WETLAND STEWARDSHIP PLAN

Haugh Farm Preserve

**Patton Township
Centre County, PA**

Prepared for:

Prepared by:

May 2023

WETLAND STEWARDSHIP PLAN
Haugh Farm Preserve

Patton Township, Centre County, Pennsylvania

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May 2023

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INTRODUCTION

Patton Township (Township) owns the *Haugh Farm Preserve* (HFP), an approximately 466-acre parcel that is accessible off Circleville Road and Scotia Range Road in Patton Township, Centre County, Pennsylvania (see Location Map). The Township became owners of this parcel in 2005, and since acquisition it has at times been called "Haugh Family Farm", "Haugh Open Space", and "the Haugh Tract". The HFP is one contiguous parcel (Centre County Tax ID #18-003-,061-,0000-).

A public park, Circleville Park, shares some common parking areas with the HFP. One parking area is located off Circleville Road and the other can be accessed off Valley Vista Drive via Little Lion Drive. From the parking areas at Circleville Park, several trails lead onto the HFP property.

The HFP abuts Pennsylvania State Game Lands #176 and the southern portion of it is considered part of the Scotia Barrens Biological Diversity Area (WPC 2002). The site is located in the Valley and Ridge Physiographic Region of Pennsylvania and is underlain by the Gatesburg Geologic Formation. The Gatesburg formation is characterized by barrens and vernal pool habitats (WPC 2002). Much of the Gatesburg formation is a source of iron and consequently the HFP and surrounding landscape has historically been influenced by iron mining.

The HFP covers lands mapped as ten different soil types: Clarksburg silt loam, Dunning silty clay loam, Leetonia sand, Lindside soil, Morrison sandy loam, Morrison very stony sandy loam, Quarry, Urban land – Hagerstown complex, and Wyoming gravelly sandy loam (USDA NRCS 2023). These soil types range from very poorly drained (Dunning silty clay) to somewhat excessively drained (Wyoming gravelly sandy loam). Dunning silty clay soils are nationally recognized hydric soils and Lindside soils are known to contain hydric inclusions. Clarksburg silt loam, Lindside soils, and Morrison sandy loams are considered prime farmlands and Dunning silty clay and Wyoming gravelly sandy loams are considered farmland of statewide importance.

Topography of the HFP ranges from about 1,345 feet above mean sea level (amsl) to about 1,480 feet amsl. The eastern three-quarters of the site slopes gradually to the northwest and the western quarter of the site slopes gradually to the southeast. On average, slopes on the site are rather gentle and typically less than about 4%. There are many scattered depressions, in particular in the northern and western portions of the site, and many of these depressions are likely historic man-made depressions created through past mining operations.

This report has been prepared to provide the Township with recommendations to maintain the ecological integrity of the wetlands of the HFP. The recommendations included herein are by no means mandatory and should not be considered absolutely necessary. Rather, recommendations within this report are intended to be weighed against other planned actions and activities at the HFP (i.e., forest management activities, public open-space improvement actions, etc.) such that best-practice decisions can be made for the property.

Haugh Farm Preserve

PATTON
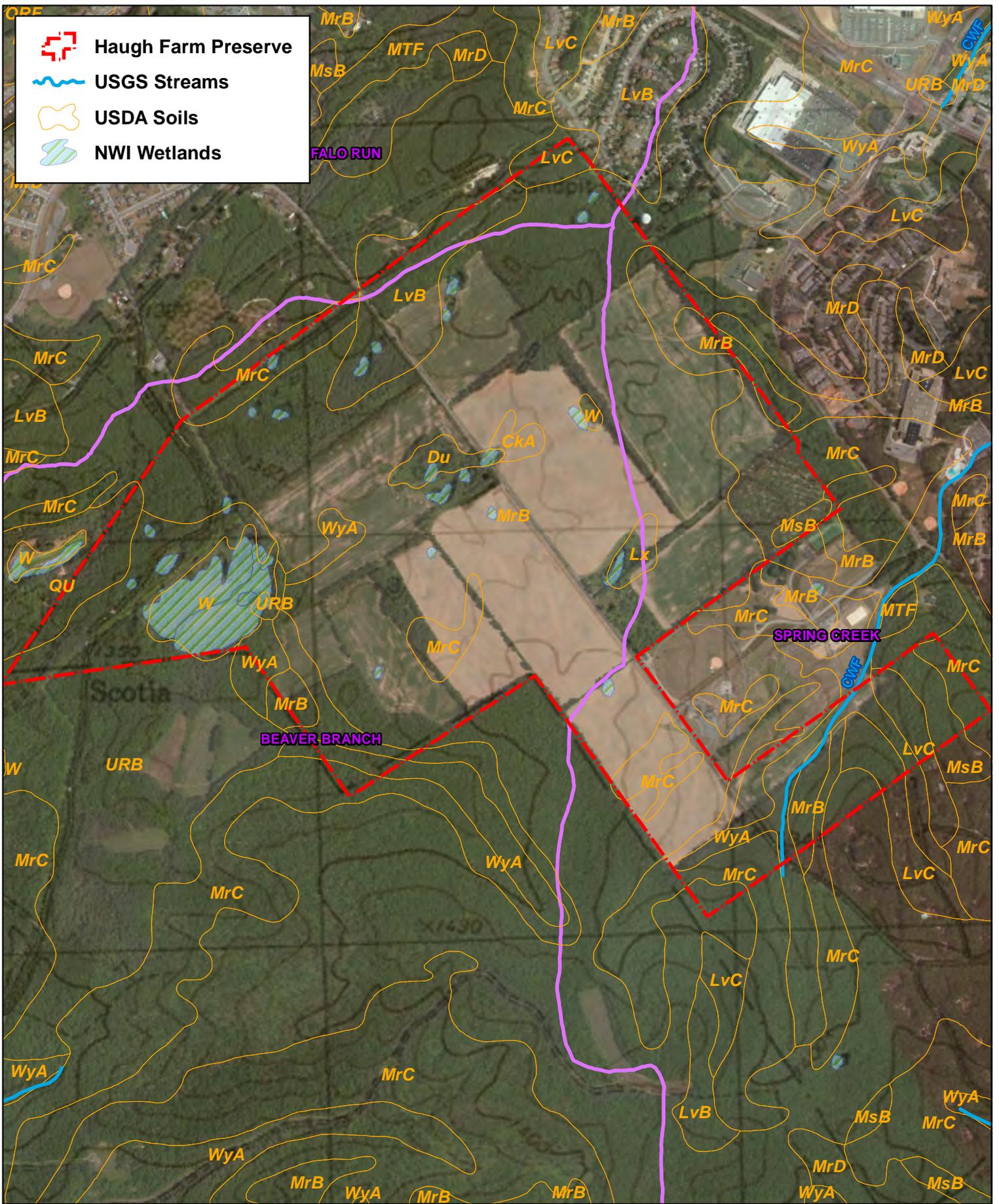
Park Forest Village

Marysville

Scotia

Circle Ville

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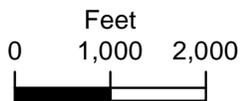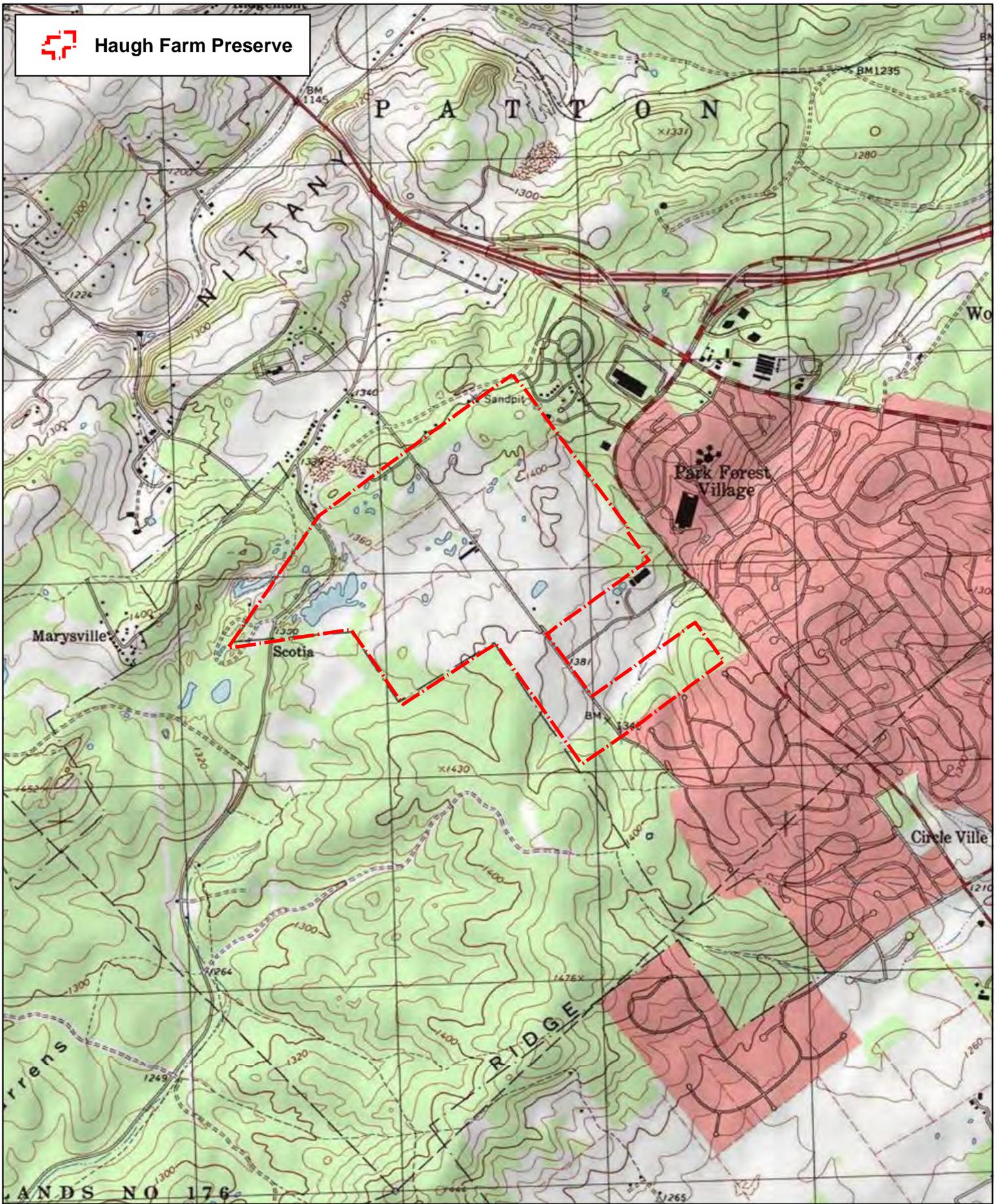
Feet
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LOCATION MAP
HAUGH FARM PRESERVE

Patton Township, Centre County, PA

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Map created March 18, 2023
Julian USGS Quadrangle

Legend:
- Haugh Farm Preserve
- USGS Streams
- USDA Soils
- NWI Wetlands

FALO RUN

BEAVER BRANCH

SPRING CREEK

Scotia
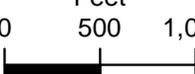
NATURAL RESOURCES MAP
HAUGH FARM PRESERVE

Patton Township, Centre County, PA

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Map created March 18, 2023
Julian USGS Quadrangle

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METHODS

The first step in preparation of a *Wetland Stewardship Plan* (WSP) is the identification and delineation of wetlands. The HFP project area was investigated on foot by a *Senior Professional Wetland Scientist* (PWS #1333) in early September 2022. The site investigations took place during the growing season and at a time when precipitation had been drier than normal (see Antecedent Precipitation Tool Printouts in Attachments). The investigation took place at a time when soils could be easily examined using a shovel and dominant herbaceous species could be identified.

Prior to the investigation, USFWS national wetland inventory (NWI) mapping, USGS topographic mapping, and FEMA floodplain mapping of the project area were reviewed in the office (see Resource Map). There are 27 NWI-mapped wetlands, one USGS-mapped stream, and no FEMA-mapped floodplains in the project area. About 60% of HFP is within the Beaver Branch Watershed, and nearly 30% is in the Spring Creek Watershed. A small portion of the HFP resides within the Buffalo Run Watershed.

Wetland identification followed the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: *Eastern Mountains and Piedmont Region* (USACE 2012). This *Supplement* follows criteria established in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratories 1987) and allows for a more thorough characterization of vegetation and a more careful consideration of hydrology and wetland soil indicators. Vegetation was identified following a regionally specific source (Rhoads and Block 2007) and species indicator status followed an update to Reed (1988) that was established for this region of the United States (USACE 2020). When necessary, species identification was aided through the use of other keys and references (Magee 2014, Weakely *et al.* 2012, Lord and Travis 2006, Rhoads and Block 2005, Cobb *et al.* 2005, Holmgren 1998, FNA 1993+, Gleason and Cronquist 1991, Newcomb 1977, Strausbaugh and Core 1970, Britton and Brown 1970, Harlow 1959).

The boundaries of delineated wetlands were mapped with a sub-meter accurate GNSS/GPS (EPS 2015). Delineated wetlands were assigned classifications following Cowardin *et al.* (1979, FGDC 2013) for cover type, Brooks *et al.* (2011) for hydrogeomorphology type, and Zimmerman *et al.* (2012) for habitat type. Wetland habitats of the project area were generally described through data collection at representative circular plot sampling points where at each point – soils, hydrology, and vegetation were evaluated, and data was recorded on Wetland Determination Data Forms (see Attachments). One wetland sampling point was collected for each wetland for documentation of wetland habitat and no upland sampling points were collected, unlike typical practice for projects that require wetland permitting. Color photographs were taken at the time of study to document site conditions (see Attachments).

Data was collected to document the quality of the wetland habitats. This was achieved through two routine wetland assessment methods, *Floristic Quality Assessments* (FQA) and *Function and Value Assessments* (FVA). FQA are mathematical descriptions of habitat quality based on the composition of vascular plant species. Developed in the mid-1990s to assess habitat quality of sites in Illinois (Swink & Wilhelm 1994), FQAs have been tailored over the past 20+ years to fit all regions of the United States and beyond.

The basic premise of an FQA is that each plant species thrives in habitats ranging somewhere along a scale of highly disturbed to pristine. This ideal habitat disturbance range is called the coefficient of conservatism, or C-value. Taking into account native versus non-native status and the habitat associations of the native species, teams of regional expert botanists have assigned C-values to all of the vascular plant species in the United States. Non-native species are given a C-value of 0, native species that thrive in disturbed sites are given a C-value of 1 and native species that are found only in pristine habitats are given a C-value of 10. The majority of native species score somewhere between 3 and 8.

Using this approach, practitioners can generate a list of species for a particular habitat or study area and from the C-values a set of metrics can be determined. The most common metrics generated include mean C ($\bar{C}$), floristic quality index (I), and adjusted floristic quality index (I', Miller and Wardrop 2006). The values of $\bar{C}$ and I are often reported for all species and for all native species, $\bar{C}_n$ and I_n.

These metrics are calculated with the following equations:

- $\bar{C} = \sum C / N$ where C are the individual C-values and N is the number of species,
- $I = \bar{C} \sqrt{N}$ where N is the number of species, and
- $I' = (\bar{C}_n/10 * \sqrt{n}/\sqrt{N}) * 100$ where n is the number of native species and N is the number of all species.

From these simple metrics, habitat quality can be understood following these guidelines:

- The higher the $\bar{C}$ or $\bar{C}_n$, the higher the quality of the habitat,
- The higher the I or I_n, the higher the quality of the habitat such that <20 = low quality, 20 to 35 = moderate quality, and >35 = high quality, and
- The higher the I', the higher the quality of the habitat.

Vegetation data used in the FQA was collected through timed-meander surveys (Goff *et al.* 1982) performed throughout the 2022 and early 2023 growing seasons (to be added later, thus this version is a Draft). Timed-meander surveys (TMS) involve walking a wandering path through a specific habitat (individual wetland in this case) and recording species presence until a period of time (usually ten minutes) passes where no new species are added to the list. TMS were conducted in the spring, summer, and fall to document as many species as possible.

FVA are tools that describe the ecological (functions) and human-use (values) roles of wetlands. The FVA used in this study was the U.S. Army Corps of Engineers' *Descriptive Approach*. This method was selected because it is rather simple, and it is comprehensive. Meaning, it can be done quickly and gives results that adequately describe the functions and values of the assessed wetland habitat.

The *Descriptive Approach* FVA assesses eight ecological functions and five human-use values commonly exhibited by wetlands. As such, any wetland assessed using this approach could have as many as 13 function and value categories assigned to it. These 13 function and value categories are

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further defined by up to 218 individual traits/characteristics. Thus, a wetland could exhibit 13 functions and values as expressed through 218 individual traits/characteristics.

FVA results were converted into a number value by assigning five points for any of the 13 categories and one point for any of the 218 individual traits/characteristics. With this approach, a maximum total value for a wetland would equal 283 (65 for the categories plus 218 for the traits/characteristics). To put this value on a more understandable 100 scale, total values were divided by 2.83. Converting the FVA results to a number value was determined practical for this type of study because the purpose of the study is to rank the wetlands based on overall quality.

For this study, *I'* was used as the principal result of the FQA analysis and the 100-scale total score was used as the principal result of the FVA analysis. Those two scores were summed together to yield an overall score for each wetland. With this approach, wetland quality was determined as <50 = low, 50 – 75 = medium, and >75 = high.

RESULTS

The wetland identification and delineation identified 37 palustrine wetlands on the HFP. These resources are displayed on the Wetland Map and summarized in Table 1. Overall, wetland habitat at the HFP totals 29.77 acres. A small amount of this area (0.60 acre) extends onto neighboring properties; however, they were mapped and include herein since the majority of the mapped wetland is located on the HFP property.

The most common wetland cover type classification at HFP is palustrine forested (PFO) habitat. The second most common wetland cover type is palustrine emergent (PEM) wetland habitat and palustrine scrub-shrub (PSS) wetlands are the least common. However, in terms of wetland area, PEM habitat is most abundant, followed by PSS habitat, with PFO habitat being the least abundant at the site. A few of the wetlands at the site have a small component of palustrine unconsolidated bottom (PUB) habitat.

All of the wetlands at HFP are isolated depressions. As such, none of these wetlands are considered Waters of the United States (under current regulation) because they have no direct connection with other surface waters. Thus, the wetlands at the site are not regulated at the federal level by the U.S. Army Corps of Engineers through Section 404 of the Clean Water Act but they are considered Waters of the Commonwealth and are regulated by the Pennsylvania Department of Environmental Protection through Title 25, Chapter 105 of the PA Code.

The delineated wetlands at the HFP are represented by six different habitat types with Sparsely Vegetated Vernal Pool Community being the most common. Mixed Forb – Graminoid Wet Meadow wetland habitat is also very common at the site. PSS wetlands at the HFP are defined as either Circumneutral Mixed Shrub Wetlands or Buttonbush Wetlands. The small areas of PUB habitat are best described as a Spatterdock – Water Lily Emergent Wetland.

Legend
- Haugh Farm Preserve
- Wetland
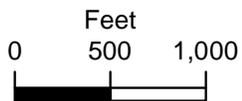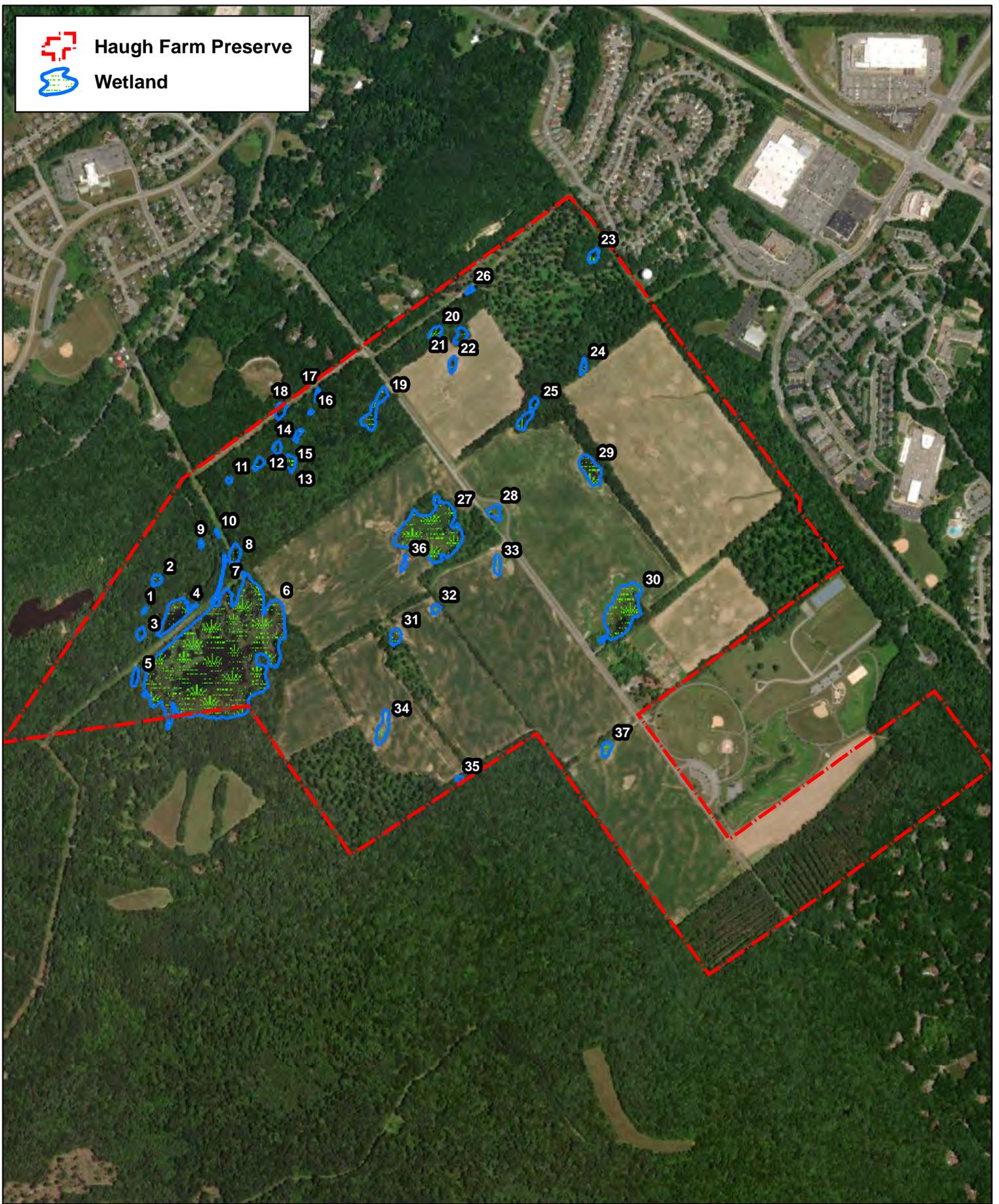
**WETLAND MAP
HAUGH FARM PRESERVE**

Patton Township, Centre County, PA

Wilson Ecological Consulting

Map created March 18, 2023
Julian USGS Quadrangle

Feet
0   500   1,000

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TABLE 1 – WETLAND SUMMARY

Wetland ID	Cowardin Class	Brooks Class	Zimmerman Class	Area (ac)	Total Species (n)	Non-Native Species	Total Mean C ($\bar{C}$)	Adjust FQI (I')	100-Scale FVA	Overall Score
1	PFO[1]	Depression	SV VPC[2]	0.02	24	4	4.0	44.7	12.7	57.4
2	PFO	Depression	SV VPC	0.12	34	0	4.5	45.0	14.8	59.8
3	PFO	Depression	SV VPC	0.10	36	4	3.6	37.7	14.8	52.5
4	PEM[3]	Depression	B-RCM[4]	0.85	70	11	3.1	34.0	30.7	64.7
5	PEM	Depression	MF-GWM[5]	0.13	74	13	3.3	36.3	15.9	52.2
6	PEM	Depression	MF-GWM	18.00	105	20	3.5	38.7	54.1	92.8
7	PFO	Depression	RM-BF[6]	0.15	66	12	3.3	37.1	10.2	47.3
8	PSS[7]	Depression	BW[8]	0.24	44	5	3.8	40.5	12.4	52.9
9	PFO	Depression	SV VPC	0.04	25	3	4.0	42.2	10.2	52.4
10	PSS	Depression	CMSW[9]	0.02	25	5	3.3	37.6	9.9	47.5
11	PFO	Depression	SV VPC	0.03	18	0	5.2	52.0	10.7	62.7
12	PFO	Depression	SV VPC	0.13	22	0	5.0	50.0	15.2	65.2
13	PFO	Depression	SV VPC	0.24	29	2	4.3	44.4	15.2	59.6
14	PFO	Depression	SV VPC	0.11	11	0	5.0	50.0	15.2	65.2
15	PFO	Depression	SV VPC	0.08	18	0	5.3	53.0	15.2	68.2
16	PFO	Depression	SV VPC	0.02	9	0	5.2	52.0	10.2	62.2
17	PFO	Depression	SV VPC	0.05	9	0	4.7	47.0	10.2	57.2
18	PSS	Depression	BW	0.19	28	1	4.5	46.2	12.0	58.2
19	PFO	Depression	RM-BF	0.51	51	9	3.2	34.5	19.1	53.6
20	PFO	Depression	MF-GWM	0.19	44	5	3.4	35.8	23.0	58.8

[1] Palustrine Forested Wetland

[2] Sparsely Vegetated Vernal Pool Community

[3] Palustrine Emergent Wetland

[4] Bluejoint-Reed Canary-grass Marsh

[5] Mixed Forb-Graminoid Wet Meadow

[6] Red Maple-Blackgum Palustrine Forest

[7] Palustrine Scrub-Shrub Wetland

[8] Buttonbush Wetland

[9] Circumneutral Mixed Shrub Wetland

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TABLE 1 – WETLAND SUMMARY, Cont'd

Wetland ID	Cowardin Class	Brooks Class	Zimmerman Class	Area (ac)	Total Species (n)	Non-Native Species	Total Mean C (C̄)	Adjust FQI (*I'*)	100-Scale FVA	Overall Score
21	PSS	Depression	BW	0.21	30	5	3.1	34.7	25.1	59.8
22	PSS	Depression	BW	0.14	25	9	2.2	28.0	19.4	47.4
23	PFO	Depression	SV VPC	0.15	13	0	4.8	48.0	15.2	63.2
24	PFO	Depression	SV VPC	0.09	10	0	3.8	38.0	18.0	56.0
25	PFO	Depression	SV VPC	0.34	36	8	3.1	34.4	23.0	57.4
26	PEM	Depression	MF-GWM	0.05	26	2	2.6	26.9	10.2	37.1
27	PSS	Depression	CMSW	3.81	69	14	3.0	33.0	27.2	60.2
28	PSS	Depression	BW	0.19	51	12	2.8	32.4	20.1	52.5
29	PEM	Depression	MF-GWM	0.59	69	17	2.9	33.0	19.1	52.1
30	PEM	Depression	MF-GWM	1.96	67	20	2.7	31.8	43.5	75.3
31	PSS	Depression	CMSW	0.20	53	12	3.0	34.3	20.8	55.1
32	PEM	Depression	MF-GWM	0.09	20	8	2.1	27.1	10.6	37.7
33	PEM	Depression	MF-GWM	0.15	10	5	0.9	12.7	10.6	23.3
34	PEM	Depression	MF-GWM	0.38	25	10	1.4	17.8	12.0	29.8
35	PEM	Depression	MF-GWM	0.06	41	9	2.8	31.8	14.8	46.6
36	PEM	Depression	MF-GWM	0.08	25	8	1.9	23.1	10.6	33.7
37	PEM	Depression	MF-GWM	0.16	15	5	1.5	18.0	10.6	28.6

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[1] Palustrine Forested Wetland

[2] Sparsely Vegetated Vernal Pool Community

[3] Palustrine Emergent Wetland

[4] Bluejoint-Reed Canary-grass Marsh

[5] Mixed Forb-Graminoid Wet Meadow

[6] Red Maple-Blackgum Palustrine Forest

[7] Palustrine Scrub-Shrub Wetland

[8] Buttonbush Wetland

[9] Circumneutral Mixed Shrub Wetland

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The FQA and FVA results and overall scores for the wetlands of the HFP are summarized in Table 1 and the overall scores are displayed visually on the Wetland Quality Map on the following page. Results indicate that Wetland 6 (a.k.a. Ten-Acre Pond) is the highest quality wetland at the site. Wetland 33 is the lowest quality wetland at the site. Most wetlands at the site (n=25) score as medium quality, whereas only two wetlands score as high quality and ten score as low quality.

The FQA analysis demonstrates that most of the wetlands at the site are comprised of a healthy mix of native plant species. Nine wetlands at the site were found to contain no non-native species. In most cases, these were sparsely vegetated vernal pool wetland communities that were generally comprised of very few total species. As could be expected, a strong correlation (R-square = 0.73) between total number of species and number of non-native species was observed.

The highest recorded *I'* scores were 53.0, 52.0, and 52,0 and these were recorded in Wetlands 15, 11 and 16, respectively. Each of these wetlands are sparsely vegetated vernal pools. These wetlands, and all others with relatively high *I'* values had overall scores placing them in the medium quality habitat range. These results demonstrate why it was determined prudent to score the wetlands using both the FQA and FVA approach.

Wetlands at the HFP offer flood water storage capabilities, however, this function is usually not the principal function simply because these wetlands are not associated with a watercourse. They do capture sheet flow from surrounding uplands and impound runoff providing protection to downstream properties, but most often this is a secondary function. Several wetlands at the site are important in sediment and nutrient management because they are located within or downslope of agricultural fields. In most instances, the wetlands at HFP provide the principal function of wildlife habitat. Some wetlands on the property are important habitats for amphibian reproduction while others offer exceptional habitat for dragonflies, damselflies, and turtles. Several of the wetlands at the HFP site offer important habitat for birds and mammals.

There are a few wetlands at the HFP with exceptional human use values. Wetland 6 (a.k.a. Ten-Acre Pond) offers recreational, educational/scientific, uniqueness/heritage, visual quality/aesthetics, and endangered species habitat. Similarly, Wetland 30 offers many human use values, but these are lesser appreciated by the public simply because Wetland 30 is located in a place where it not as easily observed. Many of the larger wetlands of the site offer recreational opportunity in the form of waterfowl hunting.

In 2008, when the original *Wetland Stewardship Plan* was completed for the HFP site, reed canarygrass (*Phalaris arundinacea*) was documented in ten wetlands. During this study, the species was documented in eleven wetlands. Reed canarygrass is a native species but it is very aggressive and considered invasive in some states, including Pennsylvania (PADCNR 2023). The species spreads rapidly through its rhizomes, and it often forms a monoculture, choking out all other species. This species trait makes reed canarygrass exceptional at erosion control and nutrient removal, but its presence does ultimately lead to a decrease in species diversity. As a native species that offers some important ecological functions, there is no reason to recommend control of the reed canarygrass populations at the site. However, it is important to understand that the presence of this species will ultimately lead to a decrease in the presence of other native species.

Legend:
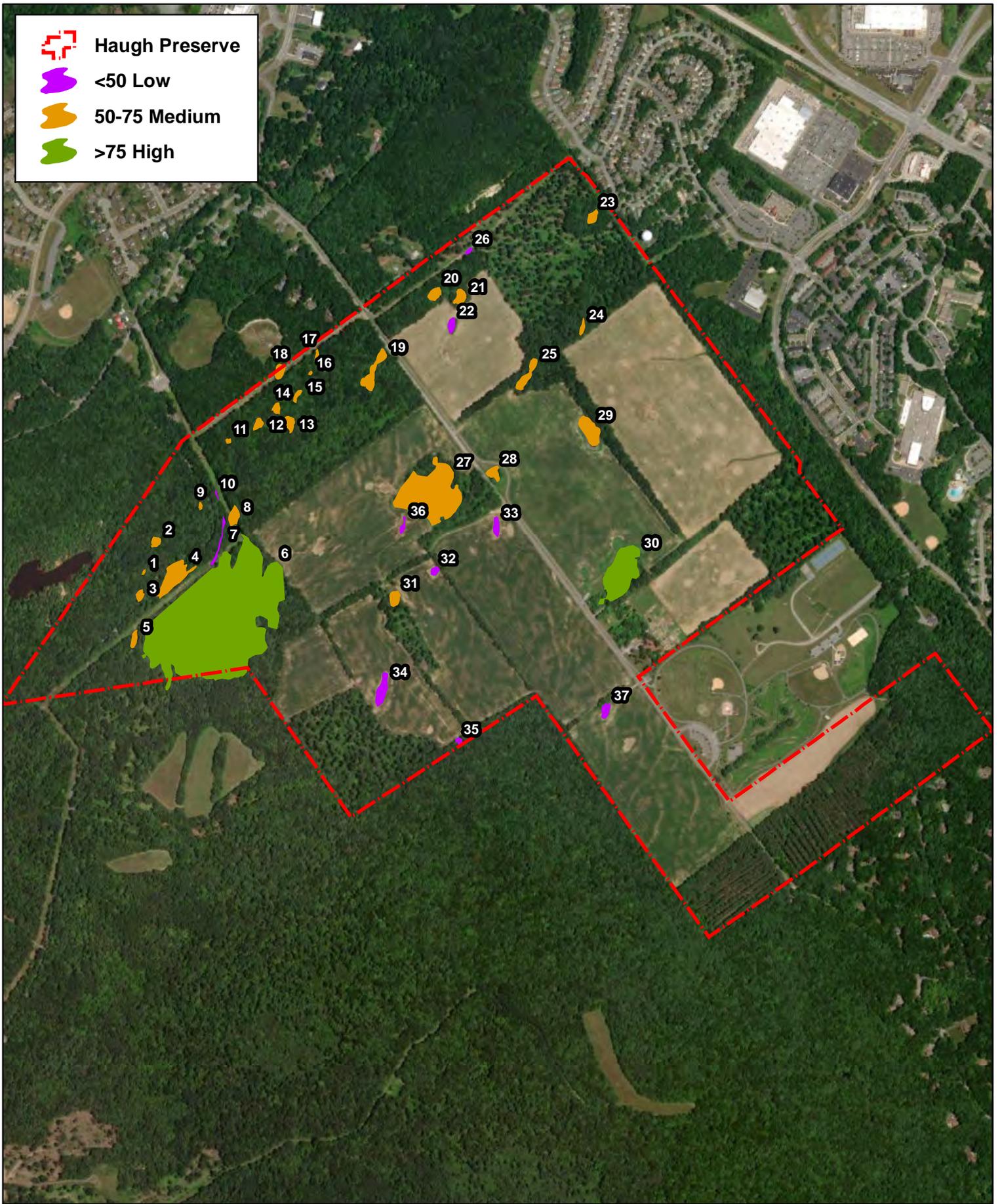
- Haugh Preserve
- <50 Low
- 50-75 Medium
- >75 High
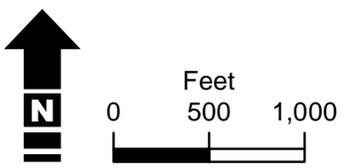
WETLAND QUALITY MAP
HAUGH FARM PRESERVE

Patton Township, Centre County, PA

Feet
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Map created April 4, 2023
Julian USGS Quadrangle

One invasive species that is a concern in the wetlands at the HFP site is mile-a-minute vine (*Polygonum perfoliatum* a.k.a. *Persicaria perfoliata*). Mile-a-minute vine (a.k.a. Asiatic tearthumb) is a very aggressive (grows up to six inches per day), annual vine in the buckwheat family (Polygonaceae). It is recognized as a Rank 1 (severe threat) invasive species in Pennsylvania (PADCNR 2023). The species is considered a facultative wetland species (USACE 2020) and it tends to thrive in moist, not wet, soil conditions. For this reason, mile-a-minute vine is often found growing on shrubs and other low vegetation along the rim (wetland/upland border) of wetlands. Mile-a-minute vine was most likely introduced to the HFP site on timber harvesting equipment around 2010. This assumption is because it was first noticed at the site about six months after timber management operations near Wetland 31. It has been spreading to other areas of the site since then. During the 2022 growing season it was documented in five wetlands at the HFP (see Areas of Concern Map).

Other areas of concern at the HFP are the upland forests bordering Wetlands 27 and 30. The understory in these areas are densely dominated with undesirable invasive shrub species like the bush honeysuckles (*Lonicera* spp.) and border privet (*Ligustrum vulgare*). Both of these species are commonly associated with upland habitats, so they are not common within the wetland habitats, but they are overly abundant along some of the edges.

DISCUSSION

Wetland habitats of the HFP, range from low quality farm field depressions to extremely high quality resources. The medium to high quality wetlands of the site are comprised of a diverse mix of primarily native plant species and provide a variety of ecological functions and human use values. The wetland habitats of the HFP are essentially permanently protected by virtue of the fact that they are located on public lands that are managed as public open space. Additionally, a conservation easement was placed on these lands many years ago, further protecting the habitats of the HFP.

With these understandings of existing protections, there is no need for immediate actions to further protect the wetland resources of the HFP. However, there are a few places where actions could improve upon current conditions and lead to an enhancement in wetland quality. Furthermore, there are some general best-practices that could be followed to maximize the ecological health of these wetlands. These recommendations are summarized below in Table 2 and discussed in greater detail in the paragraphs below.

TABLE 2 – BEST PRACTICE RECOMMENDATIONS

Activity ID	Action	Wetland ID Benefited	Schedule
1	Control / eradicate mile-a-minute vine	4, 6, 25, 31, 32	2024 – 2026
2	Control / eradicate invasive shrubs	18, 21, 27, 30	2026 – 2028
3	Clean up trash at former waste site	25	2025 – 2030
4	Adopt time of year tree clearing restrictions	All	2023 – 2033
5	Adopt best-practice invasive species management	All	2023 – 2033
6	Adopt buffers around wetlands	All	2023 – 2033

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Proposed Activity 1 is recommended to improve the habitat of five wetlands at the site, and to attempt to eradicate mile-a-minute vine, a very aggressive, invasive species from the site before it spreads into other wetlands. As mentioned above, this species thrives in moist soil conditions and as such is often problematic along wetland edges where soils are often damp but rarely saturated and/or inundated. Attempts have been made in the past at the HFP to control this species and those efforts were not successful, though they did result in obvious dieback at treated locations. Future control efforts should focus on targeting the mile-a-minute vine plant and avoiding any nearby native species (previous efforts have killed some native species as well). The populations of this plant species are rather low at the moment, so aggressive control/eradication efforts in the near future could prove very successful. Control can be achieved by pulling stems by hand in late spring or early summer, pre-emergence herbicides in combination with post-emergence herbicides, and/or biological controls like the mile-a-minute weevil.

Proposed Activity 2 is recommended to improve the habitat of two wetlands at the site by reducing the amount of invasive understory shrubs in the upland forest edge bordering these wetlands. Ultimately, these shrubs would be replaced with native shrub species that also provide similar functions, like blueberries (*Vaccinium* spp.), spicebush (*Lindera benzoin*), and arrow-woods (*Viburnum* spp.). It is likely that the forest management plan for the site is already considering actions to improve the upland habitat in these areas. Care should be taken to avoid accidentally killing native shrubs within the wetlands. This may best be done by hand-cutting invasive shrubs along the edges of these wetlands and hand application of herbicide to the cut stems.

Proposed Activity 3 is the removal of trash from Wetland 25. This is obviously a former waste site where an assortment of trash, including tires, bottles, cans, scrap metal, etc. where dumped over the western edge of the bank into the open water portion of this wetland. Efforts have been taken on at least three occasions in the past to remove trash from this area, but each spring more trash appears at the surface. For this reason, this activity is best done every few years until the bulk of the waste materials are removed from the wetland. In previous clean-up efforts, trash was carried from the wetland and placed at the edge of the field where the wooded fencerow approaches Circleville Road so that it could be easily placed into a truck and taken to the Centre County Transfer Station.

Activity 4 is recommended as an effort to protect amphibian populations. With the understanding that forest management may require some tree harvesting at some point in time at the HFP, it would be prudent to restrict those activities to the winter months when the ground is frozen, and amphibians are not active.

Activity 5 is aimed to prevent the introduction of invasive species at the site through equipment transfer. This can be achieved by requiring that any equipment brought onto the site for habitat management be pressure washed to remove weed seeds prior to arrival at the site.

Activity 6 is recommended to further protect amphibian populations. Adopting a buffer around wetlands that restricts or limits tree clearing would be prudent. The buffer widths could coincide with the wetland quality, with larger buffers being adopted for the higher quality wetlands.

Legend
- ★ Area of Concern
- Gray's Woods Preserve
- Gray's Woods Park
- Wetland
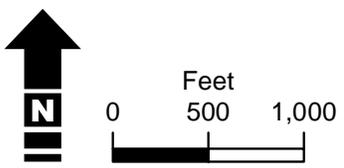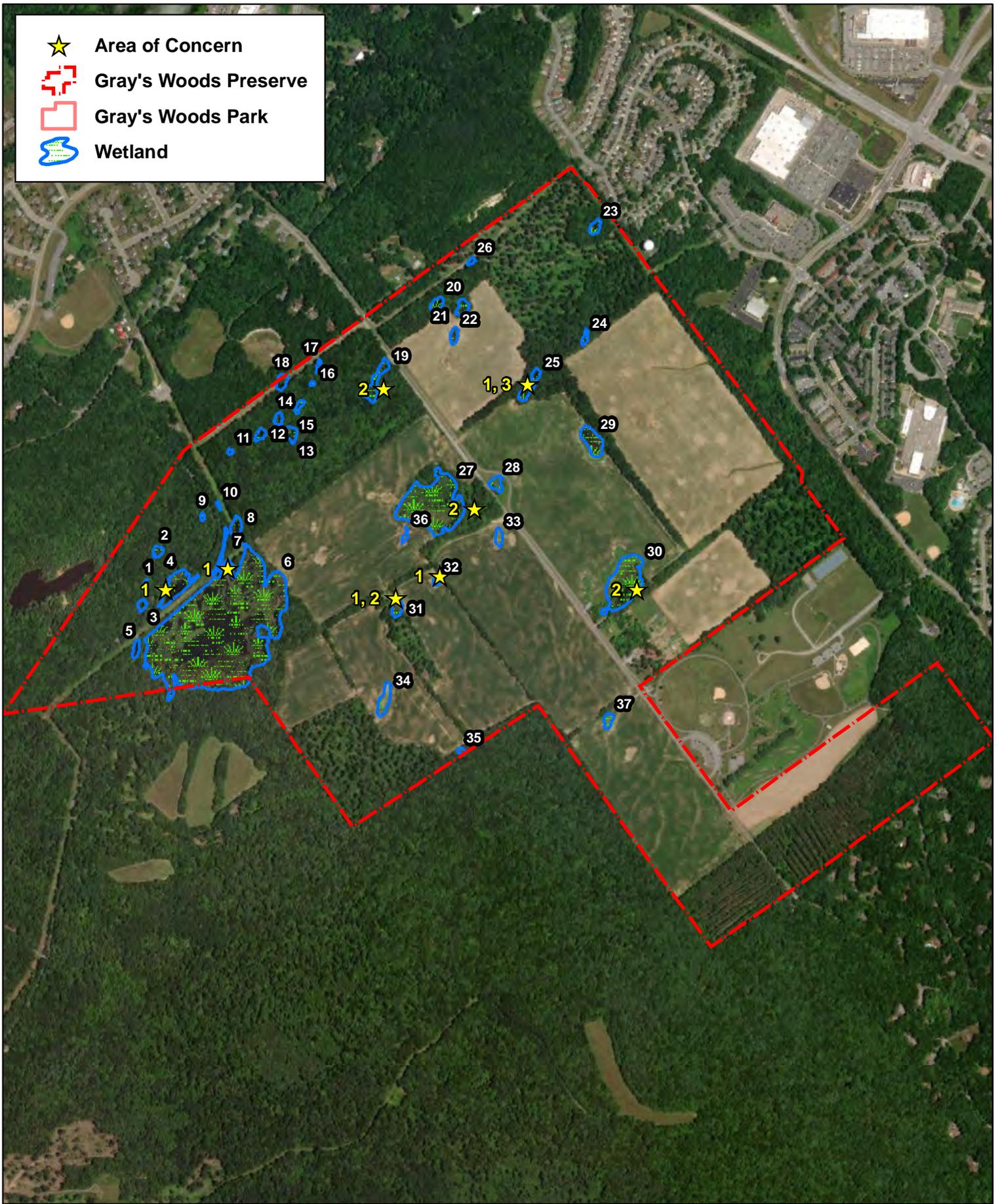
**AREAS OF CONCERN MAP
HAUGH FARM PRESERVE**

Patton Township, Centre County, PA

Wilson Ecological Consulting

Map created April 7, 2023
Julian USGS Quadrangle

Feet
0   500   1,000

N

Wetland habitats of the HFP offer exceptional educational opportunities. Wetland 6 (a.k.a. Ten-Acre Pond) is perhaps the most studied wetland in the world in terms of its dragonfly and damselfly community with 40 years of published data (Shiffer and White 1995). Wetland 6 is also known to serve as a classroom for wetland biology and wildlife photography (personal observation/conversations). Wetlands 4 and 5 offer similar human use values simply because of their close proximity to Wetland 6, parking areas, and associated trails. Many of the other wetlands of the HFP are located along trails and could offer similar educational opportunities. Encouraging additional educational activities at the site is recommended but it is also recommended that future educational events be coordinated through the Township.

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ATTACHMENTS

ANTECEDANT PRECIPITATION TOOL PRINTOUTS

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network
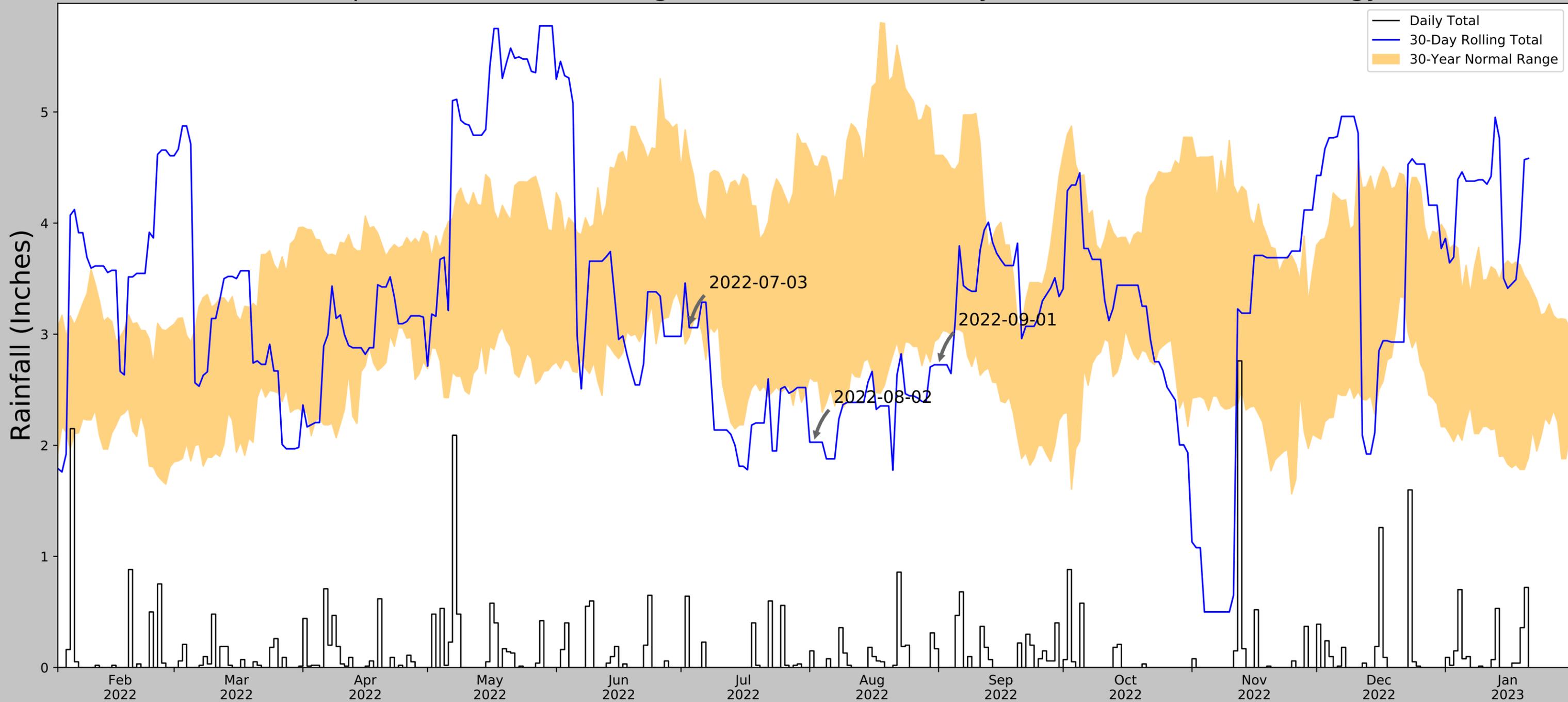
Coordinates	40.80177, -77.94408
Observation Date	2022-09-01
Elevation (ft)	1318.57
Drought Index (PDSI)	Incipient wetness
WebWIMP H$_2$O Balance	Wet Season

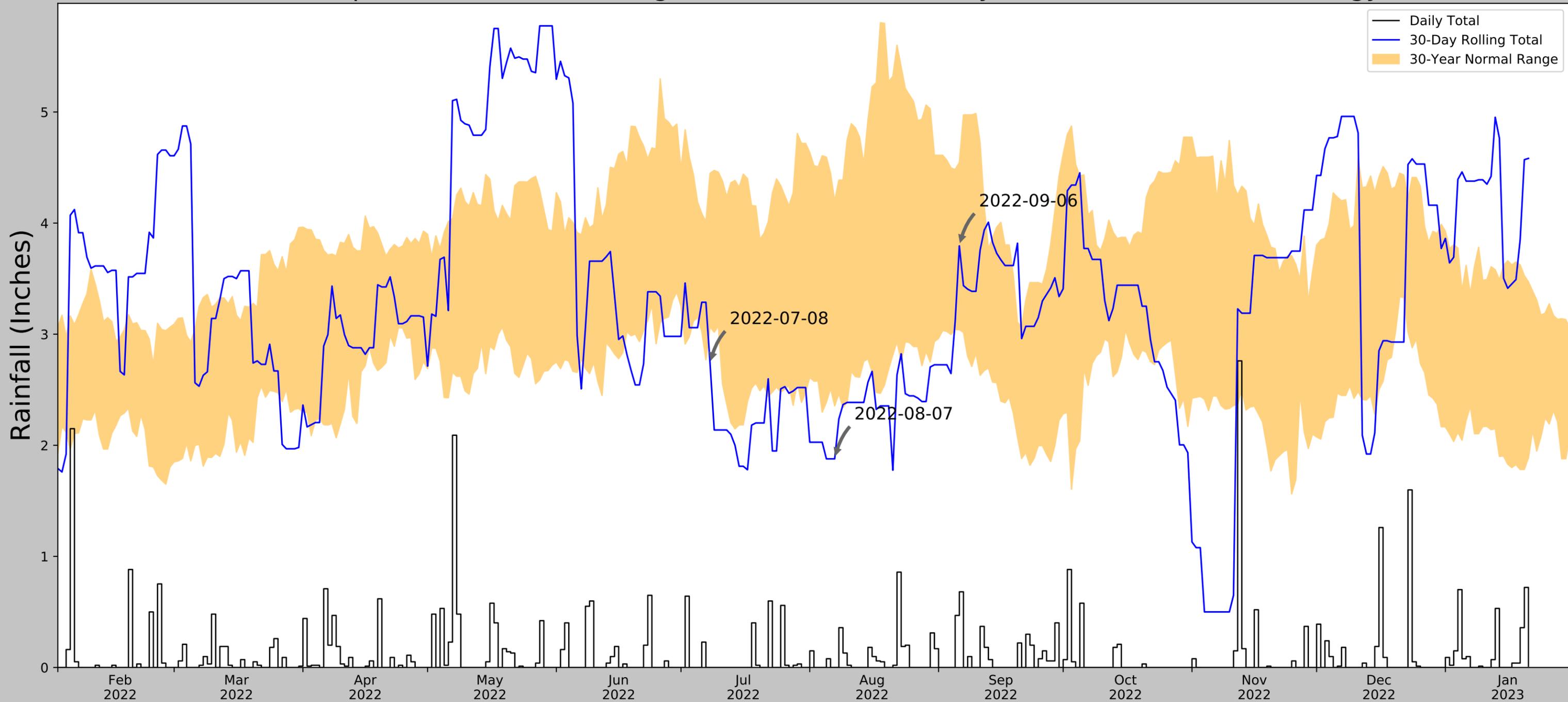| 30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-09-01	2.962205	4.611024	2.72441	Dry	1	3	3
2022-08-02	2.577165	4.518504	2.027559	Dry	1	2	2
2022-07-03	2.976772	4.593701	3.059055	Normal	2	1	2
Result							Drier than Normal - 7

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
STATE COLLEGE	40.7933, -77.8672	1169.948	4.064	148.622	2.433	11321	90
MILLHEIM	40.8847, -77.475	1120.079	21.452	49.869	10.723	32	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network
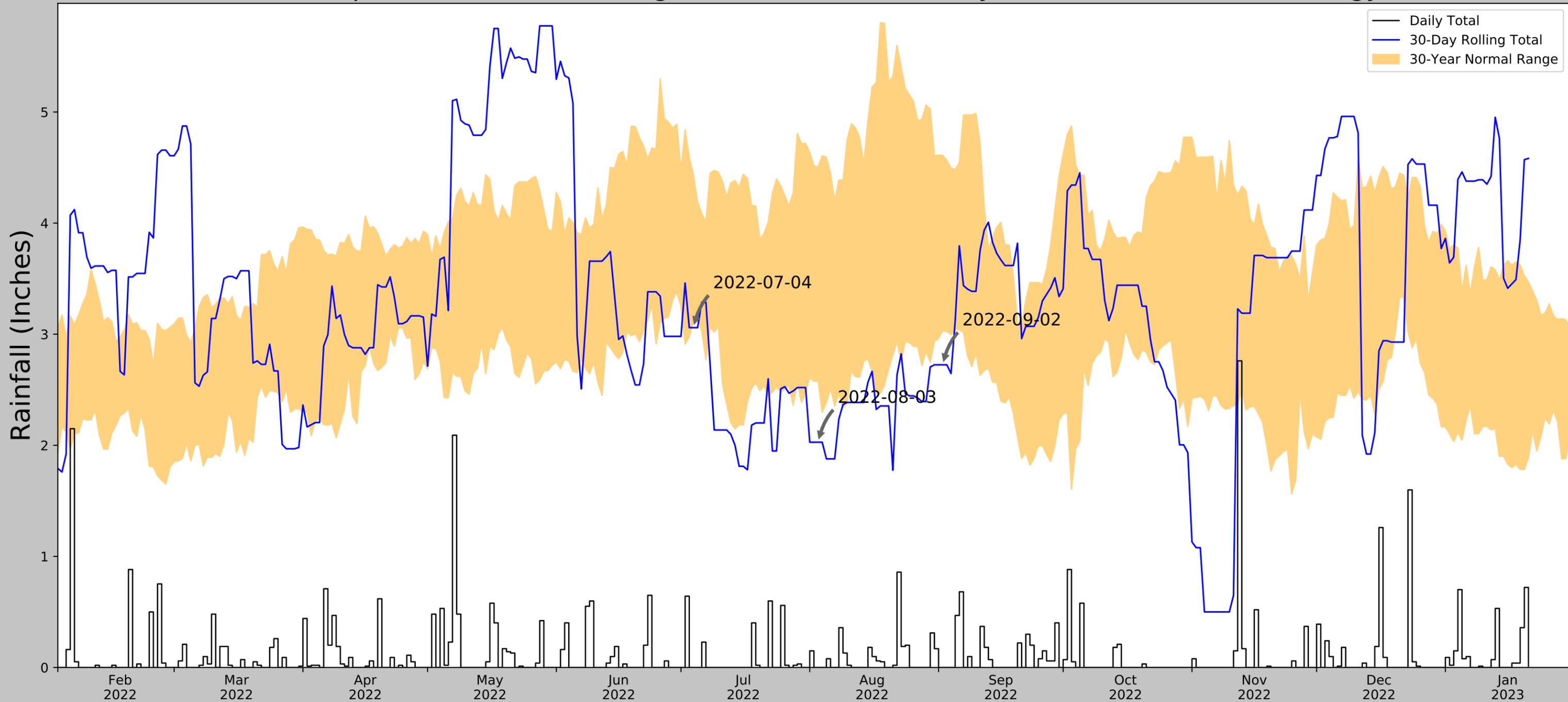
Coordinates	40.80633, -77.93380
Observation Date	2022-09-02
Elevation (ft)	1369.55
Drought Index (PDSI)	Incipient wetness
WebWIMP H$_2$O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-09-02	3.033858	4.611024	2.72441	Dry	1	3	3
2022-08-03	2.578347	4.504331	2.027559	Dry	1	2	2
2022-07-04	3.118504	4.435827	3.059055	Dry	1	1	1
Result							Drier than Normal - 6

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
STATE COLLEGE	40.7933, -77.8672	1169.948	3.598	199.602	2.337	11321	90
MILLHEIM	40.8847, -77.475	1120.079	21.452	49.869	10.723	32	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network

Coordinates	40.80152, -77.93746
Observation Date	2022-09-06
Elevation (ft)	1344.87
Drought Index (PDSI)	Incipient wetness
WebWIMP H$_2$O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-09-06	3.040945	4.546063	3.795276	Normal	2	3	6
2022-08-07	2.354724	4.198425	1.877953	Dry	1	2	2
2022-07-08	3.067717	4.448425	2.736221	Dry	1	1	1
Result							Drier than Normal - 9

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
STATE COLLEGE	40.7933, -77.8672	1169.948	3.719	174.922	2.324	11321	90
MILLHEIM	40.8847, -77.475	1120.079	21.452	49.869	10.723	32	0

WETLAND DETERMINATION

DATA FORMS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 1
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 3
Subregion (LRR or MLRA): LRR S   Lat: 40.802105   Long: -77.944708   Datum: WGS84
Soil Map Unit Name: Urban land - Hagerstown Complex (URB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes __✓__ No _____	**Is the Sampled Area**	
Hydric Soil Present? Yes __✓__ No _____	**within a Wetland?** Yes __✓__ No _____	
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

Wetland 1, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)	
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)	
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	
___ Iron Deposits (B5)		
___ Inundation Visible on Aerial Imagery (B7)		
✓ Water-Stained Leaves (B9)		
___ Aquatic Fauna (B13)		

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
✓ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No __✓__ Depth (inches): _____		
Water Table Present? Yes _____ No __✓__ Depth (inches): _____		
Saturation Present? Yes _____ No __✓__ Depth (inches): _____ (includes capillary fringe)	**Wetland Hydrology Present? Yes __✓__ No _____**	

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	50	Yes	FAC
2. Acer rubrum (red maple)	10	No	FAC
3.			
4.			
5.			
6.			

60 = Total Cover

50% of total cover: 30   20% of total cover: 12

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Acer rubrum (red maple)	10	Yes	FAC
2. Nyssa sylvatica (blackgum)	10	Yes	FAC
3. Fraxinus americana (white ash)	3	No	FACU
4. Quercus alba (white oak)	1	No	FACU
5. Gaylussacia baccata (black huckleberry)	1	No	FACU
6.			

25 = Total Cover

50% of total cover: 12.5   20% of total cover: 5

Herb Stratum (Plot size: 5')			
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: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	80	x 3 = 240
FACU species	5	x 4 = 20
UPL species	_____	x 5 = _____
Column Totals:	85 (A)	260 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10R 3/1	100					OL	detritus
1-7	10YR 2/1	100					ML	
7-11	10YR 4/1	97	7.5YR 4/4	3	C	PL	MCL	
11-14	n 4/0	90	5YR 4/6	10	C	M	MCL	

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

Hydric Soil Indicators:

Histosol (A1)	Dark Surface (S7)	2 cm Muck (A10) **(MLRA 147)**
Histic Epipedon (A2)	Polyvalue Below Surface (S8) **(MLRA 147, 148)**	Coast Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
Hydrogen Sulfide (A4)	✓ Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)
Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
2 cm Muck (A10) **(LRR N)**	Redox Dark Surface (F6)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	Other (Explain in Remarks)
Thick Dark Surface (A12)	Redox Depressions (F8)	
Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
Sandy Gleyed Matrix (S4)	Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
Stripped Matrix (S6)	Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 7   **Hydric Soil Present?   Yes** ✓ **No** _____

Remarks:

OL = organic loam
ML = silt loam
MCL = sitly clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 2
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 2
Subregion (LRR or MLRA): LRR S   Lat: 40.802818   Long: -77.944289   Datum: WGS84
Soil Map Unit Name: Urban land - Hagerstown complex (URB)   NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Wetland 2, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

✓ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
✓ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
✓ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 1*
Water Table Present? Yes _____ No ✓ Depth (inches): _____
Saturation Present? Yes ✓ No _____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Places in this wetland have as much as 1" of pooled water but there is no surface water at the soil test pit location.

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	70	Yes	FAC
2. Quercus alba (white oak)	10	No	FACU
3. Acer rubrum (red maple)	5	No	FAC
4.			
5.			
6.			

85 = Total Cover

50% of total cover: 42.5   20% of total cover: 17

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')			
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: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of 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	75	x 3 = 225
FACU species	10	x 4 = 40
UPL species	_____	x 5 = _____
Column Totals:	85 (A)	265 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL
Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					ML	
2-9	10YR 4/1	98	7.5YR 4/4	2	C	PL	MCL	
9-13	10YR 5/1	65	5YR 4/6	35	C	M	CL	

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

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 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 (F7)
- 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 Soils[3]:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 9

Hydric Soil Present?   Yes ✓   No _____

Remarks:

ML = silt loam
MCL = silty clay loam
CL = clay loam

US Army Corps of Engineers
Eastern Mountains and Piedmont – Version 2.0

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 3
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 3
Subregion (LRR or MLRA): LRR S   Lat: 40.801655   Long: -77.944805   Datum: WGS84
Soil Map Unit Name: Urban land - Hagerstown complex (URB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No_____	**Is the Sampled Area**	
Hydric Soil Present?	Yes ✓ No_____	**within a Wetland?**	**Yes** ✓ **No** _____
Wetland Hydrology Present?	Yes ✓ No _____		

Remarks:

Wetland 3, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
✓ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____	
Water Table Present?	Yes _____	No ✓	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____	**Wetland Hydrology Present? Yes** ✓ **No** _____

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

Remarks:

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

Sampling Point: 3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	50	Yes	FAC
2. Acer rubrum (red maple)	10	No	FAC
3. Quercus alba (white oak)	10	No	FACU
4. Populus grandidentata (big-tooth aspen)	5	No	FACU
5.			
6.			
	75	= Total Cover	

50% of total cover: 37.5   20% of total cover: 15

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Nyssa sylvatica (blackgum)	1	No	FAC
2. Populus grandidentata (big-tooth aspen)	1	No	FACU
3. Ilex verticillata (winterberry)	1	No	FACW
4. Cephalanthus occidentalis (buttonbush)	1	No	OBL
5.			
6.			
	4	= Total Cover	

50% of total cover: 2   20% of total cover: 0.8

Herb Stratum (Plot size: 5')			
1. Boehmeria cylindrica (false nettle)	10	Yes	FACW
2. Pilea pumila (clearweed)	5	Yes	FACW
3. Scutellaria lateriflora (mad dog skullcap)	3	No	FACW
4. Bidens frondosa (devil's pitchfork)	2	No	FACW
5. Persicaria pensylvanica (pinkweed)	2	No	FACW
6. Oxalis stricta (yellow wood sorrel)	1	No	FACU
7. Carex tribuloides (blunt broom sedge)	1	No	FACW
8. Erechtites hieraciifolius (pilewort)	1	No	FACU
9.			
10.			
11.			
	25	= Total Cover	

50% of total cover: 12.5   20% of total cover: 5

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____   20% of 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	1	x 1 = 1
FACW species	24	x 2 = 48
FAC species	61	x 3 = 183
FACU species	18	x 4 = 72
UPL species		x 5 =
Column Totals:	104 (A)	304 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5	10YR 2/1	100					OL	detritus
0.5-4	10YR 4/4	100					CL	
4-8	10YR 5/4	60	5YR 4/6	40	C	M	CL	
8-14	10YR 5/1	75	5YR 5/6	25	C	M	CL	

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

Hydric Soil Indicators:

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: clay loam

Depth (inches): 0.5   **Hydric Soil Present?   Yes** ✓ **No** _____

Remarks:

OL = organic loam
CL = clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 4
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 2
Subregion (LRR or MLRA): LRR S   Lat: 40.801769   Long: -77.944077   Datum: WGS84
Soil Map Unit Name: Urban land - Hagerstown complex (URB)   NWI classification: PUBHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area**
Hydric Soil Present?	Yes ✓ No _____	**within a Wetland?** Yes ✓ No _____
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Wetland 4, PEM/PUB, Depression, Bluejoint – Reed Canary-grass Marsh/Spatterdock – Water-lily Emergent Wetland

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

✓ Surface Water (A1)	✓ True Aquatic Plants (B14)
✓ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
✓ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
✓ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓ No ____	Depth (inches): >12*	
Water Table Present?	Yes ✓ No ____	Depth (inches): 5	
Saturation Present? (includes capillary fringe)	Yes ✓ No ____	Depth (inches): 0	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

* much of this wetland had pooled water greater than 12" deep during the investigation but there was no standing water at the soil test pit location.

VEGETATION (Five Strata) – Use scientific names of plants.　　　　Sampling Point: 4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum (red maple)	10	Yes	FAC
2. Nyssa sylvatica (blackgum)	10	Yes	FAC
3.			
4.			
5.			
6.			

20 = Total Cover

50% of total cover: 10　　20% of total cover: 4

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____　　20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____　　20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea (reed canarygrass)	90	Yes	FACW
2. Galium obtusum (blunt-leaf bedstraw)	1	No	OBL
3. Lemna minor (duckweed)	1	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

92 = Total Cover

50% of total cover: 46　　20% of total cover: 18.4

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____　　20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	90	x 2 =	180
FAC species	20	x 3 =	60
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	112 (A)		242 (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?　　Yes ✓　　No _____

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

SOIL Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					OL	
1-8	10YR 4/1	100					MCL	
8-15	10YR 6/2	90	7.5YR 5/8	25	C	M	CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F7)
- ___ 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 Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 1

Hydric Soil Present?   Yes __✓__   No _____

Remarks:

OL = organic loam
MCL = silty clay loam
CL = clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 5
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 8
Subregion (LRR or MLRA): LRR S   Lat: 40.800712   Long: -77.944917   Datum: WGS84
Soil Map Unit Name: Urban land - Hagerstown complex (URB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓ No _____		
Wetland Hydrology Present?	Yes ✓ No _____		

Remarks:

Wetland 5, PUB/PEM, Depression, Spatterdock – Water-lily Emergent Wetland/Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

✓ Surface Water (A1)
_ High Water Table (A2)
✓ Saturation (A3)
_ Water Marks (B1)
_ Sediment Deposits (B2)
_ Drift Deposits (B3)
_ Algal Mat or Crust (B4)
_ Iron Deposits (B5)
✓ Inundation Visible on Aerial Imagery (B7)
✓ Water-Stained Leaves (B9)
_ Aquatic Fauna (B13)

✓ True Aquatic Plants (B14)
_ Hydrogen Sulfide Odor (C1)
_ Oxidized Rhizospheres on Living Roots (C3)
_ Presence of Reduced Iron (C4)
_ Recent Iron Reduction in Tilled Soils (C6)
_ Thin Muck Surface (C7)
_ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
_ Surface Soil Cracks (B6)
_ Sparsely Vegetated Concave Surface (B8)
_ Drainage Patterns (B10)
_ Moss Trim Lines (B16)
_ Dry-Season Water Table (C2)
_ Crayfish Burrows (C8)
_ Saturation Visible on Aerial Imagery (C9)
_ Stunted or Stressed Plants (D1)
_ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
_ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?   Yes ✓ No _____ Depth (inches): >12*
Water Table Present?   Yes _____ No ✓ Depth (inches): _____
Saturation Present?   Yes ✓ No _____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

* much of this wetland had pooled water greater than 12" deep during the investigation but there was no standing water at the soil test pit location.

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10   20% of total cover: 4

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: ____   20% of total cover: ____

Shrub Stratum (Plot size: 15')			
1. Viburnum recognitum (arrow-wood)	2	No	FAC
2. Spiraea latifolia (meadow-sweet)	2	No	FACW
3.			
4.			
5.			
6.			
	4 = Total Cover		

50% of total cover: 2   20% of total cover: 0.8

Herb Stratum (Plot size: 5')			
1. Leersia oryzoides (rice cutgrass)	40	Yes	OBL
2. Eupatorium perfoliatum (boneset)	20	Yes	FACW
3. Phalaris arundinacea (reed canarygrass)	10	No	FACW
4. Lycopus virginicus (Virginia water-horehound)	5	No	OBL
5. Persicaria punctata (dotted smartweed)	3	No	OBL
6. Nuphar lutea (a.k.a. N. advena - yellow water lily)	2	No	OBL
7. Ludwigia palustris (marsh seedbox)	2	No	OBL
8. Lemna minor (duckweed)	1	No	OBL
9. Impatiens capensis (jewelweed)	1	No	FACW
10. Persicaria maculosa (spotted lady's thumb)	1	No	FACW
11.			
	85 = Total Cover		

50% of total cover: 42.5   20% of total cover: 17

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: ____   20% of 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	53	x 1 = 53
FACW species	34	x 2 = 68
FAC species	22	x 3 = 66
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	109 (A)	187 (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No ____

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

SOIL   Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/1	100					OL	
1-7	10YR 5/1	60	7.5YR 5/8	40	C	M	MCL	
7-13	10YR 6/1	60	7.5YR 5/8	40	C	M	CL	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 1   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

OL = organic loam
MCL = silty clay loam
CL = clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 6
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.801623   Long: -77.941939   Datum: WGS84
Soil Map Unit Name: Water (W)   NWI classification: PUBHx

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

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓ No _____		
Wetland Hydrology Present?	Yes ✓ No _____		

Remarks:

Wetland 6, PEM/PUB/PSS/PFO, Mixed Forb-Graminoid Wet Meadow/Spatterdock – Water-lily Emergent Wetland/Circumneutral Mixed Shrub Wetland/Red Maple-Blackgum Palustrine Forest

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

		Secondary Indicators (minimum of two required)
✓ Surface Water (A1)	✓ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
✓ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
✓ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
✓ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 6*
Water Table Present? Yes ✓ No _____ Depth (inches): 12
Saturation Present? Yes ✓ No _____ Depth (inches): 7
(includes capillary fringe)   **Wetland Hydrology Present? Yes** ✓ **No** _____

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

Remarks:

* large portions of this wetland are shallowly inundated with as much as 6" of water but there is no water at the soil test pit location.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea (reed canarygrass)	95	Yes	FACW
2. Nuphar lutea (a.k.a. N. advena - yellow water lily)	3	No	OBL
3. Eupatorium perfoliatum (boneset)	1	No	FACW
4. Galium obtusum (blunt-leaf bedstraw)	1	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			

100 = Total Cover

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	14	x 1 = 14
FACW species	96	x 2 = 192
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	110 (A)	206 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL   Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/1	97	7.5YR 4/6	3	C	PL	ML	
7-15	10YR 6/2	90	7.5YR 5/6	10	C	M	SML	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____   **Hydric Soil Present?   Yes ✓   No _____**

Remarks:

ML = silt loam
SML = sandy silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 7
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.803079   Long: -77.942416   Datum: WGS84
Soil Map Unit Name: Urban land - Hagerstown complex (URB)   NWI classification: UPL (PSS1E w/in 20')
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No_____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No_____	
Wetland Hydrology Present?	Yes ✓ No_____	

Remarks:

Wetland 7, PFO/PEM, Depression, Red Maple - Blackgum Palustrine Forest/Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	✓ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)	✓ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
✓ Water-Stained Leaves (B9)		✓ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No ✓ Depth (inches): _____	
Water Table Present?	Yes ___ No ✓ Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ___ No ✓ Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

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

Sampling Point: 7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum (red maple)	50	Yes	FAC
2. Nyssa sylvatica (blackgum)	20	Yes	FAC
3. Quercus rubra (red oak)	10	No	FACU
4.			
5.			
6.			

80 = Total Cover

50% of total cover: 40   20% of total cover: 16

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Elaeagnus umbellata (autumn olive)	25	Yes	UPL
2. Prunus serotina (black cherry)	1	No	FACU
3. Acer rubrum (red maple)	1	No	FAC
4. Lonicera morrowii (Morrow's honeysuckle)	1	No	FACU
5. Carya glabra (pignut hickory)	1	No	FACU
6. Fraxinus americana (white ash)	1	No	FACU

30 = Total Cover

50% of total cover: 15   20% of total cover: 6

Herb Stratum (Plot size: 5')			
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: 30')			
1. Celastrus orbiculatus (Asian bittersweet)	1	No	FACU
2.			
3.			
4.			
5.			

1 = Total Cover

50% of total cover: 0.5   20% of total cover: 0.2

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	71	x 3 = 213
FACU species	15	x 4 = 60
UPL species	25	x 5 = 125
Column Totals:	111 (A)	398 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)
The southern quarter of this wetland is PEM dominated. This area is borderline hydrophyte dominated because of the invasive shrubs.

US Army Corps of Engineers

Eastern Mountains and Piedmont – Version 2.0

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1.5	10R 3/1	100					OL	
1.5-6	10YR 5/3	60	7.5YR 5/8	40	C	M	MCL	
6-12	10YR 6/2	70	7.5YR 5/6	30	C	M	MCL	

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

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 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 (F7)
___ 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 Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 1.5

Hydric Soil Present?   Yes __✓__   No _____

Remarks:

OL = organic loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022

Applicant/Owner: Patton Township   State: PA   Sampling Point: 8

Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township

Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1

Subregion (LRR or MLRA): LRR S   Lat: 40.803362   Long: -77.942100   Datum: WGS84

Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL (PSS1E w/in 20')

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____		
Wetland Hydrology Present?	Yes ✓ No _____		

Remarks:

Wetland 8, PSS, Depression, Buttonbush Wetland

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	✓ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		✓ FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? Yes _____ No ✓ Depth (inches): _____
(includes capillary fringe)   **Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

This wetland holds water for much of the year.

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

Sampling Point: 8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	60	Yes	OBL
2.			
3.			
4.			
5.			
6.			
60 = Total Cover			

50% of total cover: 30 20% of total cover: 12

Herb Stratum (Plot size: 5')			
1. Glyceria grandis (American mannagrass)	50	Yes	OBL
2. Bidens frondosa (devil's pitchfork)	2	No	FACW
3. Ludwigia palustris (marsh seedbox)	1	No	OBL
4. Pilea pumila (clearweed)	1	No	FACW
5. Persicaria pensylvanica (pinkweed)	1	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
55 = Total Cover			

50% of total cover: 27.5 20% of total cover: 11

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
_____ = Total Cover			

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 110 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	111	x 1 = 111
FACW species	4	x 2 = 8
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	115 (A)	119 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL   Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	98	7.5YR 4/4	2	C	PL	OL	muck

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

Hydric Soil Indicators:

		Indicators for Problematic Hydric Soils[3]:
✓ Histosol (A1)	__ Dark Surface (S7)	__ 2 cm Muck (A10) **(MLRA 147)**
__ Histic Epipedon (A2)	__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	__ Coast Prairie Redox (A16)
__ Black Histic (A3)	__ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
__ Hydrogen Sulfide (A4)	__ Loamy Gleyed Matrix (F2)	__ Piedmont Floodplain Soils (F19)
__ Stratified Layers (A5)	__ Depleted Matrix (F3)	**(MLRA 136, 147)**
__ 2 cm Muck (A10) **(LRR N)**	__ Redox Dark Surface (F6)	__ Very Shallow Dark Surface (TF12)
__ Depleted Below Dark Surface (A11)	__ Depleted Dark Surface (F7)	__ Other (Explain in Remarks)
__ Thick Dark Surface (A12)	__ Redox Depressions (F8)	
__ Sandy Mucky Mineral (S1) **(LRR N,**	__ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
__ Sandy Gleyed Matrix (S4)	__ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
__ Sandy Redox (S5)	__ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
__ Stripped Matrix (S6)	__ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____   **Hydric Soil Present?   Yes** ✓ **   No** _____

Remarks:

OL = organic loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan City/County: Centre Sampling Date: 9/1/2022
Applicant/Owner: Patton Township State: PA Sampling Point: 9
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR or MLRA): LRR S Lat: 40.803618 Long: -77.943060 Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB) NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Wetland 9, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

_ Surface Water (A1)	_ True Aquatic Plants (B14)
_ High Water Table (A2)	_ Hydrogen Sulfide Odor (C1)
_ Saturation (A3)	_ Oxidized Rhizospheres on Living Roots (C3)
_ Water Marks (B1)	_ Presence of Reduced Iron (C4)
_ Sediment Deposits (B2)	_ Recent Iron Reduction in Tilled Soils (C6)
_ Drift Deposits (B3)	_ Thin Muck Surface (C7)
_ Algal Mat or Crust (B4)	_ Other (Explain in Remarks)
_ Iron Deposits (B5)	
_ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
_ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)
- _ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- _ Drainage Patterns (B10)
- _ Moss Trim Lines (B16)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows (C8)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Stunted or Stressed Plants (D1)
- _ Geomorphic Position (D2)
- _ Shallow Aquitard (D3)
- _ Microtopographic Relief (D4)
- _ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No ✓	Depth (inches): _____	
Water Table Present?	Yes _____ No ✓	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No ✓	Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

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

Sampling Point: 9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum (red maple)	40	Yes	FAC
2. Quercus alba (white oak)	10	No	FACU
3. Nyssa sylvatica (blackgum)	5	No	FAC
4.			
5.			
6.			

55 = Total Cover

50% of total cover: 27.5   20% of total cover: 11

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Ilex verticillata (winterberry)	35	Yes	FACW
2. Quercus alba (white oak)	10	No	FACU
3. Quercus coccinea (scarlet oak)	5	No	UPL
4. Fraxinus americana (white ash)	3	No	FACU
5. Vaccinium corymbosum (highbush blueberry)	2	No	FACW
6.			

55 = Total Cover

50% of total cover: 27.5   20% of total cover: 11

Herb Stratum (Plot size: 5')			
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: 30')			
1. Smilax rotundifolia (greenbrier)	1	No	FAC
2.			
3.			
4.			
5.			

1 = Total Cover

50% of total cover: 0.5   20% of total cover: 0.2

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	37	x 2 = 74
FAC species	46	x 3 = 138
FACU species	23	x 4 = 92
UPL species	5	x 5 = 25
Column Totals:	111 (A)	329 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					OL	
1-3	10YR 4/2	100					ML	
3-12	10YR 5/1	70	7.5YR 4/6	30	C	M	ML	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)   ___ Dark Surface (S7)   ___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)   ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**   ___ Coast Prairie Redox (A16)
___ Black Histic (A3)   ___ Thin Dark Surface (S9) **(MLRA 147, 148)**   **(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)   ___ Loamy Gleyed Matrix (F2)   ___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)   ✓ Depleted Matrix (F3)   **(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**   ___ Redox Dark Surface (F6)   ___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)   ___ Depleted Dark Surface (F7)   ___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)   ___ Redox Depressions (F8)
___ Sandy Mucky Mineral (S1) **(LRR N,**   ___ Iron-Manganese Masses (F12) **(LRR N,**
    MLRA 147, 148)   **MLRA 136)**
___ Sandy Gleyed Matrix (S4)   ___ Umbric Surface (F13) **(MLRA 136, 122)**   [3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)   ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**   wetland hydrology must be present,
___ Stripped Matrix (S6)   ___ Red Parent Material (F21) **(MLRA 127, 147)**   unless disturbed or problematic.

Restrictive Layer (if observed):

  Type: none _____

  Depth (inches): _____   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

OL = organic loam
ML = silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 10
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.803808   Long: -77.942550   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** _____
Hydric Soil Present? Yes ✓ No _____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 10, PSS, Depression, Circumneutral Mixed Shrub Wetland

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No ✓ Depth (inches): _____	
Water Table Present?	Yes ___ No ✓ Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ___ No ✓ Depth (inches): _____	**Wetland Hydrology Present? Yes** ✓ **No** _____

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

Remarks:

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

Sampling Point: 10

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	___ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	___ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	20	Yes	OBL
2. Euonymus alatus (winged spindletree)	15	Yes	UPL
3.			
4.			
5.			
6.			
	35 = Total Cover		

50% of total cover: 17.5 20% of total cover: 7

Herb Stratum (Plot size: 5')			
1. Microstegium vimineum (Japanese stiltgrass)	10	Yes	FAC
2. Scirpus cyperinus (woolgrass)	3	Yes	FACW
3. Dichanthelium clandestinum (deertongue grass)	1	No	FAC
4. Agrostis scabra (rough bent grass)	1	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3

Woody Vine Stratum (Plot size: 30')			
1. Rubus sp. (dewberry)	2	No	n/a
2.			
3.			
4.			
5.			
	2 = Total Cover		

50% of total cover: 1 20% of total cover: 0.4

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	20	x 1 = 20
FACW species	4	x 2 = 8
FAC species	11	x 3 = 33
FACU species		x 4 =
UPL species	15	x 5 = 75
Column Totals:	50 (A)	136 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					SL	
2-11	10YR 6/2	75	7.5YR 5/6	25	C	M	SL	

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

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 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 (F7)
___ 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 Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____

Hydric Soil Present?   Yes __✓__   No _____

Remarks:

SL = sandy loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 11
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.805091   Long: -77.942288   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes __✓__ No_____	**Is the Sampled Area within a Wetland?**	**Yes __✓__ No _____**
Hydric Soil Present?	Yes __✓__ No_____		
Wetland Hydrology Present?	Yes __✓__ No_____		

Remarks:

Wetland 11, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
✓ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____ No ✓ Depth (inches): ____	
Water Table Present?	Yes ____ No ✓ Depth (inches): ____	
Saturation Present? (includes capillary fringe)	Yes ____ No ✓ Depth (inches): ____	**Wetland Hydrology Present? Yes __✓__ No _____**

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 11

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum (red maple)	60	Yes	FAC
2. Nyssa sylvatica (blackgum)	15	No	FAC
3. Pinus strobus (white pine)	5	No	FACU
4.			
5.			
6.			

80 = Total Cover

50% of total cover: 40   20% of total cover: 16

Sapling Stratum (Plot size: w/ shrubs)

1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')

1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')

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: 30')

1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of 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 75	x 3 = 225
FACU species 5	x 4 = 20
UPL species _____	x 5 = _____
Column Totals: 80 (A)	245 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

US Army Corps of Engineers   Eastern Mountains and Piedmont – Version 2.0

SOIL   Sampling Point: 11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/3	100					OL	
1-4	10YR 4/1	98	7.5YR 4/4	2	C	PL	ML	
4-12	10YR 5/2	85	7.5YR 4/6	15	C	M	ML	

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

Hydric Soil Indicators:

		Indicators for Problematic Hydric Soils[3]:
___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____   **Hydric Soil Present?   Yes ✓   No _____**

Remarks:

OL = organic loam
ML = silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022

Applicant/Owner: Patton Township   State: PA   Sampling Point: 12

Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township

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

Subregion (LRR or MLRA): LRR S   Lat: 40.805393   Long: -77.941417   Datum: WGS84

Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL (PSS1E w/in 20')

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

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

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

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

Hydrophytic Vegetation Present? Yes __✓__ No _____	**Is the Sampled Area within a Wetland?**	**Yes** __✓__ **No** _____
Hydric Soil Present? Yes __✓__ No _____		
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

W12, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

✓ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
✓ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
✓ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes __✓__ No _____ Depth (inches): >6*

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

Saturation Present? Yes __✓__ No _____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes __✓__ No _____

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

Remarks:

There is at least 6" of pooled water in the center of this wetland but no water is on the surface at the location of the soil test pit.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	30	Yes	FAC
2. Acer rubrum (red maple)	20	Yes	FAC
3.			
4.			
5.			
6.			

50 = Total Cover

50% of total cover: 25   20% of total cover: 10

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Lycopus virginicus (Virginia water-horehound)	1	No	OBL
2. Oxalis stricta (yellow wood sorrel)	1	No	FACU
3. Erechtites hieraciifolius (pilewort)	1	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

3 = Total Cover

50% of total cover: 1.5   20% of total cover: 0.6

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	1	x 1 = 1
FACW species		x 2 =
FAC species	50	x 3 = 150
FACU species	2	x 4 = 8
UPL species		x 5 =
Column Totals:	53 (A)	159 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	97	7.5YR 4/6	3	C	PL	ML	
8-14	10YR 6/1	85	7.5YR 5/6	15	C	M	MCL	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 8   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

ML = silt loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 13
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 1
Subregion (LRR or MLRA): LRR S   Lat: 40.805434   Long: -77.940537   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL (PSS1E w/in 50')
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area**	
Hydric Soil Present?	Yes ✓ No _____	**within a Wetland?**	**Yes** ✓ **No** _____
Wetland Hydrology Present?	Yes ✓ No _____		

Remarks:

Wetland 13, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		✓ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____ No ✓ Depth (inches): _____	
Water Table Present?	Yes ____ No ✓ Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ____ No ✓ Depth (inches): _____	**Wetland Hydrology Present? Yes** ✓ **No** _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 13

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	25	Yes	FAC
2. Acer rubrum (red maple)	15	Yes	FAC
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Bidens frondosa (devil's pitchfork)	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

100 = Total Cover

50% of total cover: 50   20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of 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	100	x 2 = 200
FAC species	40	x 3 = 120
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	140 (A)	320 (B)

Prevalence Index = B/A = 2.3

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

This wetland is sparsely vegetated and/or shallowly inundated until late summer.

SOIL   Sampling Point: 13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	98	7.5YR 4/6	2	C	PL	MCL	
5-12	N 5/0	90	7.5YR 5/6	10	C	M	CL	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)   ___ Dark Surface (S7)   ___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)   ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**   ___ Coast Prairie Redox (A16)
___ Black Histic (A3)   ___ Thin Dark Surface (S9) **(MLRA 147, 148)**   **(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)   ✓ Loamy Gleyed Matrix (F2)   ___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)   ✓ Depleted Matrix (F3)   **(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**   ___ Redox Dark Surface (F6)   ___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)   ___ Depleted Dark Surface (F7)   ___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)   ___ Redox Depressions (F8)
___ Sandy Mucky Mineral (S1) **(LRR N,**   ___ Iron-Manganese Masses (F12) **(LRR N,**
     MLRA 147, 148)   **MLRA 136)**
___ Sandy Gleyed Matrix (S4)   ___ Umbric Surface (F13) **(MLRA 136, 122)**   [3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)   ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**   wetland hydrology must be present,
___ Stripped Matrix (S6)   ___ Red Parent Material (F21) **(MLRA 127, 147)**   unless disturbed or problematic.

Restrictive Layer (if observed):

  Type: silty clay loam

  Depth (inches): 0   **Hydric Soil Present?   Yes** ✓ **No** _____

Remarks:

MCL = silty clay loam
CL = clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 14
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 2
Subregion (LRR or MLRA): LRR S   Lat: 40.805756   Long: -77.940878   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No	**Is the Sampled Area within a Wetland?**	Yes ✓ No
Hydric Soil Present?	Yes ✓ No		
Wetland Hydrology Present?	Yes ✓ No		

Remarks:

Wetland 14, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
✓ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No ✓	Depth (inches): _____	
Water Table Present?	Yes ___ No ✓	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ___ No ✓	Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 14

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	70	Yes	FAC
2. Acer rubrum (red maple)	20	Yes	FAC
3.			
4.			
5.			
6.			

90 = Total Cover

50% of total cover: 45   20% of total cover: 18

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Nyssa sylvatica (blackgum)	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			

5 = Total Cover

50% of total cover: 2.5   20% of total cover: 10

Herb Stratum (Plot size: 5')			
1. Bidens frondosa (devil's pitchfork)	3	No	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

3 = Total Cover

50% of total cover: 1.5   20% of total cover: 0.6

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of 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	3	x 2 = 6
FAC species	95	x 3 = 285
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	98 (A)	291 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					OL	
1-5	10YR 4/1	95	7.5YR 4/6	5	C	PL	MCL	
5-12	N 5/0	75	7.5YR 5/6	25	C	M	CL	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

__ Histosol (A1)	__ Dark Surface (S7)	__ 2 cm Muck (A10) **(MLRA 147)**
__ Histic Epipedon (A2)	__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	__ Coast Prairie Redox (A16)
__ Black Histic (A3)	__ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
__ Hydrogen Sulfide (A4)	✓ Loamy Gleyed Matrix (F2)	__ Piedmont Floodplain Soils (F19)
__ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
__ 2 cm Muck (A10) **(LRR N)**	__ Redox Dark Surface (F6)	__ Very Shallow Dark Surface (TF12)
__ Depleted Below Dark Surface (A11)	__ Depleted Dark Surface (F7)	__ Other (Explain in Remarks)
__ Thick Dark Surface (A12)	__ Redox Depressions (F8)	
__ Sandy Mucky Mineral (S1) **(LRR N,**	__ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
__ Sandy Gleyed Matrix (S4)	__ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
__ Sandy Redox (S5)	__ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
__ Stripped Matrix (S6)	__ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 1

Hydric Soil Present?   Yes __✓__   No _____

Remarks:

OL = organic loam
MCL = silty clay loam
CL = clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 15
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 3
Subregion (LRR or MLRA): LRR S   Lat: 40.806076   Long: -77.940285   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes __✓__ No _____	**Is the Sampled Area within a Wetland?**	**Yes __✓__ No _____**
Hydric Soil Present? Yes __✓__ No _____		
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

Wetland 15, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
✓ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____	
Water Table Present?	Yes _____	No ✓	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____	**Wetland Hydrology Present? Yes __✓__ No _____**

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 15

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	65	Yes	FAC
2. Acer rubrum (red maple)	20	Yes	FAC
3. Pinus strobus (white pine)	5	No	FACU
4.			
5.			
6.			

90 = Total Cover

50% of total cover: 45   20% of total cover: 18

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')			
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: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	85	x 3 = 255
FACU species	5	x 4 = 20
UPL species	_____	x 5 = _____
Column Totals:	90 (A)	275 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 15

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					OL	
1-6	10YR 4/1	97	7.5YR 4/4	3	C	PL	ML	
6-12	10YR 5/1	85	7.5YR 4/6	15	C	M	MCL	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 6   **Hydric Soil Present?   Yes ✓   No _____**

Remarks:

OL = organic loam
ML = silt loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 16
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 3
Subregion (LRR or MLRA): LRR S   Lat: 40.806559   Long: -77.939896   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrC)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** _____
Hydric Soil Present? Yes ✓ No _____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 16, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1)
_____ Sediment Deposits (B2)
_____ Drift Deposits (B3)
_____ Algal Mat or Crust (B4)
_____ Iron Deposits (B5)
_____ Inundation Visible on Aerial Imagery (B7)
✓ Water-Stained Leaves (B9)
_____ Aquatic Fauna (B13)

_____ True Aquatic Plants (B14)
_____ Hydrogen Sulfide Odor (C1)
_____ Oxidized Rhizospheres on Living Roots (C3)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Tilled Soils (C6)
_____ Thin Muck Surface (C7)
_____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

_____ Surface Soil Cracks (B6)
_____ Sparsely Vegetated Concave Surface (B8)
_____ Drainage Patterns (B10)
_____ Moss Trim Lines (B16)
_____ Dry-Season Water Table (C2)
_____ Crayfish Burrows (C8)
✓ Saturation Visible on Aerial Imagery (C9)
_____ Stunted or Stressed Plants (D1)
_____ Geomorphic Position (D2)
_____ Shallow Aquitard (D3)
_____ Microtopographic Relief (D4)
_____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____
Water Table Present? Yes _____ No ✓ Depth (inches): _____
Saturation Present? Yes _____ No ✓ Depth (inches): _____
(includes capillary fringe)   **Wetland Hydrology Present? Yes _____ No ✓**

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

Remarks:

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

Sampling Point: 16

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum (red maple)	50	Yes	FAC
2. Quercus rubra (red oak)	10	No	FACU
3.			
4.			
5.			
6.			
	60 = Total Cover		

50% of total cover: 30   20% of total cover: 12

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Quercus rubra (red oak)	5	Yes	FAC
2. Nyssa sylvatica (blackgum)	5	Yes	FAC
3. Quercus imbricaria (shingle oak)	2	No	FAC
4. Carya glabra (pignut hickory)	2	No	FACU
5. Ilex verticillata (winterberry)	1	No	FACW
6.			
	15 = Total Cover		

50% of total cover: 7.5   20% of total cover: 3

Herb Stratum (Plot size: 5')			
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: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____   20% of 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	1	x 2 = 2
FAC species	62	x 3 = 186
FACU species	12	x 4 = 24
UPL species	_____	x 5 = _____
Column Totals:	75 (A)	212 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10R 3/2	100					OL	
1-3	10YR 4/1	100					ML	
3-10	10YR 5/2	70	7.5YR 5/8	30	C	M	SML	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)   ___ Dark Surface (S7)   ___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)   ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**   ___ Coast Prairie Redox (A16)
___ Black Histic (A3)   ___ Thin Dark Surface (S9) **(MLRA 147, 148)**   **(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)   ___ Loamy Gleyed Matrix (F2)   ___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)   ✓ Depleted Matrix (F3)   **(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**   ___ Redox Dark Surface (F6)   ___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)   ___ Depleted Dark Surface (F7)   ___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)   ___ Redox Depressions (F8)
___ Sandy Mucky Mineral (S1) **(LRR N,** ___ Iron-Manganese Masses (F12) **(LRR N,**
     MLRA 147, 148)   **MLRA 136)**
___ Sandy Gleyed Matrix (S4)   ___ Umbric Surface (F13) **(MLRA 136, 122)**   [3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)   ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**   wetland hydrology must be present,
___ Stripped Matrix (S6)   ___ Red Parent Material (F21) **(MLRA 127, 147)**   unless disturbed or problematic.

Restrictive Layer (if observed):

  Type: none _____

  Depth (inches): _____   **Hydric Soil Present?   Yes ✓   No _____**

Remarks:

OL = organic loam
ML = silt loam
SML = sandy silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 17
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): >1
Subregion (LRR or MLRA): LRR S   Lat: 40.806911   Long: -77.939716   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrC)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes __✓__ No _____	**Is the Sampled Area within a Wetland?**	**Yes __✓__ No _____**
Hydric Soil Present? Yes __✓__ No _____		
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

Wetland 17, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
✓ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?   Yes _____ No __✓__ Depth (inches): _____
Water Table Present?   Yes _____ No __✓__ Depth (inches): _____
Saturation Present?   Yes _____ No __✓__ Depth (inches): _____   **Wetland Hydrology Present? Yes __✓__ No _____**
(includes capillary fringe)

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 17

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	40	Yes	FAC
2. Acer rubrum (red maple)	40	Yes	FAC
3. Quercus alba (white oak)	10	No	FACU
4.			
5.			
6.			

90 = Total Cover

50% of total cover: 45   20% of total cover: 18

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Quercus rubra (red oak)	3	No	FACU
2.			
3.			
4.			
5.			
6.			

3 = Total Cover

50% of total cover: 1.5   20% of total cover: 0.6

Herb Stratum (Plot size: 5')			
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: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	80	x 3 = 240
FACU species	13	x 4 = 52
UPL species	_____	x 5 = _____
Column Totals:	93 (A)	292 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 17

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					OL	
1-4	10YR 4/1	100					SL	
4-11	10YR 5/2	70	7.5YR 5/8	30	C	M	SML	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

__ Histosol (A1)	__ Dark Surface (S7)	__ 2 cm Muck (A10) **(MLRA 147)**
__ Histic Epipedon (A2)	__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	__ Coast Prairie Redox (A16)
__ Black Histic (A3)	__ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
__ Hydrogen Sulfide (A4)	__ Loamy Gleyed Matrix (F2)	__ Piedmont Floodplain Soils (F19)
__ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
__ 2 cm Muck (A10) **(LRR N)**	__ Redox Dark Surface (F6)	__ Very Shallow Dark Surface (TF12)
__ Depleted Below Dark Surface (A11)	__ Depleted Dark Surface (F7)	__ Other (Explain in Remarks)
__ Thick Dark Surface (A12)	__ Redox Depressions (F8)	
__ Sandy Mucky Mineral (S1) **(LRR N,**	__ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
__ Sandy Gleyed Matrix (S4)	__ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
__ Sandy Redox (S5)	__ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
__ Stripped Matrix (S6)	__ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

OL = organic loam
SL = sandy loam
SML = sandy silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 18
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 1
Subregion (LRR or MLRA): LRR S   Lat: 40.806558   Long: -77.940804   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrC)   NWI classification: UPL (PSS1E w/in 25')

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes __✓__ No_____	**Is the Sampled Area within a Wetland?**	Yes __✓__ No _____
Hydric Soil Present?	Yes __✓__ No_____		
Wetland Hydrology Present?	Yes __✓__ No_____		

Remarks:

Wetland 18, PSS, Depression, Buttonbush Wetland

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
✓ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
___ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
✓ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?   Yes _____ No __✓__ Depth (inches): _____
Water Table Present?   Yes _____ No __✓__ Depth (inches): _____
Saturation Present?   Yes __✓__ No _____ Depth (inches): 0   **Wetland Hydrology Present?   Yes __✓__ No _____**
(includes capillary fringe)

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 18

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5   20% of total cover: 2

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	50	Yes	OBL
2.			
3.			
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25   20% of total cover: 10

Herb Stratum (Plot size: 5')			
1. Torreyochloa pallida (pale meadow grass)	10	Yes	OBL
2. Bidens connata (three-lobed beggarticks)	3	Yes	FACW
3. Bidens frondosa (devil's pitchfork)	1	No	FACW
4. Lemna minor (duckweed)	1	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		

50% of total cover: 7.5   20% of total cover: 3

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC: 4   (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	61	x 1 = 61
FACW species	4	x 2 = 8
FAC species	10	x 3 = 30
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	75 (A)	99 (B)

Prevalence Index = B/A = 1.3

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No ✓

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR2/1	97	7.5YR 4/6	3	C	PL	OL	muck

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

Hydric Soil Indicators:

✓ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	___ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____

Hydric Soil Present?　　Yes ✓　　No _____

Remarks:

OL = organic loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/1/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 19
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 1
Subregion (LRR or MLRA): LRR S   Lat: 40.806461   Long: -77.938171   Datum: WGS84
Soil Map Unit Name: Leetonia sand (LvB)   NWI classification: UPL (PSS1E w/in 20')
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes __✓__ No_____	**Is the Sampled Area within a Wetland?**	**Yes** __✓__ **No** _____
Hydric Soil Present? Yes __✓__ No_____		
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

Wetland 19, PFO, Depression, Red Maple - Blackgum Palustrine Forest

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
✓ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____	
Water Table Present?	Yes _____	No ✓	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____	**Wetland Hydrology Present? Yes __✓__ No _____**

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: <u>19</u>

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	50	Yes	FAC
2. Acer rubrum (red maple)	15	Yes	FAC
3. Pinus sylvestris (Scot's pine)	5	No	UPL
4.			
5.			
6.			

70 = Total Cover

50% of total cover: <u>35</u>   20% of total cover: <u>14</u>

Sapling Stratum (Plot size: <u>w/ shrubs</u>)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: <u>15'</u>)			
1. Nyssa sylvatica (blackgum)	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			

5 = Total Cover

50% of total cover: <u>2.5</u>   20% of total cover: <u>1</u>

Herb Stratum (Plot size: <u>5'</u>)			
1. Bidens frondosa (devil's pitchfork)	75	Yes	FACW
2. Leersia virginica (white grass)	2	No	FACW
3. Echinochloa muricata (rough barnyard grass)	2	No	FACW
4. Acalypha virginica (three-seeded mercury)	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			

80 = Total Cover

50% of total cover: <u>40</u>   20% of total cover: <u>16</u>

Woody Vine Stratum (Plot size: <u>30'</u>)			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u>   (A)

Total Number of Dominant Species Across All Strata: <u>4</u>   (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	79	x 2 =	158
FAC species	70	x 3 =	210
FACU species	1	x 4 =	4
UPL species	5	x 5 =	25
Column Totals:	155 (A)	397	(B)

Prevalence Index = B/A = <u>2.6</u>

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes <u>✓</u>   No _____

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					OL	
1-3	10YR 4/1	100					ML	
3-12	N 5/0	65	7.5YR 5/8	35	C	M	MCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F7)
- ___ 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 Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 5

Hydric Soil Present?   Yes __✓__   No _____

Remarks:

OL = organic loam
ML = silt loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 20
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 2
Subregion (LRR or MLRA): LRR S   Lat: 40.808258   Long: -77.936317   Datum: WGS84
Soil Map Unit Name: Leetonia sand (LvB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes __✓__ No _____	**Is the Sampled Area within a Wetland?**	**Yes __✓__ No _____**
Hydric Soil Present? Yes __✓__ No _____		
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

Wetland 20, PEM (was PFO but trees dying), Depression, Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

Primary Indicators		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	✓ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
✓ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
✓ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No ✓	Depth (inches): ___		
Water Table Present?	Yes ___ No ✓	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes ___ No ✓	Depth (inches): ___	**Wetland Hydrology Present? Yes __✓__ No _____**	

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

Remarks:

This wetland is shallowly inundated much of the growing season most years.

VEGETATION (Five Strata) – Use scientific names of plants.　　　　Sampling Point: 20

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum (red maple)	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			

10 = Total Cover

50% of total cover: 5　　20% of total cover: 2

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____　　20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____　　20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Persicaria pensylvanica (pinkweed)	30	Yes	FACW
2. Persicaria punctata (dotted smartweed)	20	Yes	OBL
3. Echinochloa muricata (rough barnyard grass)	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

55 = Total Cover

50% of total cover: 27.5　　20% of total cover: 11

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____　　20% of 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	20	x 1 = 20
FACW species	35	x 2 = 70
FAC species	10	x 3 = 30
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	65 (A)	120 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?　　Yes ✓　　No _____

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

SOIL   Sampling Point: 20

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					OL	
2-8	N 5/0	95	7.5YR 5/6	5	C	PL&M	MCL	
8-13	N 7/0	90	7.5YR 5/8	10	C	M	CL	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	✓ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	___ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 2   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

OL = organic loam
MCL = silty clay loam
CL = clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 21
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.808333   Long: -77.935537   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL (PSS1E w/in 50')
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No _____**
Hydric Soil Present? Yes ✓ No _____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

W21, PSS, Depression, Buttonbush Wetland

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
✓ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?   Yes _____ No ✓ Depth (inches): _____
Water Table Present?   Yes _____ No ✓ Depth (inches): _____
Saturation Present?   Yes _____ No ✓ Depth (inches): _____   **Wetland Hydrology Present? Yes ✓ No _____**
(includes capillary fringe)

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

Remarks:

This wetland is shallowly inundated much of the growing season most years.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	20	Yes	FAC
2. Acer rubrum (red maple)	20	Yes	FAC
3.			
4.			
5.			
6.			
	40 = Total Cover		

50% of total cover: 20   20% of total cover: 8

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	75	Yes	OBL
2. Ilex verticillata (winterberry)	10	No	FACW
3.			
4.			
5.			
6.			
	85 = Total Cover		

50% of total cover: 42.5   20% of total cover: 17

Herb Stratum (Plot size: 5')			
1. Thelypteris palustris (marsh fern)	25	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		

50% of total cover: 12.5   20% of total cover: 5

Woody Vine Stratum (Plot size: 30')			
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.)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4   (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	75	x 1 = 75
FACW species	35	x 2 = 70
FAC species	40	x 3 = 120
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	150 (A)	265 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					OL	
3-10	10YR 4/1	95	7.5YR 4/4	5	C	PL	ML	
10-15	10YR 5/1	10	7.5YR 5/6	10	C	M	MCL	

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

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 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 (F7)
- 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 Soils[3]:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 10

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

Remarks:

OL = organic loam
ML = silt loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 22
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.807666   Long: -77.935889   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL (PSS1E w/in 50')

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

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Wetland 22, PSS, Depression, Buttonbush Wetland

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	✓ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
✓ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No ✓ Depth (inches): _____	
Water Table Present?	Yes _____ No ✓ Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No ✓ Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	85	Yes	OBL
2.			
3.			
4.			
5.			
6.			

85 = Total Cover

50% of total cover: 42.5 20% of total cover: 17

Herb Stratum (Plot size: 5')			
1. Persicaria punctata (dotted smartweed)	20	Yes	OBL
2. Scirpus cyperinus (woolgrass)	10	Yes	FACW
3. Persicaria pensylvanica (pinkweed)	3	No	FACW
4. Erechtites hieraciifolius (pilewort)	2	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			

35 = Total Cover

50% of total cover: 17.5 20% of total cover: 7

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____ 20% of 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	105	x 1 = 105
FACW species	13	x 2 = 26
FAC species		x 3 =
FACU species		x 4 =
UPL species	2	x 5 = 10
Column Totals:	120 (A)	141 (B)

Prevalence Index = B/A = 1.2

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL   Sampling Point: 22

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					OL	
1-2	10YR 4/1	100					ML	
2-11	10YR 5/2	75	7.5YR 4/6	25	C	M&PL	MCL	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 2   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

OL = organic loam
ML = silt loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 23
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 2
Subregion (LRR or MLRA): LRR S   Lat: 40.809931   Long: -77.931808   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: PSS1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Wetland 23, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
✓ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
✓ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No ✓	Depth (inches): _____	
Water Table Present?	Yes _____ No ✓	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No ✓	Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

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

Sampling Point: 23

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	40	Yes	FAC
2. Quercus alba (white oak)	10	No	FACU
3. Acer rubrum (red maple)	5	No	FAC
4.			
5.			
6.			
	55	= Total Cover	

50% of total cover: 27.5   20% of total cover: 11

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Acer rubrum (red maple)	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	5	= Total Cover	

50% of total cover: 2.5   20% of total cover: 1

Herb Stratum (Plot size: 5')			
1. Erechtites hieraciifolius (pilewort)	1	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	1	= Total Cover	

50% of total cover: 0.5   20% of total cover: 0.2

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	50	x 3 = 150
FACU species	11	x 4 = 44
UPL species		x 5 =
Column Totals:	61 (A)	194 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

Remarks: (Include photo numbers here or on a separate sheet.)
The red maple are rather small and could have been placed in the herb list. Results would be the same.

SOIL   Sampling Point: 23

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100					SML	
3-12	10YR 5/1	80	7.5YR 5/8	20	C	M	SML	

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

Hydric Soil Indicators:

		Indicators for Problematic Hydric Soils[3]:
___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): _____   **Hydric Soil Present?   Yes** ✓ **   No** _____

Remarks:

SML = sandy silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 24
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 3
Subregion (LRR or MLRA): LRR S   Lat: 40.807515   Long: -77.932064   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____		
Wetland Hydrology Present?	Yes ✓ No _____		

Remarks:

Wetland 24, PFO, Depression, Sparsely Vegetated Vernal Pool Community

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

	Secondary Indicators (minimum of two required)
___ Surface Water (A1) ___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1)	✓ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3) ✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1) ___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) ___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)	___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)	___ Microtopographic Relief (D4)
	✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No ✓ Depth (inches): _____	
Water Table Present?	Yes _____ No ✓ Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No ✓ Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

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

Sampling Point: 24

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	50	Yes	FAC
2. Acer rubrum (red maple)	10	No	FAC
3.			
4.			
5.			
6.			
	60 = Total Cover		

50% of total cover: 30   20% of total cover: 12

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	40	Yes	OBL
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		

50% of total cover: 20   20% of total cover: 8

Herb Stratum (Plot size: 5')			
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: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	40	x 1 = 40
FACW species		x 2 =
FAC species	60	x 3 = 180
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	100 (A)	220 (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 24

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 5/1	98	7.5YR 4/6	2	C	PL	ML	
1-12	10YR 6/1	65	7.5YR 6/8	35	C	M&PL	ML	

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

Hydric Soil Indicators: **Indicators for Problematic Hydric Soils[3]:**

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

ML = silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 25
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 2
Subregion (LRR or MLRA): LRR S   Lat: 40.806368   Long: -77.933786   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes __✓__ No _____	**Is the Sampled Area**
Hydric Soil Present?	Yes __✓__ No _____	**within a Wetland?** Yes __✓__ No _____
Wetland Hydrology Present?	Yes __✓__ No _____	

Remarks:

Wetland 25, PFO/PUB, Depression, Sparsely Vegetated Vernal Pool Community (one half of this wetland is a deeper, permanent pond)

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

✓ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
✓ Inundation Visible on Aerial Imagery (B7)	
✓ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
✓ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes __✓__ No _____ Depth (inches): >36*	
Water Table Present?	Yes _____ No __✓__ Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No __✓__ Depth (inches): _____	**Wetland Hydrology Present? Yes __✓__ No _____**

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

Remarks:

* the northern portion of this wetland is a permanent pond with no vegetation within and sides so steep that is primarily surrounded with upland vegetation - the sampling point was located in the other half of the wetland that is more of a seasonal pond habitat

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 25

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica (blackgum)	80	Yes	FAC
2. Acer rubrum (red maple)	10	Yes	FAC
3.			
4.			
5.			
6.			
	90	= Total Cover	

50% of total cover: 45   20% of total cover: 18

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	20	Yes	OBL
2. Nyssa sylvatica (blackgum)	5	Yes	FAC
3.			
4.			
5.			
6.			
	25	= Total Cover	

50% of total cover: 12.5   20% of total cover: 5

Herb Stratum (Plot size: 5')			
1. Carex tribuloides (blunt broom sedge)	1	No	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	1	= Total Cover	

50% of total cover: 0.5   20% of total cover: 0.2

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC: 4   (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	20	x 1 = 20
FACW species	1	x 2 = 2
FAC species	95	x 3 = 285
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	116 (A)	307 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No ____

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

SOIL Sampling Point: <u>25</u>

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/1	98	7.5YR 4/6	2	C	PL	ML	
4-13	N 5/0	75	7.5YR 5/8	25	C	M&PL	ML	

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

Hydric Soil Indicators:

Histosol (A1)	Dark Surface (S7)	2 cm Muck (A10) **(MLRA 147)**
Histic Epipedon (A2)	Polyvalue Below Surface (S8) **(MLRA 147, 148)**	Coast Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)
Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
2 cm Muck (A10) **(LRR N)**	Redox Dark Surface (F6)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	Other (Explain in Remarks)
Thick Dark Surface (A12)	Redox Depressions (F8)	
Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
Sandy Gleyed Matrix (S4)	Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
Stripped Matrix (S6)	Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if observed):

Type: <u>none</u>

Depth (inches): _____

Hydric Soil Present?   Yes <u>✓</u>   No _____

Remarks:

ML = silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022

Applicant/Owner: Patton Township   State: PA   Sampling Point: 26

Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township

Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1

Subregion (LRR or MLRA): LRR S   Lat: 40.809292   Long: -77.935285   Datum: WGS84

Soil Map Unit Name: Leetonia sand (LvB)   NWI classification: UPL

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area**	
Hydric Soil Present? Yes ✓ No _____	**within a Wetland?** Yes ✓ No _____	
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 26, PEM, Depression, Mixed Forb - Graminoid Wet Meadow (created recently from scarring associated with timber harvest)

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

✓ Surface Water (A1)

✓ High Water Table (A2)

✓ Saturation (A3)

___ Water Marks (B1)

___ Sediment Deposits (B2)

___ Drift Deposits (B3)

___ Algal Mat or Crust (B4)

___ Iron Deposits (B5)

___ Inundation Visible on Aerial Imagery (B7)

___ Water-Stained Leaves (B9)

___ Aquatic Fauna (B13)

___ True Aquatic Plants (B14)

___ Hydrogen Sulfide Odor (C1)

✓ Oxidized Rhizospheres on Living Roots (C3)

___ Presence of Reduced Iron (C4)

___ Recent Iron Reduction in Tilled Soils (C6)

___ Thin Muck Surface (C7)

___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)

___ Sparsely Vegetated Concave Surface (B8)

___ Drainage Patterns (B10)

___ Moss Trim Lines (B16)

___ Dry-Season Water Table (C2)

___ Crayfish Burrows (C8)

___ Saturation Visible on Aerial Imagery (C9)

___ Stunted or Stressed Plants (D1)

___ Geomorphic Position (D2)

✓ Shallow Aquitard (D3)

___ Microtopographic Relief (D4)

✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 2*

Water Table Present? Yes ✓ No _____ Depth (inches): 8**

Saturation Present? Yes ✓ No _____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

* there are places in this wetland with as much as 2" of standing water but not at the soil test pit in the center of the sampling point plot

** the ground water is perched water on a clayey lens

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

Sampling Point: 26

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: _____ 20% of total cover: _____			

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: _____ 20% of total cover: _____			

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: _____ 20% of total cover: _____			

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Leersia oryzoides (rice cutgrass)	50	Yes	OBL
2. Microstegium vimineum (Japanese stiltgrass)	20	Yes	FAC
3. Typha latifolia (broadleaf cattail)	10	No	OBL
4. Scirpus cyperinus (woolgrass)	10	No	FACW
5. Epilobium coloratum (purple-leaf willow-herb)	5	No	FACW
6. Eupatorium perfoliatum (boneset)	3	No	FACW
7. Juncus effusus (soft rush)	2	No	FACW
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50 20% of total cover: 20			

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	60	x 1 = 60
FACW species	20	x 2 = 40
FAC species	20	x 3 = 60
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	100 (A)	160 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL   Sampling Point: 26

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					OL	
2-10	10YR 5/2	65	7.5YR 4/6	35	C	M&PL	MCL	

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

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils[3]:

- ___ 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 (F7)
- ___ 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)**

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 2

Hydric Soil Present?   Yes ✓   No _____

Remarks:

OL = organic loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 27
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.804202   Long: -77.936286   Datum: WGS84
Soil Map Unit Name: Dunning silty clay loam (Du)   NWI classification: UPL (PSS1E w/in 20')
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes __✓__ No _____	**Is the Sampled Area within a Wetland?**	**Yes** __✓__ **No** _____
Hydric Soil Present? Yes __✓__ No _____		
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

Wetland 27, PSS/PEM, Depression, Circumneutral Mixed Shrub Wetland/Tussock Sedge Marsh (PFO habitat around the rim)

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	_✓_ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
___ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)
___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
_✓_ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
_✓_ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes __✓__ No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 27

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Ilex verticillata (winterberry)	30	Yes	FACW
2. Viburnum recognitum (smooth arrow-wood)	10	Yes	FAC
3.			
4.			
5.			
6.			

40 = Total Cover

50% of total cover: 20   20% of total cover: 8

Herb Stratum (Plot size: 5')			
1. Carex stricta (tussock sedge)	85	Yes	OBL
2. Bidens connata (three-lobed beggarticks)	3	No	FACW
3. Lycopus virginicus (Virginia water horehound)	3	No	OBL
4. Bidens frondosa (devil's pitchfork)	1	No	FACW
5. Impatiens capensis (jewelweed)	1	No	OBL
6. Galium obtusum (blunt-leaf bedstraw)	1	No	OBL
7. Solanum dulcamara (climbing nightshade)	1	No	FAC
8.			
9.			
10.			
11.			

95 = Total Cover

50% of total cover: 47.5   20% of total cover: 19

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of 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	90	x 1 =	90
FACW species	34	x 2 =	68
FAC species	11	x 3 =	33
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	135 (A)		191 (B)

Prevalence Index = B/A = 1.4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					OL	
2-6	10YR 4/1	95	7.5YR 4/6	5	C	PL	MCL	
6-12	10YR 5/1	85	7.5YR 5/6	15	C	M	MCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F7)
- ___ 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 Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 2

Hydric Soil Present?   Yes ✓   No _____

Remarks:

OL = organic loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 28
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.804276   Long: -77.934525   Datum: WGS84
Soil Map Unit Name: Dunning silty clay loam (Du)   NWI classification: PEM/SS1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area**	
Hydric Soil Present? Yes ✓ No _____	**within a Wetland?** Yes ✓ No _____	
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 28, PSS, Depression, Buttonbush Wetland

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
___ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
✓ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____			
Water Table Present? Yes _____ No ✓ Depth (inches): _____			
Saturation Present? Yes _____ No ✓ Depth (inches): _____ (includes capillary fringe)	**Wetland Hydrology Present? Yes ✓ No _____**		

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 28

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra (black willow)	5	Yes	OBL
2. Catalpa speciosa (northern catalpa)	5	Yes	FAC
3. Acer rubrum (red maple)	5	Yes	FAC
4.			
5.			
6.			

15 = Total Cover

50% of total cover: 7.5   20% of total cover: 3

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	50	Yes	OBL
2.			
3.			
4.			
5.			
6.			

50 = Total Cover

50% of total cover: 25   20% of total cover: 10

Herb Stratum (Plot size: 5')			
1. Onoclea sensibilis (sensitive fern)	30	Yes	FACW
2. Impatiens capensis (jewelweed)	25	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

55 = Total Cover

50% of total cover: 27.5   20% of total cover: 11

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	55	x 1 = 55
FACW species	55	x 2 = 110
FAC species	10	x 3 = 30
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	120 (A)	195 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 28

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/1	97	7.5YR 4/4	3	C	PL	ML	
2-14	10YR 5/1	85	7.5YR 4/6	15	C	M	ML	

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

Hydric Soil Indicators:

		Indicators for Problematic Hydric Soils[3]:
__ Histosol (A1)	__ Dark Surface (S7)	__ 2 cm Muck (A10) **(MLRA 147)**
__ Histic Epipedon (A2)	__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	__ Coast Prairie Redox (A16)
__ Black Histic (A3)	__ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
__ Hydrogen Sulfide (A4)	__ Loamy Gleyed Matrix (F2)	__ Piedmont Floodplain Soils (F19)
__ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
__ 2 cm Muck (A10) **(LRR N)**	__ Redox Dark Surface (F6)	__ Very Shallow Dark Surface (TF12)
__ Depleted Below Dark Surface (A11)	__ Depleted Dark Surface (F7)	__ Other (Explain in Remarks)
__ Thick Dark Surface (A12)	__ Redox Depressions (F8)	
__ Sandy Mucky Mineral (S1) **(LRR N,**	__ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
__ Sandy Gleyed Matrix (S4)	__ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
__ Sandy Redox (S5)	__ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
__ Stripped Matrix (S6)	__ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

ML = silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022

Applicant/Owner: Patton Township   State: PA   Sampling Point: 29

Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township

Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1

Subregion (LRR or MLRA): LRR S   Lat: 40.805407   Long: -77.931842   Datum: WGS84

Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL (PEM1E w/in 60')

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** _____
Hydric Soil Present? Yes ✓ No _____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 29, PEM, Depression, Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

Primary Indicators		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
✓ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____		
Water Table Present? Yes ___ No ✓ Depth (inches): _____		
Saturation Present? Yes ___ No ✓ Depth (inches): _____ (includes capillary fringe)	**Wetland Hydrology Present? Yes** ✓ **No** _____	

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 29

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Setaria pumila (yellow bristle grass)	30	Yes	FAC
2. Carex lupulina (hop sedge)	20	Yes	OBL
3. Scirpus cyperinus (woolgrass)	10	No	FACW
4. Bidens connata (three-lobed beggarticks)	10	No	FACW
5. Persicaria hydropiper (mild water pepper)	10	No	OBL
6. Leersia oryzoides (rice cutgrass)	5	No	OBL
7. Echinochloa muricata (rough barnyard grass)	5	No	FACW
8. Agrostis scabra (rough bent grass)	2	No	FAC
9. Ambrosia artemisiifolia (annual ragweed)	2	No	FACU
10. Cuscuta polygonorum (smartweed dodder)	1	No	UPL
11.			

95 = Total Cover

50% of total cover: 47.5   20% of total cover: 19

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	35	x 1 = 35
FACW species	25	x 2 = 50
FAC species	32	x 3 = 96
FACU species	2	x 4 = 8
UPL species	1	x 5 = 5
Column Totals:	95 (A)	194 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/1	95	7.5YR 4/6	5	C	PL	ML	
7-13	N 5/0	80	7.5YR 5/6	20	C	M	ML	

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

Hydric Soil Indicators:

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	✓ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____

Hydric Soil Present?   Yes __✓__   No _____

Remarks:

ML = silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/6/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 30
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.802618   Long: -77.930687   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL (PEM1E nearby)

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No _____**
Hydric Soil Present? Yes ✓ No _____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 30, PEM/PUB/PSS/PFO, Mixed Forb-Graminoid Wet Meadow/Spatterdock – Water-lily Emergent Wetland/Circumneutral Mixed Shrub Wetland/Red Maple-Blackgum Palustrine Forest

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

Primary		Secondary
✓ Surface Water (A1)	✓ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
✓ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	✓ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
✓ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): >12*
Water Table Present? Yes _____ No ✓ Depth (inches): _____
Saturation Present? Yes ✓ No _____ Depth (inches): 0   **Wetland Hydrology Present? Yes ✓ No _____**
(includes capillary fringe)

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

Remarks:

A portion of this wetland is ponded water that is at least 12" deep but there is no standing water in the center of the sampling point plot where the soil test pit was excavated.

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

Sampling Point: 30

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix alba (white willow)	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5   20% of total cover: 1

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5   20% of total cover: 2

Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea (reed canarygrass)	35	Yes	FACW
2. Scirpus cyperinus (woolgrass)	20	Yes	FACW
3. Ludwigia palustris (marsh seedbox)	15	No	OBL
4. Persicaria hydropiper (mild water pepper)	10	No	OBL
5. Persicaria pensylvanica (pinkweed)	5	No	FACW
6. Eleocharis obtusa (blunt spikerush)	5	No	OBL
7. Alisma subcordatum (water plantain)	5	No	OBL
8. Echinochloa crus-galli (large barnyard grass)	2	No	FAC
9. Cuscuta polygonorum (smartweed dodder)	1	No	UPL
10. Erechtites hieraciifolius (pilewort)	1	No	FACU
11. Galium tinctorium (marsh bedstraw)	1	No	OBL
	100 = Total Cover		

50% of total cover: 50   20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC: 4   (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	46	x 1 = 46
FACW species	65	x 2 = 130
FAC species	2	x 3 = 6
FACU species	1	x 4 = 4
UPL species	1	x 5 = 5
Column Totals:	115 (A)	191 (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					ML	
2-7	10YR 5/2	95	7.5YR 4/6	5	C	PL	ML	
7-13	10YR 5/1	85	7.5YR 5/8	15	C	M	ML	

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

Hydric Soil Indicators:

___ Histosol (A1)	___ Dark Surface (S7)	**Indicators for Problematic Hydric Soils[3]:**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ 2 cm Muck (A10) **(MLRA 147)**
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	**(MLRA 147, 148)**
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	___ Piedmont Floodplain Soils (F19)
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	**(MLRA 136, 147)**
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Very Shallow Dark Surface (TF12)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	___ Other (Explain in Remarks)
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____

Hydric Soil Present?   Yes __✓__   No _____

Remarks:

ML = silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 31
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1
Subregion (LRR or MLRA): LRR S   Lat: 40.801573   Long: -77.937381   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	Yes ✓ No _____
Hydric Soil Present? Yes ✓ No _____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 31, PSS, Depression, Circumneutral Mixed Shrub Wetland

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
___ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ✓ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): _____		
Water Table Present?	Yes ___	No ✓	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): _____	**Wetland Hydrology Present?**	**Yes ✓ No _____**

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

Remarks:

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix alba (white willow)	25	Yes	FACW
2.			
3.			
4.			
5.			
6.			

25 = Total Cover

50% of total cover: 12.5   20% of total cover: 5

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis (buttonbush)	50	Yes	OBL
2.			
3.			
4.			
5.			
6.			

50 = Total Cover

50% of total cover: 25   20% of total cover: 10

Herb Stratum (Plot size: 5')			
1. Persicaria pensylvanica (pinkweed)	90	Yes	FACW
2. Persicaria punctata (dotted smartweed)	5	No	OBL
3. Leersia oryzoides (rice cutgrass)	2	No	OBL
4. Bidens frondosa (devil's pitchfork)	2	No	FACW
5. Echinochloa muricata (rough barnyard grass)	1	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			

100 = Total Cover

50% of total cover: 50   20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of 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	57	x 1 = 57
FACW species	118	x 2 = 236
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	175 (A)	293 (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 31

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	97	7.5YR 4/6	3	C	PL	ML	
2-8	10YR 5/2	90	7.5YR 4/6	10	C	PL&M	MCL	
8-14	10YR 5/1	65	7.5YR 5/8	35	C	M	MCL	

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

Hydric Soil Indicators:

		Indicators for Problematic Hydric Soils[3]:
___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: silty clay loam

Depth (inches): 2   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

ML = silt loam
MCL = silty clay loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 32
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 1
Subregion (LRR or MLRA): LRR S   Lat: 40.802208   Long: -77.936271   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: PEM1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes __✓__ No _____	**Is the Sampled Area within a Wetland?**	**Yes** __✓__ **No** _____
Hydric Soil Present? Yes __✓__ No _____		
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

Wetland 32, PEM, Depression, Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	_✓_ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
___ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
_✓_ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No __✓__ Depth (inches): _____
Water Table Present? Yes _____ No __✓__ Depth (inches): _____
Saturation Present? Yes _____ No __✓__ Depth (inches): _____
(includes capillary fringe)   **Wetland Hydrology Present? Yes __✓__ No _____**

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

Remarks:

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Echinochloa crus-galli (large barnyard grass)	95	Yes	FAC
2. Agrostis scabra (rough bent grass)	3	No	FAC
3. Setaria pumila (yellow bristle grass)	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

100 = Total Cover

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____ 20% of 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	100	x 3 = 300
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	100 (A)	300 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL Sampling Point: 32

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3	100					SL	
5-12	10YR 5/2	90	7.5YR 4/6	10	C	PL&M	SL	

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

Hydric Soil Indicators:

__ Histosol (A1)	__ Dark Surface (S7)	**Indicators for Problematic Hydric Soils[3]:**
__ Histic Epipedon (A2)	__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	__ 2 cm Muck (A10) **(MLRA 147)**
__ Black Histic (A3)	__ Thin Dark Surface (S9) **(MLRA 147, 148)**	__ Coast Prairie Redox (A16)
__ Hydrogen Sulfide (A4)	__ Loamy Gleyed Matrix (F2)	**(MLRA 147, 148)**
__ Stratified Layers (A5)	✓ Depleted Matrix (F3)	__ Piedmont Floodplain Soils (F19)
__ 2 cm Muck (A10) **(LRR N)**	__ Redox Dark Surface (F6)	**(MLRA 136, 147)**
__ Depleted Below Dark Surface (A11)	__ Depleted Dark Surface (F7)	__ Very Shallow Dark Surface (TF12)
__ Thick Dark Surface (A12)	__ Redox Depressions (F8)	__ Other (Explain in Remarks)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
__ Sandy Gleyed Matrix (S4)	__ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
__ Sandy Redox (S5)	__ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
__ Stripped Matrix (S6)	__ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____

Hydric Soil Present? Yes __✓__ No _____

Remarks:

SL = sandy loam

These soils are very close to non-hydric. In fact, some may have called the surface subsoil matrix a 10YR 5/3. Marginal wetland soils.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 33
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 1
Subregion (LRR or MLRA): LRR S   Lat: 40.803292   Long: -77.934524   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL (PEM1A w/in 30')

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No _____**
Hydric Soil Present? Yes ✓ No _____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 33, PEM, Depression, Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

Primary Indicators		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	✓ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No ✓ Depth (inches): _____	
Water Table Present?	Yes _____ No ✓ Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No ✓ Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

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

Sampling Point: 33

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

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

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Panicum virgatum (switchgrass)	50	Yes	FAC
2. Echinochloa crus-galli (large barnyard grass)	25	Yes	FAC
3. Setaria pumila (yellow bristle grass)	20	Yes	FAC
4. Setaria faberi (Japanese bristle grass)	3	No	UPL
5. Persicaria pensylvanica (pinkweed)	1	No	FACW
6. Ambrosia artemisiifolia (annual ragweed)	1	No	FACU
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of 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	1	x 2 = 2
FAC species	95	x 3 = 285
FACU species	1	x 4 = 4
UPL species	3	x 5 = 15
Column Totals:	100 (A)	306 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL   Sampling Point: 33

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					SL	
4-12	10YR 5/2	90	7.5YR 4/6	10	C	PL&M	SML	

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

Hydric Soil Indicators:

___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____   **Hydric Soil Present?   Yes ✓   No _____**

Remarks:

SL = sandy loam
SML = sandy silt loam

These soils are very close to non-hydric. In fact, some may have called the surface subsoil matrix a 10YR 5/3. Marginal wetland soils.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 34
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 1
Subregion (LRR or MLRA): LRR S   Lat: 40.799514   Long: -77.937854   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: PEM1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes __✓__ No _____	**Is the Sampled Area**	
Hydric Soil Present? Yes __✓__ No _____	**within a Wetland?** Yes __✓__ No _____	
Wetland Hydrology Present? Yes __✓__ No _____		

Remarks:

Wetland 34, PEM, Depression, Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	_✓_ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	_✓_ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		___ FAC-Neutral Test (D5)

Field Observations:		
Surface Water Present? Yes _____ No __✓__ Depth (inches): _____		
Water Table Present? Yes _____ No __✓__ Depth (inches): _____		
Saturation Present? Yes _____ No __✓__ Depth (inches): _____ (includes capillary fringe)	**Wetland Hydrology Present? Yes __✓__ No _____**	

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

Remarks:

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

50% of total cover: _____   20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

50% of total cover: _____   20% of total cover: _____

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

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Panicum virgatum (switchgrass)	50	Yes	FAC
2. Echinochloa crus-galli (large barnyard grass)	45	Yes	FAC
3. Setaria pumila (yellow bristle grass)	3	No	FAC
4. Persicaria pensylvanica (pinkweed)	2	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50   20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	2	x 2 = 4
FAC species	98	x 3 = 294
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	100 (A)	298 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL   Sampling Point: 34

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					SL	
2-12	10YR 5/1	90	7.5YR 4/6	10	C	PL&M	SL	

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

Hydric Soil Indicators:

__ Histosol (A1)	__ Dark Surface (S7)	__ 2 cm Muck (A10) **(MLRA 147)**
__ Histic Epipedon (A2)	__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	__ Coast Prairie Redox (A16)
__ Black Histic (A3)	__ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
__ Hydrogen Sulfide (A4)	__ Loamy Gleyed Matrix (F2)	__ Piedmont Floodplain Soils (F19)
__ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
__ 2 cm Muck (A10) **(LRR N)**	__ Redox Dark Surface (F6)	__ Very Shallow Dark Surface (TF12)
__ Depleted Below Dark Surface (A11)	__ Depleted Dark Surface (F7)	__ Other (Explain in Remarks)
__ Thick Dark Surface (A12)	__ Redox Depressions (F8)	
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**	__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**	
__ Sandy Gleyed Matrix (S4)	__ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
__ Sandy Redox (S5)	__ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
__ Stripped Matrix (S6)	__ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____   **Hydric Soil Present?   Yes __✓__   No _____**

Remarks:

SL = sandy loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 35
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 1
Subregion (LRR or MLRA): LRR S   Lat: 40.798525   Long: -77.935594   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** _____
Hydric Soil Present? Yes ✓ No _____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 35, PEM, Depression, Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
✓ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)

___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
✓ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____		
Water Table Present?	Yes _____	No ✓	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**	

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

Remarks:

Just beyond the edge of the field this wetland pools water at various times during the growing season.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum (red maple)	10	Yes	FAC
2. Quercus alba (white oak)	10	Yes	FACU
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10   20% of total cover: 4

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____   20% of total cover: _____

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

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Euthamia graminifolia (flat-top goldenrod)	25	Yes	FAC
2. Persicaria pensylvanica (pinkweed)	25	Yes	FACW
3. Pilea pumila (clearweed)	20	Yes	FAC
4. Echinochloa crus-galli (large barnyard grass)	15	No	FAC
5. Panicum virgatum (switchgrass)	10	No	FAC
6. Setaria pumila (yellow bristle grass)	3	No	FAC
7. Ambrosia artemisiifolia (annual ragweed)	1	No	FACU
8. Oxalis stricta (yellow wood sorrel)	1	No	FACU
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50   20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____   20% of 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	25	x 2 = 50
FAC species	83	x 3 = 252
FACU species	12	x 4 = 48
UPL species	_____	x 5 = _____
Column Totals:	120 (A)	350 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	90	7.5YR 4/6	10	C	PL	ML	
3-12	10YR 5/2	80	7.5YR 5/6	20	C	M	ML	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F7)
- ___ 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 Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: none

Depth (inches): _____

Hydric Soil Present?   Yes ✓   No ____

Remarks:

ML = silt loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/2/2022

Applicant/Owner: Patton Township   State: PA   Sampling Point: 36

Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township

Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): <1

Subregion (LRR or MLRA): LRR S   Lat: 40.803285   Long: -77.937182   Datum: WGS84

Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: UPL

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No_____	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** _____
Hydric Soil Present? Yes ✓ No_____		
Wetland Hydrology Present? Yes ✓ No _____		

Remarks:

Wetland 36, PEM, Depression, Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ True Aquatic Plants (B14)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)
___ Iron Deposits (B5)	
___ Inundation Visible on Aerial Imagery (B7)	
___ Water-Stained Leaves (B9)	
___ Aquatic Fauna (B13)	

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
✓ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ Microtopographic Relief (D4)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No ✓	Depth (inches): _____	
Water Table Present?	Yes _____ No ✓	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No ✓	Depth (inches): _____	**Wetland Hydrology Present? Yes** ✓ **No** _____

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

Remarks:

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

Sampling Point: 36

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

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

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Echinochloa crus-galli (large barnyard grass)	50	Yes	FAC
2. Agrostis scabra (rough bent grass)	20	Yes	FAC
3. Erechtites hieraciifolius (pilewort)	10	No	FACU
4. Persicaria punctata (dotted smartweed)	10	No	OBL
5. Persicaria hydropiper (mild water pepper)	3	No	OBL
6. Setaria faberi (Japanese bristle grass)	3	No	UPL
7. Persicaria pensylvanica (pinkweed)	2	No	FACW
8. Setaria pumila (yellow bristle grass)	2	No	FAC
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50   20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	13	x 1 = 13
FACW species	2	x 2 = 4
FAC species	72	x 3 = 216
FACU species	10	x 4 = 40
UPL species	3	x 5 = 15
Column Totals:	100 (A)	289 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL Sampling Point: 36

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					SL	
3-12	10YR 4/2	90	7.5YR 4/6	10	C	PL&M	SL	

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

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 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 (F7)
- 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 Soils[3]:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: none

Depth (inches): _____

Hydric Soil Present?   Yes ✓   No _____

Remarks:

SL = sandy loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Haugh Farm Preserve, Wetland Stewardship Plan   City/County: Centre   Sampling Date: 9/6/2022
Applicant/Owner: Patton Township   State: PA   Sampling Point: 37
Investigator(s): J. Wilson, Wilson Ecological Consulting, LLC   Section, Township, Range: Patton Township
Landform (hillslope, terrace, etc.): depression   Local relief (concave, convex, none): concave   Slope (%): 1
Subregion (LRR or MLRA): LRR S   Lat: 40.799215   Long: -77.931367   Datum: WGS84
Soil Map Unit Name: Morrison sandy loam (MrB)   NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No __✓__ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed?   Are "Normal Circumstances" present? Yes __✓__ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic?   (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?**	Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____		
Wetland Hydrology Present?	Yes ✓	No _____		

Remarks:

Wetland 37, PEM, Depression, Mixed Forb - Graminoid Wet Meadow

Climatic conditions have been drier than normal the past three months (see APT printout).

HYDROLOGY

Wetland Hydrology Indicators:

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

		Secondary Indicators (minimum of two required)
___ Surface Water (A1)	___ True Aquatic Plants (B14)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Hydrogen Sulfide Odor (C1)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	✓ Oxidized Rhizospheres on Living Roots (C3)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Presence of Reduced Iron (C4)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Thin Muck Surface (C7)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Other (Explain in Remarks)	✓ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)		___ Geomorphic Position (D2)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
___ Aquatic Fauna (B13)		___ Microtopographic Relief (D4)
		___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____ No ✓ Depth (inches): _____	
Water Table Present?	Yes _____ No ✓ Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No ✓ Depth (inches): _____	**Wetland Hydrology Present? Yes ✓ No _____**

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.   Sampling Point: 37

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Sapling Stratum (Plot size: w/ shrubs)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Panicum virgatum (switchgrass)	65	Yes	FAC
2. Persicaria pensylvanica (pinkweed)	20	Yes	FACW
3. Echinochloa crus-galli (large barnyard grass)	10	No	FAC
4. Abutilon theophrasti (velvet leaf)	3	No	UPL
5. Bidens frondosa (devil's pitchfork)	2	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			

100 = Total Cover

50% of total cover: 50   20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____   20% of total cover: _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	22	x 2 = 44
FAC species	75	x 3 = 225
FACU species	_____	x 4 = _____
UPL species	3	x 5 = 15
Column Totals:	100 (A)	284 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?   Yes ✓   No _____

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

SOIL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/4	100					ML	
2-12	10YR 5/2	80	7.5YR 4/6	20	C	PL&M	ML	

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

Hydric Soil Indicators:

		Indicators for Problematic Hydric Soils[3]:
___ Histosol (A1)	___ Dark Surface (S7)	___ 2 cm Muck (A10) **(MLRA 147)**
___ Histic Epipedon (A2)	___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**	___ Coast Prairie Redox (A16)
___ Black Histic (A3)	___ Thin Dark Surface (S9) **(MLRA 147, 148)**	**(MLRA 147, 148)**
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)
___ Stratified Layers (A5)	✓ Depleted Matrix (F3)	**(MLRA 136, 147)**
___ 2 cm Muck (A10) **(LRR N)**	___ Redox Dark Surface (F6)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	___ Other (Explain in Remarks)
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1) **(LRR N,**	___ Iron-Manganese Masses (F12) **(LRR N,**	
MLRA 147, 148)	**MLRA 136)**	
___ Sandy Gleyed Matrix (S4)	___ Umbric Surface (F13) **(MLRA 136, 122)**	[3]Indicators of hydrophytic vegetation and
___ Sandy Redox (S5)	___ Piedmont Floodplain Soils (F19) **(MLRA 148)**	wetland hydrology must be present,
___ Stripped Matrix (S6)	___ Red Parent Material (F21) **(MLRA 127, 147)**	unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none _____

Depth (inches): _____

Hydric Soil Present?   Yes __✓__   No _____

Remarks:

ML = silt loam

FLORISTIC QUALITY ASSESSMENT

DATA FORMS

Inventory Assessment

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Wetland 1

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **4**
Native Mean C: **4.9**
Total FQI: **19.6**
Native FQI: **21.9**
Adjusted FQI: **44.7**
% C value 0: **16.7%**
% C value 1-3: **20.8%**
% C value 4-6: **41.7%**
% C value 7-10: **20.8%**
Native Tree Mean C: **5.6**
Native Shrub Mean C: **5.2**
Native Herbaceous Mean C: **4**

» Species Richness:

Total Species: **24**
Native Species: **20 (83.3%)**
Non-native Species: **4 (16.7%)**

» Species Wetness:

Mean Wetness: **1.3**
Native Mean Wetness: **1.6**

» Physiognomy Metrics:

Tree: **7 (29.2%)**
Shrub: **6 (25%)**
Vine: **0 (0%)**
Forb: **6 (25%)**
Grass: **0 (0%)**
Sedge: **1 (4.2%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (4.2%)**
Perennial: **19 (79.2%)**
Biennial: **0 (0%)**

Native Annual: **1 (4.2%)**
Native Perennial: **18 (75%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 2

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **4.5**
Native Mean C: **4.5**
Total FQI: **26.2**
Native FQI: **26.2**
Adjusted FQI: **45**
% C value 0: **0%**
% C value 1-3: **32.4%**
% C value 4-6: **58.8%**
% C value 7-10: **8.8%**
Native Tree Mean C: **5.3**
Native Shrub Mean C: **4.6**
Native Herbaceous Mean C: **4.2**

» Species Richness:

Total Species: **34**
Native Species: **34 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **0.4**
Native Mean Wetness: **0.4**

» Physiognomy Metrics:

Tree: **8 (23.5%)**
Shrub: **7 (20.6%)**
Vine: **1 (2.9%)**
Forb: **14 (41.2%)**
Grass: **1 (2.9%)**
Sedge: **2 (5.9%)**
Rush: **1 (2.9%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **2 (5.9%)**
Perennial: **32 (94.1%)**
Biennial: **0 (0%)**

Native Annual: **2 (5.9%)**
Native Perennial: **32 (94.1%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 3

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.6**
Native Mean C: **4**
Total FQI: **21.6**
Native FQI: **22.6**
Adjusted FQI: **37.7**
% C value 0: **13.9%**
% C value 1-3: **30.6%**
% C value 4-6: **47.2%**
% C value 7-10: **8.3%**
Native Tree Mean C: **5**
Native Shrub Mean C: **3.7**
Native Herbaceous Mean C: **3.7**

» Species Richness:

Total Species: **36**
Native Species: **32 (88.9%)**
Non-native Species: **4 (11.1%)**

» Species Wetness:

Mean Wetness: **0.3**
Native Mean Wetness: **0.3**

» Physiognomy Metrics:

Tree: **9 (25%)**
Shrub: **4 (11.1%)**
Vine: **3 (8.3%)**
Forb: **14 (38.9%)**
Grass: **1 (2.8%)**
Sedge: **2 (5.6%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **4 (11.1%)**
Perennial: **29 (80.6%)**
Biennial: **0 (0%)**

Native Annual: **4 (11.1%)**
Native Perennial: **28 (77.8%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 4

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.1**
Native Mean C: **3.7**
Total FQI: **25.9**
Native FQI: **28.4**
Adjusted FQI: **34**
% C value 0: **20%**
% C value 1-3: **37.1%**
% C value 4-6: **35.7%**
% C value 7-10: **7.1%**
Native Tree Mean C: **4.4**
Native Shrub Mean C: **2.8**
Native Herbaceous Mean C: **3.6**

» Species Richness:

Total Species: **70**
Native Species: **59 (84.3%)**
Non-native Species: **11 (15.7%)**

» Species Wetness:

Mean Wetness: **-0.2**
Native Mean Wetness: **-0.3**

» Physiognomy Metrics:

Tree: **13 (18.6%)**
Shrub: **6 (8.6%)**
Vine: **3 (4.3%)**
Forb: **27 (38.6%)**
Grass: **5 (7.1%)**
Sedge: **5 (7.1%)**
Rush: **1 (1.4%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **2 (2.9%)**
Perennial: **58 (82.9%)**
Biennial: **0 (0%)**

Native Annual: **2 (2.9%)**
Native Perennial: **57 (81.4%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 5

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.3**
Native Mean C: **4**
Total FQI: **28.4**
Native FQI: **31.2**
Adjusted FQI: **36.3**
% C value 0: **21.6%**
% C value 1-3: **29.7%**
% C value 4-6: **39.2%**
% C value 7-10: **9.5%**
Native Tree Mean C: **5**
Native Shrub Mean C: **3.5**
Native Herbaceous Mean C: **3.7**

» Species Richness:

Total Species: **74**
Native Species: **61 (82.4%)**
Non-native Species: **13 (17.6%)**

» Species Wetness:

Mean Wetness: **-0.4**
Native Mean Wetness: **-0.5**

» Physiognomy Metrics:

Tree: **14 (18.9%)**
Shrub: **7 (9.5%)**
Vine: **2 (2.7%)**
Forb: **26 (35.1%)**
Grass: **7 (9.5%)**
Sedge: **4 (5.4%)**
Rush: **2 (2.7%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **6 (8.1%)**
Perennial: **56 (75.7%)**
Biennial: **0 (0%)**

Native Annual: **6 (8.1%)**
Native Perennial: **55 (74.3%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 6

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.5**
Native Mean C: **4.3**
Total FQI: **35.9**
Native FQI: **39.6**
Adjusted FQI: **38.7**
% C value 0: **20%**
% C value 1-3: **30.5%**
% C value 4-6: **37.1%**
% C value 7-10: **12.4%**
Native Tree Mean C: **5**
Native Shrub Mean C: **4.4**
Native Herbaceous Mean C: **4**

» Species Richness:

Total Species: **105**
Native Species: **85 (81%)**
Non-native Species: **20 (19%)**

» Species Wetness:

Mean Wetness: **-0.4**
Native Mean Wetness: **-0.5**

» Physiognomy Metrics:

Tree: **22 (21%)**
Shrub: **12 (11.4%)**
Vine: **2 (1.9%)**
Forb: **26 (24.8%)**
Grass: **10 (9.5%)**
Sedge: **11 (10.5%)**
Rush: **3 (2.9%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **3 (2.9%)**
Perennial: **83 (79%)**
Biennial: **0 (0%)**

Native Annual: **3 (2.9%)**
Native Perennial: **82 (78.1%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 7

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.3**
Native Mean C: **4.1**
Total FQI: **26.8**
Native FQI: **30.1**
Adjusted FQI: **37.1**
% C value 0: **22.7%**
% C value 1-3: **27.3%**
% C value 4-6: **37.9%**
% C value 7-10: **12.1%**
Native Tree Mean C: **5.2**
Native Shrub Mean C: **3.5**
Native Herbaceous Mean C: **3.7**

» Species Richness:

Total Species: **66**
Native Species: **54 (81.8%)**
Non-native Species: **12 (18.2%)**

» Species Wetness:

Mean Wetness: **0**
Native Mean Wetness: **0**

» Physiognomy Metrics:

Tree: **13 (19.7%)**
Shrub: **5 (7.6%)**
Vine: **1 (1.5%)**
Forb: **27 (40.9%)**
Grass: **4 (6.1%)**
Sedge: **4 (6.1%)**
Rush: **1 (1.5%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **4 (6.1%)**
Perennial: **51 (77.3%)**
Biennial: **0 (0%)**

Native Annual: **4 (6.1%)**
Native Perennial: **50 (75.8%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 8

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **4**
Native Mean C: **4.5**
Total FQI: **26.8**
Native FQI: **28.5**
Adjusted FQI: **42.4**
% C value 0: **13.3%**
% C value 1-3: **26.7%**
% C value 4-6: **42.2%**
% C value 7-10: **17.8%**
Native Tree Mean C: **5.9**
Native Shrub Mean C: **4.1**
Native Herbaceous Mean C: **4.2**

» Species Richness:

Total Species: **45**
Native Species: **40 (88.9%)**
Non-native Species: **5 (11.1%)**

» Species Wetness:

Mean Wetness: **-0.6**
Native Mean Wetness: **-0.7**

» Physiognomy Metrics:

Tree: **7 (15.6%)**
Shrub: **8 (17.8%)**
Vine: **1 (2.2%)**
Forb: **14 (31.1%)**
Grass: **6 (13.3%)**
Sedge: **4 (8.9%)**
Rush: **1 (2.2%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (2.2%)**
Perennial: **40 (88.9%)**
Biennial: **0 (0%)**

Native Annual: **1 (2.2%)**
Native Perennial: **39 (86.7%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 9

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **4**
Native Mean C: **4.5**
Total FQI: **20**
Native FQI: **21.1**
Adjusted FQI: **42.2**
% C value 0: **12%**
% C value 1-3: **28%**
% C value 4-6: **52%**
% C value 7-10: **8%**
Native Tree Mean C: **5**
Native Shrub Mean C: **4.5**
Native Herbaceous Mean C: **3.8**

» Species Richness:

Total Species: **25**
Native Species: **22 (88%)**
Non-native Species: **3 (12%)**

» Species Wetness:

Mean Wetness: **0.7**
Native Mean Wetness: **0.8**

» Physiognomy Metrics:

Tree: **10 (40%)**
Shrub: **7 (28%)**
Vine: **1 (4%)**
Forb: **4 (16%)**
Grass: **0 (0%)**
Sedge: **1 (4%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **0 (0%)**
Perennial: **23 (92%)**
Biennial: **0 (0%)**

Native Annual: **0 (0%)**
Native Perennial: **22 (88%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 10

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.3**
Native Mean C: **4.2**
Total FQI: **16.5**
Native FQI: **18.8**
Adjusted FQI: **37.6**
% C value 0: **20%**
% C value 1-3: **36%**
% C value 4-6: **32%**
% C value 7-10: **12%**
Native Tree Mean C: **7**
Native Shrub Mean C: **4**
Native Herbaceous Mean C: **4**

» Species Richness:

Total Species: **25**
Native Species: **20 (80%)**
Non-native Species: **5 (20%)**

» Species Wetness:

Mean Wetness: **-1.3**
Native Mean Wetness: **-1.6**

» Physiognomy Metrics:

Tree: **1 (4%)**
Shrub: **2 (8%)**
Vine: **1 (4%)**
Forb: **8 (32%)**
Grass: **3 (12%)**
Sedge: **5 (20%)**
Rush: **1 (4%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (4%)**
Perennial: **20 (80%)**
Biennial: **0 (0%)**

Native Annual: **1 (4%)**
Native Perennial: **19 (76%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 11

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **5.2**
Native Mean C: **5.2**
Total FQI: **22.1**
Native FQI: **22.1**
Adjusted FQI: **52**
% C value 0: **0%**
% C value 1-3: **16.7%**
% C value 4-6: **55.6%**
% C value 7-10: **27.8%**
Native Tree Mean C: **5**
Native Shrub Mean C: **5.4**
Native Herbaceous Mean C: **5.3**

» Species Richness:

Total Species: **18**
Native Species: **18 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **0.9**
Native Mean Wetness: **0.9**

» Physiognomy Metrics:

Tree: **6 (33.3%)**
Shrub: **5 (27.8%)**
Vine: **0 (0%)**
Forb: **4 (22.2%)**
Grass: **1 (5.6%)**
Sedge: **2 (11.1%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **0 (0%)**
Perennial: **18 (100%)**
Biennial: **0 (0%)**

Native Annual: **0 (0%)**
Native Perennial: **18 (100%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 12

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **5**
Native Mean C: **5**
Total FQI: **23.5**
Native FQI: **23.5**
Adjusted FQI: **50**
% C value 0: **0%**
% C value 1-3: **22.7%**
% C value 4-6: **54.5%**
% C value 7-10: **22.7%**
Native Tree Mean C: **5**
Native Shrub Mean C: **5.7**
Native Herbaceous Mean C: **4.4**

» Species Richness:

Total Species: **22**
Native Species: **22 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **1.1**
Native Mean Wetness: **1.1**

» Physiognomy Metrics:

Tree: **8 (36.4%)**
Shrub: **6 (27.3%)**
Vine: **0 (0%)**
Forb: **5 (22.7%)**
Grass: **1 (4.5%)**
Sedge: **2 (9.1%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (4.5%)**
Perennial: **21 (95.5%)**
Biennial: **0 (0%)**

Native Annual: **1 (4.5%)**
Native Perennial: **21 (95.5%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 13

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **4.3**
Native Mean C: **4.6**
Total FQI: **23.2**
Native FQI: **23.9**
Adjusted FQI: **44.4**
% C value 0: **6.9%**
% C value 1-3: **24.1%**
% C value 4-6: **58.6%**
% C value 7-10: **10.3%**
Native Tree Mean C: **5.1**
Native Shrub Mean C: **5.2**
Native Herbaceous Mean C: **3.8**

» Species Richness:

Total Species: **29**
Native Species: **27 (93.1%)**
Non-native Species: **2 (6.9%)**

» Species Wetness:

Mean Wetness: **1.2**
Native Mean Wetness: **1.3**

» Physiognomy Metrics:

Tree: **11 (37.9%)**
Shrub: **5 (17.2%)**
Vine: **1 (3.4%)**
Forb: **7 (24.1%)**
Grass: **0 (0%)**
Sedge: **3 (10.3%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **2 (6.9%)**
Perennial: **25 (86.2%)**
Biennial: **0 (0%)**

Native Annual: **2 (6.9%)**
Native Perennial: **25 (86.2%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 14

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **5**
Native Mean C: **5**
Total FQI: **16.6**
Native FQI: **16.6**
Adjusted FQI: **50**
% C value 0: **0%**
% C value 1-3: **18.2%**
% C value 4-6: **54.5%**
% C value 7-10: **27.3%**
Native Tree Mean C: **5.3**
Native Shrub Mean C: **5.5**
Native Herbaceous Mean C: **4**

» Species Richness:

Total Species: **11**
Native Species: **11 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **0.9**
Native Mean Wetness: **0.9**

» Physiognomy Metrics:

Tree: **4 (36.4%)**
Shrub: **4 (36.4%)**
Vine: **0 (0%)**
Forb: **1 (9.1%)**
Grass: **0 (0%)**
Sedge: **2 (18.2%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **0 (0%)**
Perennial: **11 (100%)**
Biennial: **0 (0%)**

Native Annual: **0 (0%)**
Native Perennial: **11 (100%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 15

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **5.3**
Native Mean C: **5.3**
Total FQI: **22.5**
Native FQI: **22.5**
Adjusted FQI: **53**
% C value 0: **0%**
% C value 1-3: **11.1%**
% C value 4-6: **72.2%**
% C value 7-10: **16.7%**
Native Tree Mean C: **5.5**
Native Shrub Mean C: **7**
Native Herbaceous Mean C: **4.6**

» Species Richness:

Total Species: **18**
Native Species: **18 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **1.5**
Native Mean Wetness: **1.5**

» Physiognomy Metrics:

Tree: **6 (33.3%)**
Shrub: **3 (16.7%)**
Vine: **0 (0%)**
Forb: **5 (27.8%)**
Grass: **1 (5.6%)**
Sedge: **2 (11.1%)**
Rush: **1 (5.6%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **0 (0%)**
Perennial: **18 (100%)**
Biennial: **0 (0%)**

Native Annual: **0 (0%)**
Native Perennial: **18 (100%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 16

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **5.2**
Native Mean C: **5.2**
Total FQI: **15.6**
Native FQI: **15.6**
Adjusted FQI: **52**
% C value 0: **0%**
% C value 1-3: **11.1%**
% C value 4-6: **66.7%**
% C value 7-10: **22.2%**
Native Tree Mean C: **5.2**
Native Shrub Mean C: **6.5**
Native Herbaceous Mean C: **4**

» Species Richness:

Total Species: **9**
Native Species: **9 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **0.8**
Native Mean Wetness: **0.8**

» Physiognomy Metrics:

Tree: **5 (55.6%)**
Shrub: **2 (22.2%)**
Vine: **0 (0%)**
Forb: **1 (11.1%)**
Grass: **0 (0%)**
Sedge: **1 (11.1%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **0 (0%)**
Perennial: **9 (100%)**
Biennial: **0 (0%)**

Native Annual: **0 (0%)**
Native Perennial: **9 (100%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 17

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **4.7**
Native Mean C: **4.7**
Total FQI: **14.1**
Native FQI: **14.1**
Adjusted FQI: **47**
% C value 0: **0%**
% C value 1-3: **22.2%**
% C value 4-6: **66.7%**
% C value 7-10: **11.1%**
Native Tree Mean C: **4.8**
Native Shrub Mean C: **8**
Native Herbaceous Mean C: **3.8**

» Species Richness:

Total Species: **9**
Native Species: **9 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **0.3**
Native Mean Wetness: **0.3**

» Physiognomy Metrics:

Tree: **4 (44.4%)**
Shrub: **1 (11.1%)**
Vine: **0 (0%)**
Forb: **1 (11.1%)**
Grass: **1 (11.1%)**
Sedge: **2 (22.2%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **0 (0%)**
Perennial: **9 (100%)**
Biennial: **0 (0%)**

Native Annual: **0 (0%)**
Native Perennial: **9 (100%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 18

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **4.5**
Native Mean C: **4.7**
Total FQI: **23.8**
Native FQI: **24.4**
Adjusted FQI: **46.2**
% C value 0: **3.6%**
% C value 1-3: **35.7%**
% C value 4-6: **35.7%**
% C value 7-10: **25%**
Native Tree Mean C: **5**
Native Shrub Mean C: **5**
Native Herbaceous Mean C: **4.4**

» Species Richness:

Total Species: **28**
Native Species: **27 (96.4%)**
Non-native Species: **1 (3.6%)**

» Species Wetness:

Mean Wetness: **-0.6**
Native Mean Wetness: **-0.6**

» Physiognomy Metrics:

Tree: **7 (25%)**
Shrub: **5 (17.9%)**
Vine: **0 (0%)**
Forb: **8 (28.6%)**
Grass: **3 (10.7%)**
Sedge: **4 (14.3%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (3.6%)**
Perennial: **26 (92.9%)**
Biennial: **0 (0%)**

Native Annual: **1 (3.6%)**
Native Perennial: **26 (92.9%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 19

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.2**
Native Mean C: **3.8**
Total FQI: **22.9**
Native FQI: **24.6**
Adjusted FQI: **34.5**
% C value 0: **21.6%**
% C value 1-3: **35.3%**
% C value 4-6: **33.3%**
% C value 7-10: **9.8%**
Native Tree Mean C: **5.7**
Native Shrub Mean C: **4**
Native Herbaceous Mean C: **3**

» Species Richness:

Total Species: **51**
Native Species: **42 (82.4%)**
Non-native Species: **9 (17.6%)**

» Species Wetness:

Mean Wetness: **-0.3**
Native Mean Wetness: **-0.4**

» Physiognomy Metrics:

Tree: **10 (19.6%)**
Shrub: **8 (15.7%)**
Vine: **2 (3.9%)**
Forb: **12 (23.5%)**
Grass: **7 (13.7%)**
Sedge: **3 (5.9%)**
Rush: **1 (2%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **4 (7.8%)**
Perennial: **39 (76.5%)**
Biennial: **0 (0%)**

Native Annual: **4 (7.8%)**
Native Perennial: **38 (74.5%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 20

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.4**
Native Mean C: **3.8**
Total FQI: **22.6**
Native FQI: **23.7**
Adjusted FQI: **35.8**
% C value 0: **13.6%**
% C value 1-3: **38.6%**
% C value 4-6: **38.6%**
% C value 7-10: **9.1%**
Native Tree Mean C: **5**
Native Shrub Mean C: **5.4**
Native Herbaceous Mean C: **3.1**

» Species Richness:

Total Species: **44**
Native Species: **39 (88.6%)**
Non-native Species: **5 (11.4%)**

» Species Wetness:

Mean Wetness: **-0.8**
Native Mean Wetness: **-0.9**

» Physiognomy Metrics:

Tree: **8 (18.2%)**
Shrub: **6 (13.6%)**
Vine: **1 (2.3%)**
Forb: **15 (34.1%)**
Grass: **4 (9.1%)**
Sedge: **4 (9.1%)**
Rush: **2 (4.5%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **5 (11.4%)**
Perennial: **35 (79.5%)**
Biennial: **0 (0%)**

Native Annual: **5 (11.4%)**
Native Perennial: **34 (77.3%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 21

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.1**
Native Mean C: **3.8**
Total FQI: **17**
Native FQI: **19**
Adjusted FQI: **34.7**
% C value 0: **16.7%**
% C value 1-3: **40%**
% C value 4-6: **36.7%**
% C value 7-10: **6.7%**
Native Tree Mean C: **4.3**
Native Shrub Mean C: **4**
Native Herbaceous Mean C: **3.6**

» Species Richness:

Total Species: **30**
Native Species: **25 (83.3%)**
Non-native Species: **5 (16.7%)**

» Species Wetness:

Mean Wetness: **0**
Native Mean Wetness: **0**

» Physiognomy Metrics:

Tree: **4 (13.3%)**
Shrub: **5 (16.7%)**
Vine: **1 (3.3%)**
Forb: **9 (30%)**
Grass: **2 (6.7%)**
Sedge: **3 (10%)**
Rush: **2 (6.7%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (3.3%)**
Perennial: **25 (83.3%)**
Biennial: **0 (0%)**

Native Annual: **1 (3.3%)**
Native Perennial: **24 (80%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 22

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **2.2**
Native Mean C: **3.5**
Total FQI: **11**
Native FQI: **14**
Adjusted FQI: **28**
% C value 0: **36%**
% C value 1-3: **36%**
% C value 4-6: **20%**
% C value 7-10: **8%**
Native Tree Mean C: **5.3**
Native Shrub Mean C: **n/a**
Native Herbaceous Mean C: **3.1**

» Species Richness:

Total Species: **25**
Native Species: **16 (64%)**
Non-native Species: **9 (36%)**

» Species Wetness:

Mean Wetness: **-1.2**
Native Mean Wetness: **-1.9**

» Physiognomy Metrics:

Tree: **3 (12%)**
Shrub: **1 (4%)**
Vine: **2 (8%)**
Forb: **7 (28%)**
Grass: **0 (0%)**
Sedge: **2 (8%)**
Rush: **2 (8%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **2 (8%)**
Perennial: **15 (60%)**
Biennial: **0 (0%)**

Native Annual: **2 (8%)**
Native Perennial: **14 (56%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 23

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **4.8**
Native Mean C: **4.8**
Total FQI: **17.3**
Native FQI: **17.3**
Adjusted FQI: **48**
% C value 0: **0%**
% C value 1-3: **23.1%**
% C value 4-6: **69.2%**
% C value 7-10: **7.7%**
Native Tree Mean C: **4.7**
Native Shrub Mean C: **6.5**
Native Herbaceous Mean C: **4.2**

» Species Richness:

Total Species: **13**
Native Species: **13 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **1.8**
Native Mean Wetness: **1.8**

» Physiognomy Metrics:

Tree: **6 (46.2%)**
Shrub: **2 (15.4%)**
Vine: **0 (0%)**
Forb: **3 (23.1%)**
Grass: **1 (7.7%)**
Sedge: **1 (7.7%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (7.7%)**
Perennial: **12 (92.3%)**
Biennial: **0 (0%)**

Native Annual: **1 (7.7%)**
Native Perennial: **12 (92.3%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 24

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.8**
Native Mean C: **3.8**
Total FQI: **12**
Native FQI: **12**
Adjusted FQI: **38**
% C value 0: **0%**
% C value 1-3: **40%**
% C value 4-6: **50%**
% C value 7-10: **10%**
Native Tree Mean C: **4.7**
Native Shrub Mean C: **3.5**
Native Herbaceous Mean C: **3.4**

» Species Richness:

Total Species: **10**
Native Species: **10 (100%)**
Non-native Species: **0 (0%)**

» Species Wetness:

Mean Wetness: **-0.7**
Native Mean Wetness: **-0.7**

» Physiognomy Metrics:

Tree: **3 (30%)**
Shrub: **2 (20%)**
Vine: **1 (10%)**
Forb: **1 (10%)**
Grass: **0 (0%)**
Sedge: **3 (30%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **0 (0%)**
Perennial: **10 (100%)**
Biennial: **0 (0%)**

Native Annual: **0 (0%)**
Native Perennial: **10 (100%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

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Wetland 25

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3.1**
Native Mean C: **3.9**
Total FQI: **18.6**
Native FQI: **20.6**
Adjusted FQI: **34.4**
% C value 0: **25%**
% C value 1-3: **27.8%**
% C value 4-6: **38.9%**
% C value 7-10: **8.3%**
Native Tree Mean C: **5.3**
Native Shrub Mean C: **3.3**
Native Herbaceous Mean C: **3.6**

» Species Richness:

Total Species: **36**
Native Species: **28 (77.8%)**
Non-native Species: **8 (22.2%)**

» Species Wetness:

Mean Wetness: **-0.9**
Native Mean Wetness: **-1.1**

» Physiognomy Metrics:

Tree: **6 (16.7%)**
Shrub: **4 (11.1%)**
Vine: **1 (2.8%)**
Forb: **12 (33.3%)**
Grass: **1 (2.8%)**
Sedge: **5 (13.9%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **3 (8.3%)**
Perennial: **26 (72.2%)**
Biennial: **0 (0%)**

Native Annual: **3 (8.3%)**
Native Perennial: **25 (69.4%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 26

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **2.6**
Native Mean C: **2.8**
Total FQI: **13.3**
Native FQI: **13.7**
Adjusted FQI: **26.9**
% C value 0: **7.7%**
% C value 1-3: **65.4%**
% C value 4-6: **26.9%**
% C value 7-10: **0%**
Native Tree Mean C: **5**
Native Shrub Mean C: **1**
Native Herbaceous Mean C: **2.7**

» Species Richness:

Total Species: **26**
Native Species: **24 (92.3%)**
Non-native Species: **2 (7.7%)**

» Species Wetness:

Mean Wetness: **-1.2**
Native Mean Wetness: **-1.3**

» Physiognomy Metrics:

Tree: **2 (7.7%)**
Shrub: **1 (3.8%)**
Vine: **0 (0%)**
Forb: **11 (42.3%)**
Grass: **3 (11.5%)**
Sedge: **5 (19.2%)**
Rush: **2 (7.7%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (3.8%)**
Perennial: **23 (88.5%)**
Biennial: **0 (0%)**

Native Annual: **1 (3.8%)**
Native Perennial: **23 (88.5%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 27

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3**
Native Mean C: **3.7**
Total FQI: **24.9**
Native FQI: **27.4**
Adjusted FQI: **33**
% C value 0: **21.7%**
% C value 1-3: **39.1%**
% C value 4-6: **33.3%**
% C value 7-10: **5.8%**
Native Tree Mean C: **4.7**
Native Shrub Mean C: **3.8**
Native Herbaceous Mean C: **3.5**

» Species Richness:

Total Species: **69**
Native Species: **55 (79.7%)**
Non-native Species: **14 (20.3%)**

» Species Wetness:

Mean Wetness: **-0.8**
Native Mean Wetness: **-1**

» Physiognomy Metrics:

Tree: **10 (14.5%)**
Shrub: **5 (7.2%)**
Vine: **0 (0%)**
Forb: **23 (33.3%)**
Grass: **6 (8.7%)**
Sedge: **9 (13%)**
Rush: **2 (2.9%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **4 (5.8%)**
Perennial: **51 (73.9%)**
Biennial: **0 (0%)**

Native Annual: **4 (5.8%)**
Native Perennial: **50 (72.5%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 28

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **2.8**
Native Mean C: **3.7**
Total FQI: **20**
Native FQI: **23.1**
Adjusted FQI: **32.4**
% C value 0: **25.5%**
% C value 1-3: **47.1%**
% C value 4-6: **15.7%**
% C value 7-10: **11.8%**
Native Tree Mean C: **3.5**
Native Shrub Mean C: **5**
Native Herbaceous Mean C: **3.7**

» Species Richness:

Total Species: **51**
Native Species: **39 (76.5%)**
Non-native Species: **12 (23.5%)**

» Species Wetness:

Mean Wetness: **-1.3**
Native Mean Wetness: **-1.6**

» Physiognomy Metrics:

Tree: **4 (7.8%)**
Shrub: **2 (3.9%)**
Vine: **3 (5.9%)**
Forb: **22 (43.1%)**
Grass: **4 (7.8%)**
Sedge: **3 (5.9%)**
Rush: **2 (3.9%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **2 (3.9%)**
Perennial: **38 (74.5%)**
Biennial: **0 (0%)**

Native Annual: **2 (3.9%)**
Native Perennial: **37 (72.5%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 29

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **2.9**
Native Mean C: **3.8**
Total FQI: **24.1**
Native FQI: **27.4**
Adjusted FQI: **33**
% C value 0: **27.5%**
% C value 1-3: **34.8%**
% C value 4-6: **27.5%**
% C value 7-10: **10.1%**
Native Tree Mean C: **4.3**
Native Shrub Mean C: **3.8**
Native Herbaceous Mean C: **3.8**

» Species Richness:

Total Species: **69**
Native Species: **52 (75.4%)**
Non-native Species: **17 (24.6%)**

» Species Wetness:

Mean Wetness: **-0.8**
Native Mean Wetness: **-1**

» Physiognomy Metrics:

Tree: **3 (4.3%)**
Shrub: **6 (8.7%)**
Vine: **0 (0%)**
Forb: **26 (37.7%)**
Grass: **5 (7.2%)**
Sedge: **9 (13%)**
Rush: **3 (4.3%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **6 (8.7%)**
Perennial: **46 (66.7%)**
Biennial: **0 (0%)**

Native Annual: **6 (8.7%)**
Native Perennial: **45 (65.2%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 30

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **2.7**
Native Mean C: **3.8**
Total FQI: **22.1**
Native FQI: **26.1**
Adjusted FQI: **31.8**
% C value 0: **29.9%**
% C value 1-3: **34.3%**
% C value 4-6: **29.9%**
% C value 7-10: **6%**
Native Tree Mean C: **4.3**
Native Shrub Mean C: **5**
Native Herbaceous Mean C: **3.8**

» Species Richness:

Total Species: **67**
Native Species: **47 (70.1%)**
Non-native Species: **20 (29.9%)**

» Species Wetness:

Mean Wetness: **-0.8**
Native Mean Wetness: **-1.2**

» Physiognomy Metrics:

Tree: **6 (9%)**
Shrub: **2 (3%)**
Vine: **2 (3%)**
Forb: **31 (46.3%)**
Grass: **3 (4.5%)**
Sedge: **2 (3%)**
Rush: **1 (1.5%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **4 (6%)**
Perennial: **43 (64.2%)**
Biennial: **0 (0%)**

Native Annual: **4 (6%)**
Native Perennial: **42 (62.7%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory | Download Report | Done

Wetland 31

» Date & Location:

2022-03-07
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **3**
Native Mean C: **3.9**
Total FQI: **21.8**
Native FQI: **25**
Adjusted FQI: **34.3**
% C value 0: **26.4%**
% C value 1-3: **37.7%**
% C value 4-6: **26.4%**
% C value 7-10: **9.4%**
Native Tree Mean C: **5.5**
Native Shrub Mean C: **2.3**
Native Herbaceous Mean C: **3.8**

» Species Richness:

Total Species: **53**
Native Species: **41 (77.4%)**
Non-native Species: **12 (22.6%)**

» Species Wetness:

Mean Wetness: **-1.2**
Native Mean Wetness: **-1.6**

» Physiognomy Metrics:

Tree: **4 (7.5%)**
Shrub: **4 (7.5%)**
Vine: **2 (3.8%)**
Forb: **21 (39.6%)**
Grass: **5 (9.4%)**
Sedge: **4 (7.5%)**
Rush: **2 (3.8%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **4 (7.5%)**
Perennial: **38 (71.7%)**
Biennial: **0 (0%)**

Native Annual: **4 (7.5%)**
Native Perennial: **37 (69.8%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 32

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **2.1**
Native Mean C: **3.5**
Total FQI: **9.4**
Native FQI: **12.1**
Adjusted FQI: **27.1**
% C value 0: **40%**
% C value 1-3: **35%**
% C value 4-6: **25%**
% C value 7-10: **0%**
Native Tree Mean C: **n/a**
Native Shrub Mean C: **n/a**
Native Herbaceous Mean C: **3.4**

» Species Richness:

Total Species: **20**
Native Species: **12 (60%)**
Non-native Species: **8 (40%)**

» Species Wetness:

Mean Wetness: **-1**
Native Mean Wetness: **-1.7**

» Physiognomy Metrics:

Tree: **0 (0%)**
Shrub: **0 (0%)**
Vine: **1 (5%)**
Forb: **4 (20%)**
Grass: **1 (5%)**
Sedge: **4 (20%)**
Rush: **1 (5%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **1 (5%)**
Perennial: **10 (50%)**
Biennial: **0 (0%)**

Native Annual: **1 (5%)**
Native Perennial: **10 (50%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 33

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **0.9**
Native Mean C: **1.8**
Total FQI: **2.8**
Native FQI: **4**
Adjusted FQI: **12.7**
% C value 0: **60%**
% C value 1-3: **30%**
% C value 4-6: **10%**
% C value 7-10: **0%**
Native Tree Mean C: **n/a**
Native Shrub Mean C: **n/a**
Native Herbaceous Mean C: **1.8**

» Species Richness:

Total Species: **10**
Native Species: **5 (50%)**
Non-native Species: **5 (50%)**

» Species Wetness:

Mean Wetness: **0.5**
Native Mean Wetness: **1**

» Physiognomy Metrics:

Tree: **0 (0%)**
Shrub: **0 (0%)**
Vine: **0 (0%)**
Forb: **3 (30%)**
Grass: **1 (10%)**
Sedge: **0 (0%)**
Rush: **1 (10%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **3 (30%)**
Perennial: **2 (20%)**
Biennial: **0 (0%)**

Native Annual: **3 (30%)**
Native Perennial: **2 (20%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 34

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **1.4**
Native Mean C: **2.3**
Total FQI: **7**
Native FQI: **8.9**
Adjusted FQI: **17.8**
% C value 0: **44%**
% C value 1-3: **44%**
% C value 4-6: **12%**
% C value 7-10: **0%**
Native Tree Mean C: **n/a**
Native Shrub Mean C: **n/a**
Native Herbaceous Mean C: **2.1**

» Species Richness:

Total Species: **25**
Native Species: **15 (60%)**
Non-native Species: **10 (40%)**

» Species Wetness:

Mean Wetness: **-0.2**
Native Mean Wetness: **-0.3**

» Physiognomy Metrics:

Tree: **0 (0%)**
Shrub: **0 (0%)**
Vine: **0 (0%)**
Forb: **12 (48%)**
Grass: **1 (4%)**
Sedge: **0 (0%)**
Rush: **1 (4%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **5 (20%)**
Perennial: **9 (36%)**
Biennial: **0 (0%)**

Native Annual: **5 (20%)**
Native Perennial: **9 (36%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 35

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **2.8**
Native Mean C: **3.6**
Total FQI: **17.9**
Native FQI: **20.4**
Adjusted FQI: **31.8**
% C value 0: **26.8%**
% C value 1-3: **31.7%**
% C value 4-6: **39%**
% C value 7-10: **2.4%**
Native Tree Mean C: **3.5**
Native Shrub Mean C: **3.3**
Native Herbaceous Mean C: **3.6**

» Species Richness:

Total Species: **41**
Native Species: **32 (78%)**
Non-native Species: **9 (22%)**

» Species Wetness:

Mean Wetness: **0.1**
Native Mean Wetness: **0.2**

» Physiognomy Metrics:

Tree: **2 (4.9%)**
Shrub: **5 (12.2%)**
Vine: **2 (4.9%)**
Forb: **13 (31.7%)**
Grass: **4 (9.8%)**
Sedge: **6 (14.6%)**
Rush: **0 (0%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **3 (7.3%)**
Perennial: **29 (70.7%)**
Biennial: **0 (0%)**

Native Annual: **3 (7.3%)**
Native Perennial: **28 (68.3%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory   Download Report   Done

Wetland 36

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **1.9**
Native Mean C: **2.8**
Total FQI: **9.5**
Native FQI: **11.5**
Adjusted FQI: **23.1**
% C value 0: **32%**
% C value 1-3: **44%**
% C value 4-6: **24%**
% C value 7-10: **0%**
Native Tree Mean C: **6**
Native Shrub Mean C: **n/a**
Native Herbaceous Mean C: **2.4**

» Species Richness:

Total Species: **25**
Native Species: **17 (68%)**
Non-native Species: **8 (32%)**

» Species Wetness:

Mean Wetness: **-1**
Native Mean Wetness: **-1.5**

» Physiognomy Metrics:

Tree: **1 (4%)**
Shrub: **0 (0%)**
Vine: **0 (0%)**
Forb: **10 (40%)**
Grass: **1 (4%)**
Sedge: **2 (8%)**
Rush: **2 (8%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **4 (16%)**
Perennial: **12 (48%)**
Biennial: **0 (0%)**

Native Annual: **4 (16%)**
Native Perennial: **12 (48%)**
Native Biennial: **0 (0%)**

» Species:

Inventory Assessment

Edit This Inventory | Download Report | Done

Wetland 37

» Date & Location:

2022-03-08
HFP WSP2

Centre, PA, USA

» Custom FQA Database:

Name: **WEC - Ridge & Valley with Exotics**
Description:
Ridge & Valley with Exotics

» Original FQA Database:

Region: **Mid-Atlantic Ridge and Valley Region**
Year Published: **2012**
Description:
Mid-Atlantic Wetland Workgroup (MAWWG). 2012. Floristic Quality Assessment Index (FQAI) calculator.

» Details:

Practitioner: **Joe Wilson**
Latitude:
Longitude:
Weather Notes:
Duration Notes:
Community Type Notes:

Other Notes:
This assessment is **private** (viewable only by you).

» Conservatism-Based Metrics:

Total Mean C: **1.5**
Native Mean C: **2.2**
Total FQI: **5.8**
Native FQI: **7**
Adjusted FQI: **18**
% C value 0: **40%**
% C value 1-3: **46.7%**
% C value 4-6: **13.3%**
% C value 7-10: **0%**
Native Tree Mean C: **n/a**
Native Shrub Mean C: **n/a**
Native Herbaceous Mean C: **2.2**

» Species Richness:

Total Species: **15**
Native Species: **10 (66.7%)**
Non-native Species: **5 (33.3%)**

» Species Wetness:

Mean Wetness: **-0.7**
Native Mean Wetness: **-1**

» Physiognomy Metrics:

Tree: **0 (0%)**
Shrub: **0 (0%)**
Vine: **0 (0%)**
Forb: **5 (33.3%)**
Grass: **3 (20%)**
Sedge: **0 (0%)**
Rush: **2 (13.3%)**
Fern: **0 (0%)**
Bryophyte: **0 (0%)**

» Duration Metrics:

Annual: **3 (20%)**
Perennial: **7 (46.7%)**
Biennial: **0 (0%)**

Native Annual: **3 (20%)**
Native Perennial: **7 (46.7%)**
Native Biennial: **0 (0%)**

» Species:

WETLAND FUNCTION & VALUE ASSESSMENT

DATA FORMS

Wilson
Ecological Consulting

Wetland Function-Value Evaluation Form

Total area of wetland __0.02__ Human made? __No__ Is wetland part of a wildlife corridor? __No__ or a "habitat island"? __No__

Adjacent land use __Forest__ Distance to nearest roadway or other development __100'__

Dominant wetland systems present __PFO__ Contiguous undeveloped buffer zone present __Yes__

Is the wetland a separate hydraulic system? __YEs__ If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. __1__ __HFP__
Latitude __40.80218__ Longitude __-77.94468__
Prepared by: __JJW__ Date __03/17/2023__
Wetland Impact:
Type _____ Area _____
Evaluation based on:
Office __X__ Field __X__
Corps manual wetland delineation
completed? Y __X__ N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11	X	
Recreation	Y	1, 3, 10		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			36/2.83 = 12.7	

Notes:

*Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 2 HFP

Latitude 40.80287 Longitude -77.94433

Prepared by: JJW Date 03/17/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X N ____

Total area of wetland 0.12 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 160'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2, 4		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 20	X	
Recreation	Y	1, 3, 4, 10		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			42/2.83 = 14.8	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. __3 HFP__

Latitude __40.80167__ Longitude __-77.94480__

Prepared by: __JJW__ Date __03/17/2023__

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office __X__ Field __X__

Corps manual wetland delineation
completed? Y __x__ N _____

Total area of wetland __0.10__ Human made? __No__ Is wetland part of a wildlife corridor? __No__ or a "habitat island"? __No__

Adjacent land use __Forest__ Distance to nearest roadway or other development __25'__

Dominant wetland systems present __PFO__ Contiguous undeveloped buffer zone present __Yes__

Is the wetland a separate hydraulic system? __Yes__ If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2, 4		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 20	X	
Recreation	Y	1, 3, 4, 10		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			42/2.83 = 14.8	

Notes:

Wetland Function-Value Evaluation Form

Wetland I.D. _4_ HFP

Latitude _40.80214_ Longitude _-77.94377_

Prepared by: _JJW_ Date _03/17/2023_

Wetland Impact:
Type ___ Area ___

Evaluation based on:
Office _X_ Field _X_

Corps manual wetland delineation
completed? Y _x_ N ___

Total area of wetland _0.85_ Human made? _No_ Is wetland part of a wildlife corridor? _No_ or a "habitat island"? _No_

Adjacent land use _Forest_ Distance to nearest roadway or other development _15'_

Dominant wetland systems present _PEM/PUB_ Contiguous undeveloped buffer zone present _Yes_

Is the wetland a separate hydraulic system? _Yes_ If not, where does the wetland lie in the drainage basin? ___

How many tributaries contribute to the wetland? ___ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 4, 5, 6, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 3, 4, 5, 9		
Nutrient Removal	Y	3, 5, 7, 8, 9, 11		
Production Export	Y	1, 2, 4, 5, 7, 9, 12		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 9, 11, 13, 16, 17, 19, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	Y	1, 2, 3, 5, 6, 7, 10, 11, 12		
ES Endangered Species Habitat	N			
Other		87/2.83 = 30.7		

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 5   HFP

Latitude 40.80072   Longitude -77.94496

Prepared by: JJW   Date 03/17/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y X   N _____

Total area of wetland 0.13   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Forest   Distance to nearest roadway or other development 15'

Dominant wetland systems present PEM/PUB   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2, 4		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 9, 11, 16, 17, 19, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			45/2.83 = 15.9	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 18.0   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Forest   Distance to nearest roadway or other development 175'

Dominant wetland systems present PEM/PUB/PSS/PFO   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland?   Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 6   HFP

Latitude 40.80143   Longitude -77.94251

Prepared by: JJW   Date 03/17/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed?   Y x   N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	1, 2, 5, 6, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 8, 9		
Nutrient Removal	Y	1, 2, 3, 4, 5, 7, 8, 9, 10		
Production Export	Y	1, 2, 3, 4, 5, 7, 8, 9, 12, 14		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14,	X	15, 16, 17, 18, 19, 20, 21, 23
Recreation	Y	1, 3, 4, 5, 7, 10, 11, 12		
Educational/Scientific Value	Y	1, 2, 3, 4, 5, 7, 8 , 10, 13		
Uniqueness/Heritage	Y	3, 4, 5, 6, 8, 10, 12, 13, 14,		15, 16, 17, 19, 23, 24, 25, 26, 27, 28
Visual Quality/Aesthetics	Y	1, 2, 3, 4, 5, 6, 7, 8, 9, 10,		11, 12
ES Endangered Species Habitat	Y	1, 2		
Other				153/2.83 = 54.1

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 7 HFP

Latitude 40.80304 Longitude -77.94250

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y x ___ N ___

Total area of wetland 0.15 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				29/2.83 = 10.2

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 8 HFP

Latitude 40.80340 Longitude -77.94203

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X N _____

Total area of wetland 0.24 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 175'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2, 4, 7, 8		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 9, 11, 13, 20	X	
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			35/2.83 = 12.4	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.04 ____ Human made? No ____ Is wetland part of a wildlife corridor? No ____ or a "habitat island"? No ____

Adjacent land use ___ Forest ____ Distance to nearest roadway or other development 50'

Dominant wetland systems present PFO ____ Contiguous undeveloped buffer zone present Yes ____

Is the wetland a separate hydraulic system? Yes ____ If not, where does the wetland lie in the drainage basin? ____

How many tributaries contribute to the wetland? ____ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9 HFP

Latitude 40.80363 Longitude -77.94302

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type ____ Area ____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y x ____ N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			29/2.83 = 10.2	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 ___ Human made? No ___ Is wetland part of a wildlife corridor? No ___ or a "habitat island"? No ___

Adjacent land use Forest ___ Distance to nearest roadway or other development 50'

Dominant wetland systems present PSS ___ Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes ___ If not, where does the wetland lie in the drainage basin? ___

How many tributaries contribute to the wetland? ___ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10 HFP
Latitude 40.80386 Longitude -77.94255
Prepared by: JJW Date 03/18/2023
Wetland Impact:
Type ___ Area ___
Evaluation based on:
Office X Field X
Corps manual wetland delineation
completed? Y x ___ N ___

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			28/2.83 = 9.9	

Notes:

Wetland Function-Value Evaluation Form

Wetland I.D. 11 HFP

Latitude 40.80507   Longitude -77.94221

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y X   N____

Total area of wetland 0.03   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use   Forest   Distance to nearest roadway or other development 375'

Dominant wetland systems present PFO   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin?_____

How many tributaries contribute to the wetland?_____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17	X	
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other		31/2.83 = 10.7		

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 12 HFP

Latitude 40.80540 Longitude -77.94139

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X N ____

Total area of wetland 0.13 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 600'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 18, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			43/2.83 = 15.2	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 13 HFP

Latitude 40.80540 Longitude -77.94044

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y x ___ N ___

Total area of wetland 0.24 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 850'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 18, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			43/2.83 = 15.2	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland **0.10** Human made? **No** Is wetland part of a wildlife corridor? **No** or a "habitat island"? **No**

Adjacent land use **Forest** Distance to nearest roadway or other development **825'**

Dominant wetland systems present **PFO** Contiguous undeveloped buffer zone present **Yes**

Is the wetland a separate hydraulic system? **Yes** If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **14 HFP**

Latitude **40.80576** Longitude **-77.94087**

Prepared by: **JJW** Date **03/18/2023**

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office **X** Field **X**

Corps manual wetland delineation
completed? Y **X** N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 18, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			43/2.83 = 15.2	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 15 HFP

Latitude 40.80605 Longitude -77.94023

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y x_____ N _____

Total area of wetland 0.08 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 1000'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 18, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			43/2.83 = 15.2	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 16 HFP

Latitude 40.80654   Longitude -77.93984

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y X   N _____

Total area of wetland 0.02   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Forest   Distance to nearest roadway or other development 600'

Dominant wetland systems present PFO   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____   Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			29/2.83 = 10.2	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use   Forest   Distance to nearest roadway or other development 500'

Dominant wetland systems present PFO   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland?   Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17 HFP
Latitude 40.80654   Longitude -77.93984
Prepared by: JJW   Date 03/18/2023
Wetland Impact:
Type _____ Area _____
Evaluation based on:
Office X   Field X
Corps manual wetland delineation
completed? Y X   N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			29/2.83 = 10.2	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.19   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use   Forest   Distance to nearest roadway or other development 800'

Dominant wetland systems present PSS   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland?   Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 18 HFP

Latitude 40.80657   Longitude -77.94075

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y X ____ N ____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2, 7, 8		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14, 15	X	
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			34/2.83 = 12.0	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland __0.51__ Human made? __No__ Is wetland part of a wildlife corridor? __No__ or a "habitat island"? __No__

Adjacent land use __Forest__ Distance to nearest roadway or other development __50'__

Dominant wetland systems present __PFO__ Contiguous undeveloped buffer zone present __Yes__

Is the wetland a separate hydraulic system? __Yes__ If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. __19 HFP__
Latitude __40.80655__ Longitude __-77.93804__
Prepared by: __JJW__ Date __03/18/2023__
Wetland Impact:
Type _____ Area _____
Evaluation based on:
Office __X__ Field __X__
Corps manual wetland delineation completed? Y __X__ N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	3, 4, 5, 7, 8, 9		
Production Export	Y	1, 2, 4, 7, 8		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14, 15, 17, 18	X	
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			54/2.83 = 19.1	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 20 HFP

Latitude 40.80831   Longitude -77.93628

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____   Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y x ____ N ____

Total area of wetland 0.19   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Forest   Distance to nearest roadway or other development 550'

Dominant wetland systems present PFO   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____   Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	1, 2, 3, 4, 5, 9		
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 18, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			65/2.83 = 23.0	

Notes:

Wetland Function-Value Evaluation Form

Wetland I.D. 21 HFP

Latitude 40.80825 Longitude -77.93559

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X N _____

Total area of wetland 0.21 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 700'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	C		
Production Export	Y	1, 2, 4, 7, 8		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14, 15, 16, 17, 18, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			71/2.83 = 25.1	

Notes:

Wetland Function-Value Evaluation Form

Wetland I.D. 22 HFP

Latitude 40.80756 Longitude -77.93576

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X ____ Field X ____

Corps manual wetland delineation completed? Y x ____ N ____

Total area of wetland 0.14 ____ Human made? No ____ Is wetland part of a wildlife corridor? No ____ or a "habitat island"? No ____

Adjacent land use Agriculture ____ Distance to nearest roadway or other development 500'

Dominant wetland systems present PSS ____ Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes ____ If not, where does the wetland lie in the drainage basin? ____

How many tributaries contribute to the wetland? ____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	3, 4, 5, 7, 8, 9	X	
Production Export	Y	1, 2, 7, 8		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			55/2.83 = 19.4	

Notes:

Wetland Function-Value Evaluation Form

Total area of wetland **0.16**   Human made? **No**   Is wetland part of a wildlife corridor? **No**   or a "habitat island"? **No**

Adjacent land use **Forest**   Distance to nearest roadway or other development **100'**

Dominant wetland systems present **PFO**   Contiguous undeveloped buffer zone present **Yes**

Is the wetland a separate hydraulic system? **Yes**   If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland?   Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **23 HFP**
Latitude **40.80995**   Longitude **-77.93173**
Prepared by: **JJW**   Date **03/18/2023**
Wetland Impact:
Type _____ Area _____
Evaluation based on:
Office **X**   Field **X**
Corps manual wetland delineation
completed? Y **x**   N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 18, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			43/2.83 = 15.2	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 24 HFP

Latitude 40.80754   Longitude -77.93202

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation completed? Y X   N _____

Total area of wetland 0.09   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Forest   Distance to nearest roadway or other development 1200'

Dominant wetland systems present PFO   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____   Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	3, 4, 5, 7, 8, 9		
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			51/2.83 = 18.0	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland __0.34__   Human made? __No__   Is wetland part of a wildlife corridor? __No__   or a "habitat island"? __No__

Adjacent land use __Forest__   Distance to nearest roadway or other development __600'__

Dominant wetland systems present __PFO__   Contiguous undeveloped buffer zone present __Yes__

Is the wetland a separate hydraulic system? __Yes__   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____   Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. __25 HFP__
Latitude __40.80649__   Longitude __-77.93370__
Prepared by: __JJW__   Date __03/18/2023__
Wetland Impact:
Type _____   Area _____
Evaluation based on:
Office __X__   Field __X__
Corps manual wetland delineation
completed? Y __x__   N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	1, 2, 3, 4, 5, 9		
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 16, 17, 18, 20	X	
Recreation	Y	1, 3, 4, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			65/2.83 = 23.0	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 26 HFP

Latitude 40.80923 Longitude -77.93529

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X N _____

Total area of wetland 0.04 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 900'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9	X	
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			29/2.83 = 10.2	

Notes:

Wetland Function-Value Evaluation Form

Wetland I.D. 27 HFP

Latitude 40.80384 Longitude -77.93623

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X N _____

Total area of wetland 3.80 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 150'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	3, 4, 5, 7, 8, 9, 11		
Production Export	Y	1, 2, 4, 5, 7, 8, 9, 12		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14, 15,	X 16, 17, 18, 19, 20, 21	
Recreation	Y	1, 3, 5, 10, 11		
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			77/2.83 = 27.2	

Notes:

*Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 28 HFP

Latitude 40.80436 Longitude -77.93459

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y x _____ N _____

Total area of wetland 0.19 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 25'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	3, 4, 7, 9		
Production Export	Y	1, 2, 4, 5, 7, 8, 9		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14, 15	X	
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			57/2.83 = 20.1	

Notes:

Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 29 HFP

Latitude 40.80541 Longitude -77.93184

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X _____ N _____

Total area of wetland 0.59 Human made? No

Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 25'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	3, 4, 5, 7, 8, 9, 11	X	
Production Export	Y	1, 7		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other		54/2.83 = 19.1		

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 30 HFP

Latitude 40.80218   Longitude -77.93085

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____   Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation completed? Y X   N ____

Total area of wetland 1.96   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Agriculture   Distance to nearest roadway or other development 100'

Dominant wetland systems present PEM   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____   Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	2, 3, 4, 5, 6, 7, 8, 9, 11		
Production Export	Y	1, 2, 4, 5, 7, 8, 9, 12		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14	X 15, 16, 17, 18, 19, 20, 21	
Recreation	Y	1, 3, 4, 5, 10, 11		
Educational/Scientific Value	Y	2, 3, 4, 8, 9, 10, 13		
Uniqueness/Heritage	Y	4, 5, 6, 8, 9, 10, 12, 13,	16, 17, 19, 21, 23	
Visual Quality/Aesthetics	Y	1, 2, 3, 5, 6, 7, 9, 11		
ES Endangered Species Habitat	N			
Other			123/2.83 = 43.5	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 31 HFP

Latitude 40.80158   Longitude -77.93742

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____   Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y X   N ____

Total area of wetland 0.20   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Agriculture   Distance to nearest roadway or other development 1100'

Dominant wetland systems present PSS   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____   Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 9		
Nutrient Removal	Y	3, 4, 5, 7, 8, 9, 11	X	
Production Export	Y	1, 2, 7, 8		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	1, 3, 4, 5, 7, 8, 11, 13, 14, 15, 17, 18		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			$59/2.83 = 20.8$	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 32 HFP

Latitude 40.80224   Longitude -77.93626

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y X _____ N _____

Total area of wetland 0.09 _____ Human made? No _____ Is wetland part of a wildlife corridor? No _____ or a "habitat island"? No _____

Adjacent land use Agriculture   Distance to nearest roadway or other development 775'

Dominant wetland systems present PEM   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 9		
Nutrient Removal	Y	3, 4, 7, 8, 9	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			30/2.83 = 10.6	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 33 HFP

Latitude 40.80319 Longitude -77.93450

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N ____

Total area of wetland 0.15 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 125'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 9		
Nutrient Removal	Y	3, 4, 7, 8, 9	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			30/2.83 = 10.6	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.38   Human made? No   Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Agriculture   Distance to nearest roadway or other development 125'

Dominant wetland systems present PEM   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland?   Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 34 HFP

Latitude 40.79959   Longitude -77.93780

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation completed? Y X   N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 9		
Nutrient Removal	Y	3, 4, 7, 8, 9	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	7, 11, 16, 17		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			34/2.83 = 12.0	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 35 HFP

Latitude 40.79851 Longitude -77.93565

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y X ___ N ___

Total area of wetland 0.06   Human made? No

Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Agriculture   Distance to nearest roadway or other development 1450'

Dominant wetland systems present PEM   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____   Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 9		
Nutrient Removal	Y	3, 4, 7, 8, 9	X	
Production Export	Y	1, 2		
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y	5, 7, 8, 11, 18		
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			42/2.83 = 14.8	

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Wetland I.D. 36 HFP

Latitude 40.80312   Longitude -77.93721

Prepared by: JJW   Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X   Field X

Corps manual wetland delineation
completed? Y X   N _____

Total area of wetland 0.08   Human made? No

Is wetland part of a wildlife corridor? No   or a "habitat island"? No

Adjacent land use Agriculture   Distance to nearest roadway or other development 750'

Dominant wetland systems present PEM   Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes   If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____   Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 9		
Nutrient Removal	Y	3, 4, 7, 8, 9	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			30/2.83 = 10.6	

Notes:

Wetland Function-Value Evaluation Form

Wetland I.D. 37 HFP

Latitude 40.79917 Longitude -77.93135

Prepared by: JJW Date 03/18/2023

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X N _____

Total area of wetland 0.15 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 300'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y	2, 5, 7, 8, 9		
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 9		
Nutrient Removal	Y	3, 4, 7, 8, 9	X	
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other			$30/2.83 = 10.6$	

Notes:

* Refer to backup list of numbered considerations.

WETLAND FUNCTION & VALUE ASSESSMENT
APPENDIX A

Appendix A

Wetland evaluation supporting documentation; Reproducible forms.

Below is an example list of considerations that was used for a New Hampshire highway project. Considerations are flexible, based on best professional judgment and interdisciplinary team consensus. This example provides a comprehensive base, however, and may only need slight modifications for use in other projects.

GROUNDWATER RECHARGE/DISCHARGE— This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

CONSIDERATIONS/QUALIFIERS
1. Public or private wells occur downstream of the wetland.
2. Potential exists for public or private wells downstream of the wetland.
3. Wetland is underlain by stratified drift.
4. Gravel or sandy soils present in or adjacent to the wetland.
5. Fragipan does not occur in the wetland.
6. Fragipan, impervious soils, or bedrock does occur in the wetland.
7. Wetland is associated with a perennial or intermittent watercourse.
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.
9. Wetland is associated with a watercourse but lacks a defined outlet or contains a constricted outlet.
10. Wetland contains only an outlet, no inlet.
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.
12. Quality of water associated with the wetland is high.
13. Signs of groundwater discharge are present (e.g., springs).
14. Water temperature suggests it is a discharge site.
15. Wetland shows signs of variable water levels.
16. Piezometer data demonstrates discharge.
17. Other

FLOODFLOW ALTERATION (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

CONSIDERATIONS/QUALIFIERS
1.   Area of this wetland is large relative to its watershed.
2.   Wetland occurs in the upper portions of its watershed.
3.   Effective flood storage is small or non-existent upslope of or above the wetland.
4.   Wetland watershed contains a high percent of impervious surfaces.
5.   Wetland contains hydric soils which are able to absorb and detain water.
6.   Wetland exists in a relatively flat area that has flood storage potential.
7.   Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.
8.   During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions.
9.   Wetland receives and retains overland or sheet flow runoff from surrounding uplands.
10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse.
11. Valuable properties, structures, or resources are located in or near the floodplain downstream from the wetland.
12. The watershed has a history of economic loss due to flooding.
13. This wetland is associated with one or more watercourses.
14. This wetland watercourse is sinuous or diffuse.
15. This wetland outlet is constricted.
16. Channel flow velocity is affected by this wetland.
17. Land uses downstream are protected by this wetland.
18. This wetland contains a high density of vegetation.
19. Other

FISH AND SHELLFISH HABITAT (FRESHWATER) — This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

CONSIDERATIONS/QUALIFIERS
1.   Forest land dominant in the watershed above this wetland.
2.   Abundance of cover objects present.
STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE
3.   Size of this wetland is able to support large fish/shellfish populations.
4.   Wetland is part of a larger, contiguous watercourse.
5.   Wetland has sufficient size and depth in open water areas so as not to freeze solid and retain some open water during winter.
6.   Stream width (bank to bank) is more than 50 feet.
7.   Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.
8.   Streamside vegetation provides shade for the watercourse.
9.   Spawning areas are present (submerged vegetation or gravel beds).
10. Food is available to fish/shellfish populations within this wetland.
11. Barrier(s) to anadromous fish (such as dams, including beaver dams, waterfalls, road crossing) are absent from the stream reach associated with this wetland.
12. Evidence of fish is present.
13. Wetland is stocked with fish.
14. The watercourse is persistent.
15. Man-made streams are absent.
16. Water velocities are not too excessive for fish usage.
17. Defined stream channel is present.
18. Other

Although the above example refers to freshwater wetlands, it can also be adapted for marine ecosystems. The following is an example provided by the National Marine Fisheries Service (NMFS) of an adaptation for the fish and shellfish function.

FISH AND SHELLFISH HABITAT (MARINE) — This function considers the effectiveness of wetlands, embayments, tidal flats, vegetated shallows, and other environments in supporting marine resources such as fish, shellfish, marine mammals, and sea turtles.

CONSIDERATIONS/QUALIFIERS
1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.
2. Suitable spawning habitat is present at the site or in the area.
3. Commercially or recreationally important species are present or suitable habitat exists.
4. The wetland/waterway supports prey for higher trophic level marine organisms.
5. The waterway provides migratory habitat for anadromous fish.
6. Essential fish habitat, as defined by the 1996 amendments to the Magnuson-Stevens Fishery & Conservation Act, is present (consultation with NMFS may be necessary).
7. Other

SEDIMENT/TOXICANT/PATHOGEN RETENTION — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

CONSIDERATIONS/QUALIFIERS
1. Potential sources of excess sediment are in the watershed above the wetland.
2. Potential or known sources of toxicants are in the watershed above the wetland.
3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.
4. Fine grained mineral or organic soils are present.
5. Long duration water retention time is present in this wetland.
6. Public or private water sources occur downstream.
7. The wetland edge is broad and intermittently aerobic.
8. The wetland is known to have existed for more than 50 years.
9. Drainage ditches have not been constructed in the wetland.
STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.
10. Wetland is associated with an intermittent or perennial stream or a lake.
11. Channelized flows have visible velocity decreases in the wetland.
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.
13. No indicators of erosive forces are present. No high water velocities are present.
14. Diffuse water flows are present in the wetland.
15. Wetland has a high degree of water and vegetation interspersion.
16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present.
17. Other

NUTRIENT REMOVAL/RETENTION/TRANSFORMATION — This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

CONSIDERATIONS/QUALIFIERS
1. Wetland is large relative to the size of its watershed.
2. Deep water or open water habitat exists.
3. Overall potential for sediment trapping exists in the wetland.

4. Potential sources of excess nutrients are present in the watershed above the wetland.
5. Wetland saturated for most of the season. Ponded water is present in the wetland.
6. Deep organic/sediment deposits are present.
7. Slowly drained fine grained mineral or organic soils are present.
8. Dense vegetation is present.
9. Emergent vegetation and/or dense woody stems are dominant.
10. Opportunity for nutrient attenuation exists.
11. Vegetation diversity/abundance sufficient to utilize nutrients.
STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.
12. Waterflow through this wetland is diffuse.
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.
14. Water moves slowly through this wetland.
15. Other

PRODUCTION EXPORT (Nutrient) — This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

CONSIDERATIONS/QUALIFIERS
1. Wildlife food sources grow within this wetland.
2. Detritus development is present within this wetland
3. Economically or commercially used products found in this wetland.
4. Evidence of wildlife use found within this wetland.
5. Higher trophic level consumers are utilizing this wetland.
6. Fish or shellfish develop or occur in this wetland.
7. High vegetation density is present.
8. Wetland exhibits high degree of plant community structure/species diversity.
9. High aquatic vegetative diversity/abundance is present.
10. Nutrients exported in wetland watercourses (permanent outlet present).
11. "Flushing" of relatively large amounts of organic plant material occurs from this wetland.
12. Wetland contains flowering plants that are used by nectar-gathering insects.
13. Indications of export are present.
14. High production levels occurring, however, no visible signs of export (assumes export is attenuated).
15. Other

SEDIMENT/SHORELINE STABILIZATION — This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

CONSIDERATIONS/QUALIFIERS
1. Indications of erosion or siltation are present.
2. Topographical gradient is present in wetland.
3. Potential sediment sources are present up-slope.
4. Potential sediment sources are present upstream.
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.
7. Wide wetland (>10') borders watercourse, lake, or pond.
8. High flow velocities in the wetland.
9. The watershed is of sufficient size to produce channelized flow.
10. Open water fetch is present.
11. Boating activity is present.
12. Dense vegetation is bordering watercourse, lake, or pond.
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.
16. Other

WILDLIFE HABITAT — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.[1]

CONSIDERATIONS/QUALIFIERS
1. Wetland is not degraded by human activity.
2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.
3. Wetland is not fragmented by development.
4. Upland surrounding this wetland is undeveloped.
5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g., brushland, woodland, active farmland, or idle land) at least 500 feet in width.
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.
7. Wildlife overland access to other wetlands is present.
8. Wildlife food sources are within this wetland or are nearby.
9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.
10. Two or more islands or inclusions of upland within the wetland are present.
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.
12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland, are present.
13. Density of the wetland vegetation is high.
14. Wetland exhibits a high degree of plant species diversity.
15. Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/shrub/vine/grasses/mosses)
16. Plant/animal indicator species are present. (List species for project)
17. Animal signs observed (tracks, scats, nesting areas, etc.)
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.
19. Wetland contains or has potential to contain a high population of insects.
20. Wetland contains or has potential to contain large amphibian populations.
21. Wetland has a high avian utilization or its potential.
22. Indications of less disturbance-tolerant species are present.
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).
24. Other

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[1]In March 1995, a rapid wildlife habitat assessment method was completed by a University of Massachusetts research team with funding and oversight provided by the New England Transportation Consortium. The method is called WEThings (wetland habitat indicators for non-game species). It produces a list of potential wetland-dependent mammal, reptile, and amphibian species that may be present in the wetland. The output is based on observable habitat characteristics documented on the field data form. This method may be used to generate the wildlife species list recommended as backup information to the wetland evaluation form and to augment the considerations. Use of this method should first be coordinated with the Corps project manager. A computer program is also available to expedite this process.

RECREATION (Consumptive and Non-Consumptive) — This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish these resources of the wetland.

CONSIDERATIONS/QUALIFIERS
1. Wetland is part of a recreation area, park, forest, or refuge.
2. Fishing is available within or from the wetland.
3. Hunting is permitted in the wetland.
4. Hiking occurs or has potential to occur within the wetland.
5. Wetland is a valuable wildlife habitat.
6. The watercourse, pond, or lake associated with the wetland is unpolluted.
7. High visual/aesthetic quality of this potential recreation site.
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.
9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing and/or non-powered boating.
10. Off-road public parking available at the potential recreation site.
11. Accessibility and travel ease is present at this site.
12. The wetland is within a short drive or safe walk from highly populated public and private areas.
13. Other

EDUCATIONAL/SCIENTIFIC VALUE — This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

CONSIDERATIONS/QUALIFIERS
1. Wetland contains or is known to contain threatened, rare, or endangered species.
2. Little or no disturbance is occurring in this wetland.
3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible.
4. Potential educational site is undisturbed and natural.
5. Wetland is considered to be a valuable wildlife habitat.
6. Wetland is located within a nature preserve or wildlife management area.
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.
9. Potential educational site is within safe walking distance or a short drive to schools.
10. Potential educational site is within safe walking distance to other plant communities.
11. Direct access to perennial stream at potential educational site is available.
12. Direct access to pond or lake at potential educational site is available.
13. No known safety hazards exist within the potential educational site.
14. Public access to the potential educational site is controlled.
15. Handicap accessibility is available.
16. Site is currently used for educational or scientific purposes.
17. Other

UNIQUENESS/HERITAGE — This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

CONSIDERATIONS/QUALIFIERS
1. Upland surrounding wetland is primarily urban.
2. Upland surrounding wetland is developing rapidly.
3. More than 3 acres of shallow permanent open water (less than 6.6 feet deep), including streams, occur in wetlands.
4. Three or more wetland classes are present.
5. Deep and/or shallow marsh or wooded swamp dominate.
6. High degree of interspersion of vegetation and/or open water occur in this wetland.
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.
8. Potential educational site is within a short drive or a safe walk from schools.
9. Off-road parking at potential educational site is suitable for school buses.
10. No known safety hazards exist within this potential educational site.
11. Direct access to perennial stream or lake exists at potential educational site.
12. Two or more wetland classes are visible from primary viewing locations.
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) are visible from primary viewing locations.
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.
15. Large area of wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.
17. Overall view of the wetland is available from the surrounding upland.
18. Quality of the water associated with the wetland is high.
19. Opportunities for wildlife observations are available.
20. Historical buildings are found within the wetland.
21. Presence of pond or pond site and remains of a dam occur within the wetland.
22. Wetland is within 50 yards of the nearest perennial watercourse.
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.
25. Wetland is known to be a study site for scientific research.
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.
27. Wetland has local significance because it serves several functional values.
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.
29. Wetland is known to contain an important archaeological site.
30. Wetland is hydrologically connected to a state or federally designated scenic river.
31. Wetland is located in an area experiencing a high wetland loss rate.
32. Other

VISUAL QUALITY/AESTHETICS — This value considers the visual and aesthetic quality or usefulness of the wetland.
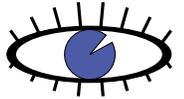
CONSIDERATIONS/QUALIFIERS
1. Multiple wetland classes are visible from primary viewing locations.
2. Emergent marsh and/or open water are visible from primary viewing locations.
3. A diversity of vegetative species is visible from primary viewing locations.
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.
6. Visible surrounding land use form contrasts with wetland.
7. Wetland views absent of trash, debris, and signs of disturbance.
8. Wetland is considered to be a valuable wildlife habitat.
9. Wetland is easily accessed.
10. Low noise level at primary viewing locations.
11. Unpleasant odors absent at primary viewing locations.
12. Relatively unobstructed sight line exists through wetland.
13. Other

ENDANGERED SPECIES HABITAT — This value considers the suitability of the wetland to support threatened or endangered species.

ES

CONSIDERATIONS/QUALIFIERS
1. Wetland contains or is known to contain threatened or endangered species.
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.

COLOR PHOTOGRAPHS

View of Wetland 1

View of Wetland 2

Wilson
Ecological Consulting

View of Wetland 3

View of Wetland 4

Wilson
Ecological Consulting

View of Wetland 5

View of Wetland 6

Wilson
Ecological Consulting

View of Wetland 7

View of Wetland 8

View of Wetland 9

View of Wetland 10

Wilson
Ecological Consulting

View of Wetland 11

View of Wetland 12

Wilson
Ecological Consulting

View of Wetland 13

View of Wetland 14

Wilson
Ecological Consulting

View of Wetland 15

View of Wetland 16

Wilson
Ecological Consulting

View of Wetland 17

View of Wetland 18

View of Wetland 19

View of Wetland 20

Wilson
Ecological Consulting

View of Wetland 21

View of Wetland 22

Wilson
Ecological Consulting

View of Wetland 23

View of Wetland 24

Wilson
Ecological Consulting

View of Wetland 25

View of Wetland 26

Wilson
Ecological Consulting

View of Wetland 27

View of Wetland 28

Wilson
Ecological Consulting

View of Wetland 29

View of Wetland 30

View of Wetland 31

View of Wetland 32

Wilson
Ecological Consulting

View of Wetland 33

View of Wetland 34

Wilson
Ecological Consulting

View of Wetland 35

View of Wetland 36

View of Wetland 37

Typical view of mile-a-minute vine stems on a buttonbush shrub (early spring)

Wilson
Ecological Consulting

Typical view of mile-a-minute vine stems on a honeysuckle shrub (summer)

Typical view of honeysuckle shrubs, often abundant along the edges of wetlands

Wilson
Ecological Consulting