No ☐

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

Hydrophytic vegetation is present.

SOIL

Sampling Point: DP-09

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

[illegible]

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

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (**LRR N**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F17)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136,122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127,147)**

Indicators for Problematic Hydric Soils³

- ☐ 2 cm Muck (A10) (**LRR N**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 147, 148**)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators 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 ☐

Remarks:

Hydric soil is present.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: ABB Portland TN City/County: Portland/Sumner Sampling Date: 3/22/2022
 Applicant/Owner: ABB Installation Products, Inc. State: TN Sampling Point: DP-10
 Investigator(s): Michael Tinch Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 1-3
 Subregion (LRR or MRLA): LRR N Lat: 36.60105635 Long: -86.52714251 Datum: NAD 83
 Soil Map Unit Name: Guthrie silt loam (Gu) NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks)
 Are vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present?
 Are vegetation No, Soil No, or Hydrology No naturally problematic? Yes ☒ No _____

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

Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks: Explain alternative procedures here or in a separate report.) DP-10 is an upland plot located adjacent to Wetland 2.		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: Check all that apply)		Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B18)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction Tiled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:		Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	

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

Remarks: Wetland hydrology is not present.

VEGETATION - Use scientific names of plants

Sampling Point: DP-10

Tree Stratum (Plot Size: 30 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Acer negundo	35	YES	FAC
2.	Celtis occidentalis	30	YES	FACU
3.				
4.				
5.				
6.				
7.				
8.				
		65	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
			= Total Cover	

Herb Stratum (Plot Size: 5 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	Lamium purpureum	25	YES	FACU
2.	Cardamine parviflora	20	YES	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		45	= Total Cover	

Woody Vine Stratum (Plot Size: 30 ft. radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

5 - Problematic Hydrophytic Vegetation ¹

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

Definitions of Vegetation Strata:

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

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft. 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 3.26 ft. in height

Hydrophytic Vegetation Present?

Yes No ☒

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

Hydrophytic vegetation is not present.

SOIL

Sampling Point: DP-10

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

[illegible]

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

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10) (**LRR N**)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☒ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)

- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- ☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F17)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- ☐ Umbric Surface (F13) (**MLRA 136,122**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ☐ Red Parent Material (F21) (**MLRA 127,147**)

Indicators for Problematic Hydric Soils³

- | | |
|--------------------------|--|
| <input type="checkbox"/> | 2 cm Muck (A10) (LRR N) |
| <input type="checkbox"/> | Coast Prairie Redox (A16) (MLRA 147, 148) |
| <input type="checkbox"/> | Piedmont Floodplain Soils (F19) (MLRA 147, 148) |
| <input type="checkbox"/> | Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> | Other (Explain in Remarks) |

³Indicators 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 ☒

Remarks:

Hydric soil is not present.

APPENDIX D STAFF QUALIFICATIONS

Michael Tincher, PWS, QHP

Senior Consultant

Michael is a senior project manager and consultant with over nine years of environmental consulting experience. He has assisted clients in permitting solar, transmission, pipeline, transportation, wind, and commercial development projects throughout the eastern and central United States. He has extensive experience managing and conducting Clean Water Act permitting, stream and wetland delineations, stream ecology, fish and aquatic macroinvertebrate surveys, plant species and habitat surveys, stream and groundwater sampling. He has also managed teams conducting cultural, acoustic, bat, avian, mussels, and other biological resource studies. Michael has also managed and assisted with writing Biological Opinions, Biological Assessments, Environmental Assessments, and Environmental Impact Statements.



Experience: 9 years of experience in wetland and stream delineation, permitting, and regulations.

Email: michael.tincher@erm.com

LinkedIn: www.linkedin.com/in/michael-tincher-pws-qhp-333a0b138

Education

- M.S. Wildlife and Fisheries Resources, West Virginia University, USA, 2013
- B.S. Wildlife and Fisheries Resources, West Virginia University, USA, 2010

Languages

- English, native speaker

Fields of Competence

- Environmental policy and regulation
- Federal, state, and local permitting
- Project management
- Wetland and stream delineations
- Biological resource studies

Key Industry Sectors

- Wind and solar
- Oil and gas
- High-voltage transmission
- Commercial land development

Key Projects

Confidential Wind Client, West Virginia. 2021 - Current.

Project manager for proposed repowering of wind facility in West Virginia. Responsible for state and local permitting coordination, including USACE jurisdictional determinations and Clean Water Act Section 404 permitting, USFWS and state wildlife agency project review, SHPO project review, visual resource assessment and simulation development, NPDES permitting, and floodplains permitting.

Confidential Natural Gas Client, Ohio. 2021 - Current.

Project manager for proposed natural gas gathering pipeline in northeastern Ohio. Responsible for state and local permitting coordination, including USACE jurisdictional determinations and Clean Water Act Section 404 permitting, USFWS and state wildlife agency project review, SHPO project review, and wetland and stream delineations.

Confidential Land Development Client, Pennsylvania. 2021 - Current.

Project manager for natural resource aspects of proposed distribution warehouse facility near Pittsburgh, Pennsylvania. Responsible for state and local permitting coordination, including USACE jurisdictional determinations, PADEP Joint Permit Application, USFWS and state wildlife agencies project review, and SHPO project coordination.

Key Projects Prior to Joining ERM

Confidential Solar Clients, Kentucky. 2020 - 2021.

Project manager for 10 proposed solar projects located throughout central and western Kentucky. Responsible for state and local permitting coordination, including USACE jurisdictional determinations and Clean Water Act Section 404 permitting, USFWS and state wildlife agency project review, SHPO project review, floodplains permitting,

wetland and stream delineations, and threatened and endangered species habitat assessments.

Riverine Systems Stream Restoration Biological Assessments, Kentucky. 2020 - 2021.

Project manager for four proposed stream restoration projects located in eastern and central Kentucky. Responsible for conducting threatened and endangered species habitat assessments, presence/probable absence surveys, and Biological Assessments. Projects were funded by Kentucky Department of Fish and Wildlife Resources.

Riverine Systems Wetland Mitigation Monitoring, Kentucky. 2020 - 2021.

Project manager and field lead for wetland and vegetative mitigation monitoring at a recently constructed stream restoration site in Lee and Estill Counties, Kentucky. Responsible for conducting wetland mitigation monitoring, vegetative assessments and survival in upland and wetland plots, wetland delineations, and annual monitoring reports. Project was funded by Kentucky Department of Fish and Wildlife Resources.

Confidential Land Development Client, Kentucky. 2021.

Project manager for natural resource aspects of a proposed distribution warehouse facility in Jefferson County, Kentucky. Responsible for conducting wetland and stream delineations, Clean Water Act Section 404 permitting (individual permit), threatened and endangered species habitat assessment, USFWS and state wildlife agency project review, and SHPO project review.

Confidential Solar Clients, Tennessee. 2021.

Project manager for five proposed solar projects located across Tennessee. Responsible for state and local permitting coordination, including USACE jurisdictional determinations, TDEC hydrologic determinations, and Clean Water Act Section 404 and 401 permitting, USFWS and state wildlife agency project review, SHPO project review, floodplains

permitting, wetland and stream delineations, and threatened and endangered species habitat assessments.

Tennessee Valley Authority, Tennessee. 2021.

Project manager and field lead for over 100 miles of high-voltage transmission line projects located in western Tennessee. Responsible for state and local permitting coordination, including USACE jurisdictional determinations, TDEC hydrologic determinations, and Clean Water Act Section 404 and 401 permitting, USFWS and state wildlife agency project review, SHPO project review, floodplains permitting, wetland and stream delineations, threatened and endangered species habitat assessments, and botanical surveys.

Casey Brotman, WPIT

Consultant I, Scientist

Casey is a Wetland Professional in Training (WPIT) within Charlotte, North Carolina. She has two years of experience in environmental consulting specializing in phase I environmental site assessments and environmental impact assessments for numerous transportation, pipeline, and utility projects.

Casey is an experienced natural resource scientist with technical expertise involving the Clean Water Act (CWA), Endangered Species Act (ESA), and associated permitting. Her area of expertise are in the fields of wildlife impact assessments, characterization and delineation of terrestrial and wetland communities, ESRI's Geographic Information System (GIS), and regulatory compliance.



Experience: Two years of experience in impact assessments and environmental permitting.

LinkedIn: <https://www.linkedin.com/in/casey-brotman-wpit-75a83b128/>

Email: casey.brotman@erm.com

Education

- B.S. Environmental Resources Management, Minor in GIS, Virginia Tech, Blacksburg, VA, 2019

Professional Affiliations and Registrations

- Society of Wetland Scientists – Wetland Professional in Training (WPIT)

Languages

- English, native speaker

Fields of Competence

- Wetland delineations
- GIS
- Environmental impact assessments
- Environmental permitting

Key Industry Sectors

- Transportation
- Pipeline
- Utility

Additional Trainings and Certifications

- NPDES Level 1A Fundamentals
- Duncan & Duncan 40-hr Basic Wetland Delineation Course

Key Projects

Verizon

Conducting initial environmental site reviews for several non-utility pole proposals to establish compliance with the Federal Communications Commission (FCC) rules and regulations.

Confidential Client

Assisted with conducting a Phase I Environmental Site Assessment and report.

Dominion Energy

Conducted several wetland and waterway reverifications along the Atlantic Coast Pipeline.

Key Projects Prior to Joining ERM

Prince William County Department of Transportation

Prepared a Joint Permit Application (JPA) for the Prince William Parkway Interchange at Realigned Balls Ford Road project. Conducted wetland and stream delineations, and utilized ArcMap and MicroStation to create natural resources mapping and impact plates.

Maryland Department of Transportation (MDOT)

Organized and maintained a permit tracking system for several MDOT projects. Attended pre-application meetings for several projects to determine which permits will be required based on jurisdictional features, and acted as a liaison between MDOT and clients to ensure correct permits were produced, and reviewed permits prior to submittal.

Prince George's County Department of Transportation

Conducted wetland and forest stand delineations for several stream restoration projects within Prince George's County, Maryland. Prepared Natural Resources Inventories (NRI) for each site using MicroStation.

John Crosby, CWB

Senior Consultant

Mr. Crosby is a Certified Wildlife Biologist (CWB) with nine years of technical experience in environmental impact assessments and resource management for numerous transportation, commercial, residential, and energy utility and infrastructure related projects including: wind and solar development, natural gas pipeline, transportation, and transmission linear projects.

Mr. Crosby is an experienced natural resource technical lead involving Clean Water Act (CWA), Endangered Species Act (ESA) evaluation, and permitting. His area of expertise are in the fields of wildlife impact assessments, fisheries studies, bat ecology studies, amphibian surveys, characterization and delineation of terrestrial and wetland communities, water quality sampling, and regulatory compliance and permitting.



Experience: Nine years of experience in the identification and permitting of natural resources.

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Email: John.Crosby@erm.com

Education

- B.S. in Wildlife and Fisheries Biology Clemson University, 2012

Professional Affiliations and Registrations

- USACE Wetland Delineation Training Program, Richard Chinn Environmental Training, Inc., August 2012
- Level1A: Education and Training Certification Requirements for Persons Involved with Land Disturbing Activities, Brenda R. Johnson
- Certified Erosion Prevention and Sediment Control Inspector by the Department of Health and Environmental Control, Clemson University
- Authorized Gopher Tortoise Agent
- Certified Wildlife Biologist by The Wildlife Society

Languages

- English

Fields of Competence

- Wetland delineations
- State and Federal Permitting
- GIS
- Threatened and Endangered Species
- Environmental impact assessments

Key Industry Sectors

- Transportation
- Energy and Gas
- Commercial Development

Key Projects

Atlantic Coast Pipeline, West Virginia, Virginia, and North Carolina

Worked as an environmental lead with responsibilities of delineating waters of the U.S. along sections of the nearly 600-mile pipeline corridor within West Virginia, Virginia, and North Carolina.

Quitman I Solar, Georgia

Worked as an environmental lead with responsibilities of delineation Waters of the U.S., as well as conducting transect surveys for threatened and endangered species such as the wood stork and gopher tortoise. Conducted environmental oversight to ensure permit compliance until stabilization was achieved.

Quitman II Solar, Georgia

Worked as an environmental lead with responsibilities of delineation Waters of the U.S., as well as conducting transect surveys for threatened and endangered species such as the wood stork and gopher tortoise. Relocated gopher tortoises to minimize impacts to the species during the construction of the project.

Cool Springs Solar, Georgia

Worked as an environmental lead with responsibilities of delineation Waters of the U.S., as well as conducting transect surveys for threatened and endangered species such as the wood stork and gopher tortoise. Relocated gopher tortoises to minimize impacts to the species during the construction of the project.

BASF Water Intake Structure, Alabama

Worked as the lead permit author and project manager with responsibilities of obtaining a Nationwide Permit 3(b) for the dredging of sediment near a water intake structure.

Pleasanton to Three Rivers, Texas

Worked as an environmental lead with responsibilities of delineating waters of the U.S. and conducting

habitat assessments on a 47-mile power line right-of-way in west Texas.

Constraints Issues Analysis - NextEra

Documented possible environmental constraints for potential development sites throughout the United States. Assembled a matrix for all permitting responsibilities (i.e., county, state, federal) due to the construction of a solar facilities for several states to help provide an idea for budget and time permit costs for each state.

Dougherty Solar, Georgia

Worked as an environmental lead with responsibilities of delineation Waters of the U.S., as well as conducting transect surveys for threatened and endangered species such as the wood stork and gopher tortoise. Conducted environmental oversight to ensure permit compliance until stabilization was achieved.

Key Projects Prior to Joining ERM

Petroleum Pipeline Development, Georgia

Served as a field lead for three teams of two on a 370 mile proposed pipeline route. Lead a team of two throughout the proposed pipeline and surveyed for Waters of the U.S. and protected species. Served as a senior reviewer for all data submitted within this effort and consulted with the Georgia Coastal Resource Division (CRD) on the taking of tidal waters.

Natural Gas Pipeline Development, South Carolina

Served as project team lead with the responsibilities of demarcating features such as wetlands, streams, open waters, and the presence of state and federally protected species along the 53-mile corridor. Once the field surveys were completed GIS was used to create maps and assess impacts associated with the pipeline project. Authored portions of FERC resource reports and Nationwide Permit 12 for environmental impacts associated with this project.

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Australia	New Zealand
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