

**FINDING OF NO SIGNIFICANT IMPACT  
 ABINGTON ENVIRONMENTAL INFRASTRUCTURE IMPROVEMENT PROJECT  
 ABINGTON TOWNSHIP  
 MONTGOMERY COUNTY, PENNSYLVANIA  
 SECTION 566, WATER RESOURCE DEVELOPMENT ACT of 1996**

**OVERVIEW**

The United States Army Corps of Engineers (USACE) Philadelphia District has evaluated the impacts of the construction of the Abington Environmental Infrastructure Improvement Project (project). The project is a stream and habitat improvement project adjacent to and along Sandy Run Creek at Roychester Park and Grove Park in the community of Abington Township in Montgomery County, Pennsylvania. The project also includes the relocation of a sanitary sewer line out of the eroding banks of Sandy Run Creek at Roychester Park.

**PURPOSE AND SPECIFICATIONS**

The authority for this project is Section 566 of the Water Resources Development Act (WRDA) of 1996. Section 566 of WRDA established a pilot program authorizing USACE to provide design and construction assistance for water-related environmental infrastructure and resource protection and development projects to non-Federal interests in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Southeastern Pennsylvania.

**COORDINATION**

The project was developed by USACE in partnership with Abington Township, the non-Federal interest. Initial scoping was conducted in 2017. The draft Environmental Assessment (EA) for the project was provided to the U.S. Environmental Protection Agency (EPA), Region III, the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), Pennsylvania Department of Environmental Protection (PADEP), Pennsylvania State Historic Preservation Officer (PASHPO), Pennsylvania Game Commission (PGC), Pennsylvania Fish and Boat Commission (PFBC), and all other known interested parties for review and comment.

**SUMMARY OF POTENTIAL EFFECTS**

The potential effects of all alternatives were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 1:

**Table 1: Summary of Potential Effects of the Recommended Plan**

	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Air quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geology and soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aquatic resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish and wildlife habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threatened/endangered species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cultural resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Historic properties	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Aesthetics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Floodplains	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous, toxic & radioactive waste	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Recreation and Public Safety	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. Best management practices (BMPs) detailed in the EA will be implemented, if appropriate, to minimize impacts.<sup>1</sup>

### **ENDANGERED SPECIES IMPACT**

A Pennsylvania Natural Diversity Inventory (PNDI) search on the Pennsylvania Natural Heritage Program website indicated no known effects to threatened and endangered species and/or special concern species and resources within the project areas. Consultation with Pennsylvania Department of Conservation and Natural Resources (DCNR) has been completed and concluded that the project is not likely to affect species and resources under DCNR's responsibility.

Responses to the project's National Environmental Policy Act (NEPA) scoping letter in 2017 did not identify any known resources of concern in the project area. However, a species list generated using USFWS' Information for Planning and Consultation (IPaC) tool on December 2, 2020 indicates that the project site is located within the range of the Federally endangered Indiana bat (*Myotis sodalis*) and Federally threatened Northern Long Eared Bat (*Myotis septentrionalis*) (USFWS 2020). In accordance with the project review procedures provided by the USFWS Pennsylvania Field Office, a PNDI review was completed for this project. The PNDI screening concluded that no further consultation is required for any of the federal and state agencies having jurisdiction over federal and state-listed species, including the USFWS, PGC, PFBC, and DCNR. This was coordinated with USFWS, who confirmed that no further consultation with their agency is required under Section 7 of the Endangered Species Act of 1973 as amended by P.L. 96-159.

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<sup>1</sup> 40 CFR 1505.2(C) all practicable means to avoid and minimize environmental harm are adopted.

## **WATER QUALITY COMPLIANCE**

USACE is designing the project to provide a net increase in aquatic resources function and services. The project is eligible for Nationwide Permit 27 (Aquatic Habitat Restoration), and therefore qualifies for the associated Section 401 Water Quality Certificate from PADEP. In addition, the project will comply with 25 Pa. Code Chapter 102, Erosion and Sediment Control and Stormwater Management; the contractor would be required to acquire and comply with applicable permit.

## **WETLANDS**

There are several small, forested wetlands associated with a historic meander of Sandy Run in the Grove Park. Additionally, there is one small riparian wetland in the project area at Roychester Park.

Work in or near wetlands in Grove Park has been designed to avoid temporary and permanent adverse effects. Furthermore, no fill in wetlands is proposed for this project. Effects to wetlands are expected to be entirely beneficial due to removal of invasive plants, planting of native plant species, and improvement of hydrology. The effects to wetlands are no more than minimal, and entirely beneficial.

No impacts to wetlands are proposed for Roychester Park.

## **COASTAL ZONE**

The project is not located in either of Pennsylvania's coastal zones established under the Coastal Zone Management Act of 1972. Therefore, the project will not need a Federal consistency determination from PADEP's Coastal Resources Management Program.

## **CULTURAL IMPACTS**

The PASHPO recommended a Phase I investigation due to the relatively high probability that the project area could contain significant archaeological deposits. A Phase I investigation was conducted that involved both research and a field survey. No historic properties eligible for or listed on the National Register of Historic Places were found and no additional work is required. A negative survey form was provided to the PASHPO and the Tribes.

## **FINDING**

Because the EA concludes that the work described does not constitute a major Federal action significantly affecting the human environment, I have determined that an Environmental Impact Statement is not required.

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RAMON BRIGANTTI  
LTC, EN  
Commanding

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Date

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**FINAL  
ENVIRONMENTAL ASSESSMENT**

**ABINGTON ENVIRONMENTAL INFRASTRUCTURE IMPROVEMENT  
PROJECT**

**ABINGTON TOWNSHIP**

**MONTGOMERY COUNTY, PENNSYLVANIA**

**SECTION 566, WATER RESOURCE DEVELOPMENT ACT**

**PREPARED BY:**

**PHILADELPHIA DISTRICT**

**U.S. ARMY CORPS OF ENGINEERS**

**PHILADELPHIA, PENNSYLVANIA 19107**

**February 2022**

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**FINAL  
ENVIRONMENTAL ASSESSMENT  
ABINGTON ENVIRONMENTAL INFRASTRUCTURE IMPROVEMENT  
ABINGTON TOWNSHIP  
MONTGOMERY COUNTY, PENNSYLVANIA  
SECTION 566, WATER RESOURCE DEVELOPMENT ACT**

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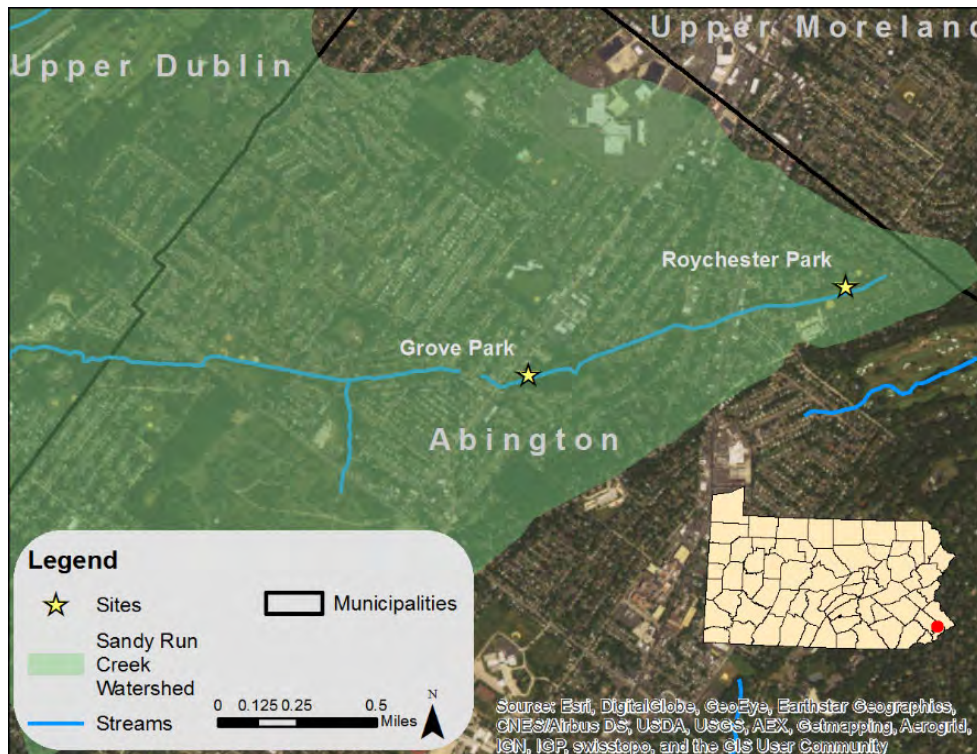
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## 1.0 Introduction

The Abington Environmental Infrastructure Improvement Project (project or proposed action) is a stream and habitat improvement project in Abington Township, Pennsylvania adjacent to and along Sandy Run Creek (Figure 1). The project is authorized under Section 566 of the Water Resources Development Act (WRDA) of 1996 (Public Law 104-303), which was amended by Section 552 of WRDA 1999 (Public Law 106-53) to include environmental restoration as an authorized project purpose.



**Figure 1: Project Location**

Sandy Run Creek (also referred to as Sandy Run), part of the Wissahickon Creek Watershed, is a stream system that has been adversely affected by development and land use practices over the past century. Due to high levels of impervious surfaces throughout the watershed, the creek responds quickly during rain events, and increases in stream flow with erosive forces occur almost immediately following the onset of storm events. These changes in hydrologic conditions within the watershed have caused severe channel destabilization and riparian habitat degradation within much of the watershed.

In April 2016, staff from U.S. Army Corps of Engineers (USACE) Philadelphia District and Abington Township visited potential project sites along Sandy Run Creek and considered the five locations along Sandy Run Creek for environmental infrastructure and stream improvements. These include:

- Roychester Park
- Grove Park
- Roslyn Park
- Ardsley Wildlife Sanctuary, and
- Deal Park

During the site visit, it was determined that all five sites had potential for projects under the 566 authority. Ardsley Wildlife Sanctuary, Deal Park, and Roslyn Park were identified as lower priority projects because of higher levels of uncertainty in defining the problem areas. The team identified areas within Roychester Park and Grove Park (Figure 1) as potential high priority sites for environmental restoration.

Roychester Park is a municipally owned park of approximately 12.7 acres. Many recreational and community features are present in the park including a playground, baseball fields, basketball courts, tennis courts, and the Roychester Community House, which serves as a venue for community functions and gatherings. The headwaters of Sandy Run Creek flow through Roychester Park. The park contains approximately 950 linear feet of stream, of which about 150 linear feet are currently diverted into a below-ground piped channel (Figure 2). The segment of stream diverted underground has no aquatic habitat value. The banks of the above ground segments of Sandy Run Creek within Roychester Park are severely eroded and the channel is deeply incised (Figure 3).



**Figure 2: Map of Roychester Park showing location of Sandy Run Creek**



**Figure 3: Eroded stream bank in Roychester Park**

Grove Park is a municipally owned park of approximately two acres. The park contains approximately 1,300 linear feet of Sandy Run Creek (Figure 4). About 400 linear feet of stream within the park has a concrete channel bottom (24 feet wide and 12 inches thick and reinforced with rebar) and is lined with gabion baskets along the banks (Figure 5). The concrete channel provides no useful aquatic habitat and increases the velocity and temperature of the water, which further impairs downstream habitat through increased sedimentation and water temperature. Downstream of the concrete lined stream bottom, the stream banks are lined with gabion baskets (Figure 6). The gabions provide low quality habitat for aquatic species and prevent the stream bed from connecting to the surrounding floodplains.



**Figure 4: Map of Grove Park showing location of Sandy Run Creek**



**Figure 5: Concrete lined stream in Grove Park**



**Figure 6: Gabion lined stream in Grove Park**

## **2.0 Study Authority**

Under Section 566 of WRDA 1996 (Section 566), USACE is authorized to provide environmental assistance to non-Federal interests in the form of design and construction assistance for water related environmental infrastructure and resource protection and development projects in southeastern Pennsylvania. The authority is limited to the Pennsylvania Counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia. USACE entered into an agreement with the Township of Abington to implement this project under Section 566. USACE prepared this Environmental Assessment (EA) in combination with the project fact sheet to serve as the decision document for the selection of the proposed action.

### **1.1 Coordination and Public Involvement**

Based on when NEPA was initiated, this EA was developed in accordance with the applicable regulations, policies, and procedures, including USACE's NEPA regulations at Engineers Regulations (ER) 200-2-2 and the CEQ's NEPA regulations at 40 CFR Part 1500 (NEPA Implementing Regulations).

The project was developed by USACE in partnership with Abington Township. Initial scoping was conducted in 2017. Public review of the draft EA occurred from April 8, 2021 through May 9, 2021. Public Notice of the availability of the EA was advertised on the USACE and Abington Township websites. The EA was discussed briefly at the Abington Township Environmental Advisory Council meeting on April 14, 2021 and at the Shade Tree Commission meeting on April 21, 2021. Both meetings were open to the public. Consultation was conducted in accordance with all applicable requirements. The draft EA for the project was provided to the U.S. Environmental Protection Agency (EPA), Region III, the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), Pennsylvania Department of Environmental Protection (PADEP), Pennsylvania State Historic Preservation Officer (PASHPO), Pennsylvania Game Commission (PGC), Pennsylvania Fish and Boat Commission (PFBC), and all other known interested parties for review and comment. Pertinent correspondences are provided in Appendix A. Responses received to comments provided during public review are also provided in Appendix A.

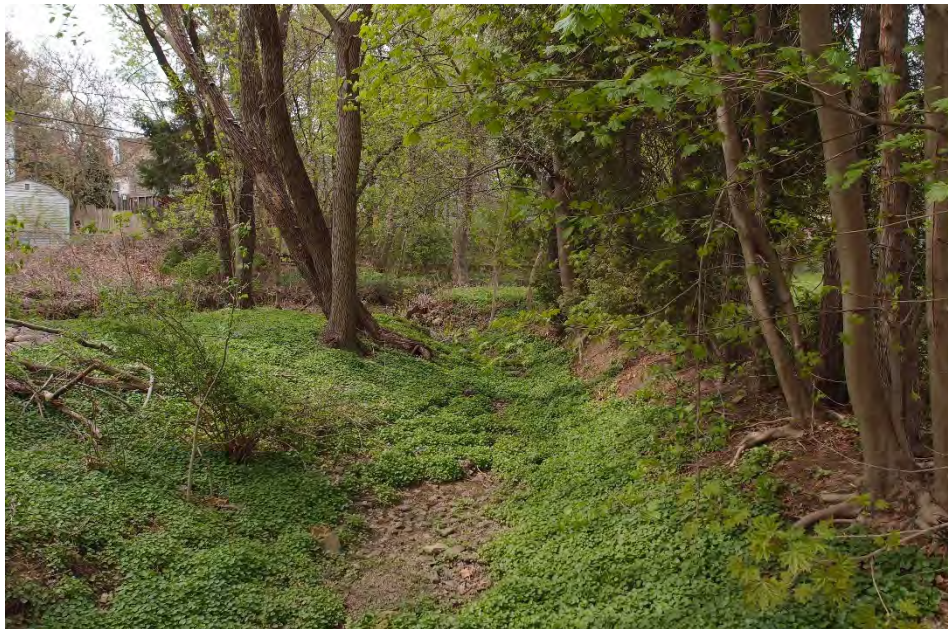
## **3.0 Purpose and Need for Action**

The purpose of the project is to stabilize, naturalize, and improve ecosystem function along Sandy Run Creek at Roychester Park and Grove Park.

The project is needed to reduce erosion and improve habitat function along the upper reaches of Sandy Run Creek. The specific objectives are to enhance and restore aquatic, wetland, and riparian habitat, improve infiltration of flood waters, stabilize stream banks, control invasive species, and reconnect floodplains along the Sandy Run Creek in Roychester Park and Grove Park in Abington Township, Pennsylvania.

The banks of the above ground segments of Sandy Run Creek within Roychester Park are severely eroded (Figure 3). The significant erosion of these banks disconnects the streambed from the surrounding floodplain, provides poor habitat for both aquatic and wetland species, and transports sediment to downstream locations creating further aquatic habitat impairment. The municipality has installed native vegetation plantings in the riparian buffer area of the very upper reaches of the stream in Roychester Park, but the presence of invasive species in the remaining riparian areas continue to degrade the riparian habitat by preventing the further recruitment and establishment of native species. Native plant species provide vital habitat to wildlife inhabiting the riparian buffer areas.

The main stem of Sandy Run Creek in Grove Park has been channelized and lined with concrete and gabions. The main stem of Sandy Run Creek was relocated to its current location in Grove Park several decades ago. Prior to this, the creek and two small tributaries meandered through the park. The original channel and at least one tributary still exist but they lack base flow; and only serve as a high flow channels during storm events (Figure 7). The easternmost tributary is significantly silted in. The limited vegetated buffer of this high flow channel has significant invasive species issues, which severely degrades the habitat value of the riparian buffer.



**Figure 7: Historic channel in Grove Park**

#### **4.0 Alternatives Analysis**

The Project Delivery Team (PDT), including the Township of Abington, considered five locations within the Township for environmental restoration, and after preliminary discussions, decided to focus efforts on Roychester Park and Grove Park. Ardsley Wildlife Sanctuary, Deal Park, and Roslyn Park were identified as lower priority projects because of higher levels of uncertainty in defining the problem areas (described in Section 1). The



PDT met again with Township Officials and the local Environmental Advisory Committee (EAC) to further explore opportunities at the two identified locations. The PDT recommended the following three preliminary alternatives for more detailed investigations:

- No Action
- Proposed Action and Alternatives at Roychester Park
- Proposed Action and Alternatives at Grove Park

#### **4.1 No Action**

The No Action Alternative (future without project condition) is required to be evaluated as prescribed by the NEPA and Council of Environmental Quality (CEQ). The No Action Alternative serves as a baseline against which the Proposed Action and alternatives are to be evaluated. Evaluation of the No Action Alternative involves assessing the environmental effects that would result if the proposed action did not take place.

Under the No Action Alternative, riparian and wetland habitat at Roychester and Grove Parks along Sandy Run Creek would not be stabilized or naturalized. Ecosystem function along Sandy Run Creek at Roychester Park and Grove Park would not improve. The No Action Alternative does not meet the purpose and need for the study.

#### **4.2 Proposed Action and Alternatives at Roychester Park**

At Roychester Park, opportunities exist to stabilize eroding banks, reconnect the floodplains, and restore riparian and wetland habitat along the eroded above ground reaches of the creek (approximately 800 linear feet). This would include restoring riparian habitat within Roychester Park where the stream banks are currently extremely eroded (Figures 2 and 3). The proposed action includes the following components.

- Bank Stabilization: Regrade, stabilize, and plant stream banks to reduce erosion and sedimentation in this stretch of Sandy Run.
- Culvert Replacement: Replace two culverts with pre-fabricated steel footbridges.
- Sanitary Sewer Relocation: Replace and relocate approximately 760 feet of sewer line and manholes that have been exposed due to ongoing erosion.
- Riparian Enhancement: Provide 20 to 25 feet of continuous riparian buffers along the creek, to the extent possible.
- Upland Native Planting: Plant a native wildflower meadow near Corinthian Avenue on a hill that has little recreational value.

In addition, several components of the proposed action were considered as alternatives but eliminated because they conflicted with constraints requested by the non-Federal interest or did not meet the purpose and need of the proposed action. These include the following:

- Daylighting approximately 150 linear feet of Sandy Run Creek currently below ground - eliminated because it conflicts with recreational uses at the park, as it is located at the bottom of a sledding hill.
- Wetland enhancement adjacent to Corinthian Avenue – eliminated because hydrology at the location was not appropriate for wetland enhancement, with a low potential for success.
- Storm water improvements at Corinthian Avenue – eliminated because existing infrastructure is sufficient (i.e., low potential for improvements) and potential conflicts with native riparian plantings undertaken by Abington Township.
- High flow diversion to the skating rink – eliminated because of recreational conflicts; it has the potential to flood the field which is also used for other sports such as football.

The alternatives considered at Rochester Park and are compared in Table 1.

**Table 1: Summary Roychester Park Alternatives**

<b>Alternative</b>	<b>Benefits</b>	<b>Potential Issues</b>	<b>Conclusion</b>
Roychester Alternative 1: No action	None	Will not provide any ecological or societal benefit	Not recommended
Roychester Alternative 2: Stream Restoration, including: Bank Stabilization, Sanitary Sewer Relocation, Riparian Zone Enhancement, and potential Upland Native Plantings	<ul style="list-style-type: none"> <li>• Improvement of 0.6 acres of riparian buffer, 0.15 acres of wildflower meadow, and streambank stabilization would reduce erosion, sedimentation, and nutrients in Sandy Run and improve wildlife habitat.</li> <li>• Removal of sanitary sewer line from stream bed will prevent potential failure and associated contamination of Sandy Run and future utility work in the stream bed.</li> </ul>		Recommended
Roychester Alternative 2a: Proposed Action with Daylighting Sandy Run	<ul style="list-style-type: none"> <li>• Provide all the benefits of the proposed action and additional ecological benefits by reconnecting an additional 150 feet of Sandy Run with the floodplain</li> </ul>	<ul style="list-style-type: none"> <li>• Conflicts with recreational uses</li> </ul>	Not recommended

Alternative	Benefits	Potential Issues	Conclusion
Roychester Alternative 2b: Proposed Action with Wetland Enhancement near Corinthian Avenue	<ul style="list-style-type: none"> <li>• Creation of approximately 0.3 acres of biofiltration area planted with wetland species</li> <li>• All the benefits of the proposed action and additional ecological benefits by enhancing wetlands, if successful</li> </ul>	<ul style="list-style-type: none"> <li>• Hydrology at this location is not appropriate for wetlands; there is a low potential for success</li> </ul>	Not recommended
Roychester Alternative 2c: Proposed Action with Storm Water Improvements at Corinthian Avenue	<ul style="list-style-type: none"> <li>• All the benefits of the Alternative 2</li> </ul>	<ul style="list-style-type: none"> <li>• Existing infrastructure is sufficient (i.e., low potential for improvement)</li> <li>• Potential conflicts with native riparian plantings undertaken by Abington Township.</li> </ul>	Not recommended
Roychester Alternative 2d: Proposed Action with High Flow Diversion to Skating Rink	<ul style="list-style-type: none"> <li>• All the benefits of the proposed action</li> </ul>	<ul style="list-style-type: none"> <li>• Conflicts with recreational uses</li> </ul>	Not recommended

#### 4.3 Proposed Action and Alternatives at Grove Park

At Grove Park, opportunities exist to reconnect the floodplains and restore riparian habitat by removing the concrete lining from approximately 400 linear feet of the stream bed (Figures 4 and 5), removing the gabion baskets lining approximately 1,300 linear feet of stream bank (Figures 5 and 6), and using natural stream stabilization methods and native vegetation plantings. The forested floodplain south of Sandy Run contains wetlands and two ephemeral tributaries; parts of these may be remnants of the former main stem of Sandy Run Creek within Grove Park (Figure 7). The forested floodplains are dominated by invasive species (especially multiflora rose [*Rosa polyantha*]). The tributaries are degraded due to sedimentation, disconnection from regular flow, and predominance of invasive plants. The forested floodplain and wetland habitat will be enhanced by relocating a tributary through the forested floodplain to increase storm water storage within the forested floodplain. The elements of the Proposed Action in Grove Park include the following:

- **Stream Naturalization and Stabilization:** Remove existing gabion baskets, regrade banks with stream benches to better connect the main channel with the forested riparian buffer. Remove 370 linear feet of concrete channel bottom and replaced with stream substrate of riprap choked with smaller stone. Provide additional stream stabilization using large woody debris.

- Riparian Enhancement: Plant riparian area from the top of bank to a width of approximately 50 feet on both sides of the stream with native tree, shrub, and herbaceous species. Plant upland areas with native trees, shrubs, and herbaceous plants to expand the riparian buffer into open high ground and connect the riparian buffer to the existing adjacent forested floodplain.
- Forested Floodplain Enhancement: Excavate a tributary channel in a low-lying area of the forested floodplain. Fill the stormwater channel at the east end of the park and redirect the storm water outfall into the excavated channel to utilize the filtering and storage capacity of the forested floodplain and wetlands in the park. Excavate small areas in the forested floodplain to enhance wetland functions. Remove multiflora rose from this section of the park.

The proposed action without the forested floodplain enhancement was also considered but eliminated because it does not provide all the potential ecosystem benefits of the proposed action. A new bridge and mulch paths were also considered but eliminated by the sponsor, because they are recreational features and not authorized as part of the cost share under Section 566 of the WRDA. The sponsor may construct these elements later, but not as part of this action. The alternatives considered at Grove Park are compared in Table 2.

**Table 2: Summary of Grove Park Alternatives**

<b>Alternative</b>	<b>Benefits</b>	<b>Potential Issues</b>	<b>Conclusion</b>
Grove Park Alternative 1: No action	None	Will not provide any ecological or societal benefit	Not recommended
Grove Park Alternative 2: Proposed Action	<ul style="list-style-type: none"> <li>• Removal of gabion baskets and naturalization of stream banks along 980 linear feet of creek will help to reconnect the stream to its floodplain.</li> <li>• Removal of concrete stream bed in approximately 370 linear feet of creek will provide aquatic habitat.</li> <li>• Enhancement of approximately 2.3 acres of riparian buffer habitat will reduce erosion and sedimentation, reduce nutrients into Sandy Run, and improve wildlife habitat.</li> <li>• Re-introduction of 750 linear feet tributary channel to take advantage of the natural water storage and filtration capabilities of the existing forested floodplains and reduce flows and erosion in the main channel.</li> <li>• Provides opportunity to enhance forested wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>• Dog Park fencing may need to be reconfigured to accommodate increased riparian buffer footprint</li> <li>• Needs to be planned in a manner to avoid effects on forested wetlands.</li> </ul>	Recommended

<p>Grove Park Alternative 2a: Proposed Action without Forested Floodplain Enhancement</p>	<ul style="list-style-type: none"> <li>• Benefits listed in Alternative 2 except the benefits to the forested floodplain.</li> </ul>	<ul style="list-style-type: none"> <li>• Dog Park fencing may need to be reconfigured to accommodate increased riparian buffer footprint.</li> <li>• No additional flood storage in forested floodplains during storm events.</li> </ul>	<p>Not recommended</p>
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**4.4 Detailed Description of the Proposed Action**

Based on the analysis of alternatives, the recommended plan and proposed action for environmental restoration along Sandy Run includes Alternative 2 at Roychester Park and Alternative 2 at Grove Park. While final plans are still in development, the general plans for the 65% design for Roychester Park and Grove Park are depicted in Figure 8 and Figure 9, respectively. The recommended plan minimizes negative effects while maximizing habitat benefits in Sandy Run. The recommended plan was also selected with consideration for existing and adjacent land uses, economics, real estate, and recreational value. The proposed action provides the greatest ecological uplift and benefits to the local community.

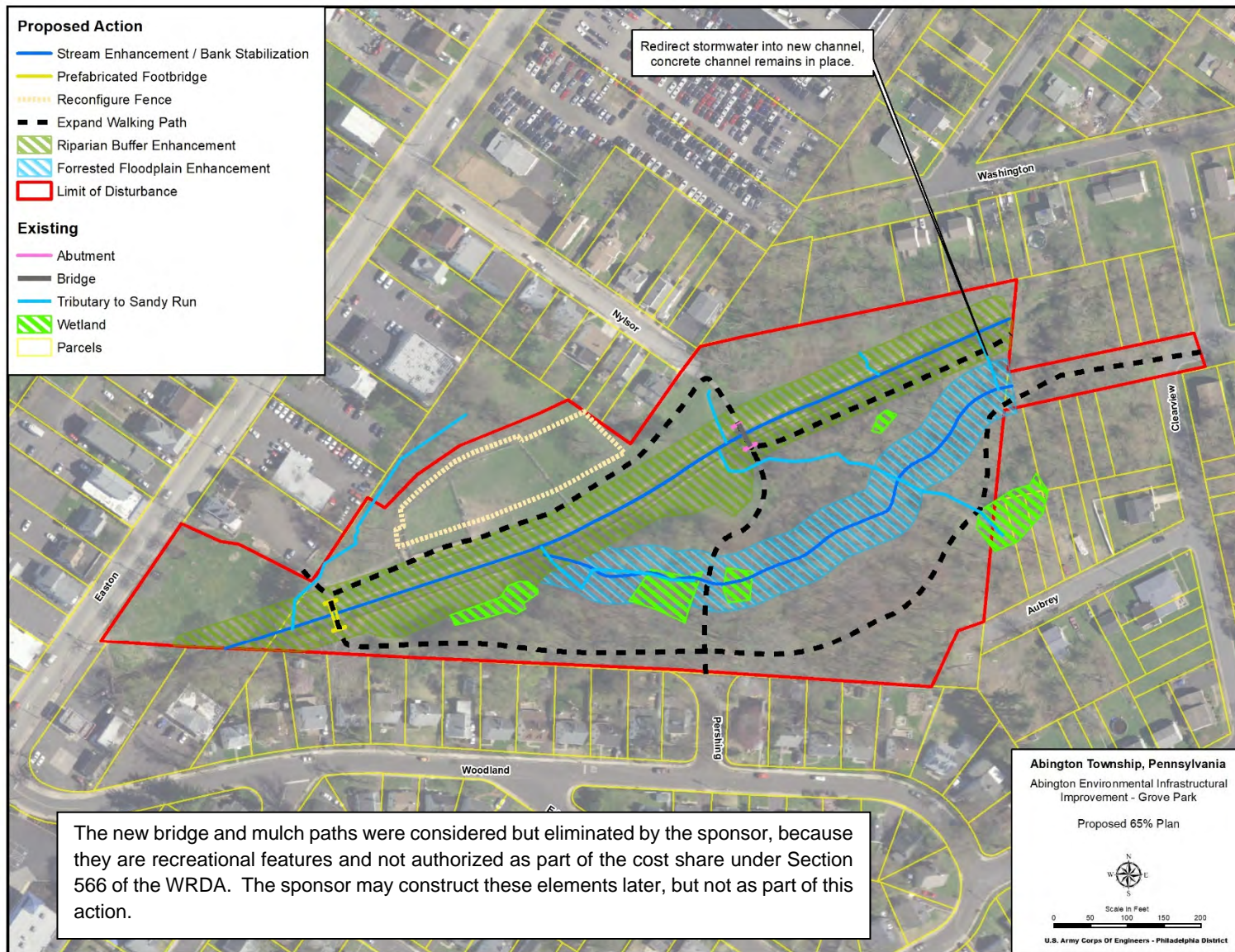
**4.4.1 Roychester Park**

The project in Roychester Park was designed to be compatible with Abington Township’s current stormwater efforts at the park; specifically, Abington “Growing Greener” project (see Figure 8). The Abington “Growing Greener” project was funded by a PADEP grant and constructed in 2019.

To reduce erosion and sedimentation, approximately 840 linear feet of the stream bank in Roychester Park will be regraded, stabilized, and re-planted with native plants. A list of plantings is contained in Table 3. These plants will be planted in Reaches A, B, C or D (see Figure 8). The project includes 100 linear feet of floodplain bench construction on both banks in Reach A, 390 linear feet on the river left bank in Reach B, and 350 linear feet on the river right bank in Reach C (see Figure 8). Typical floodplain bench sections for these reaches will vary approximately 5-10 feet in width. Additionally, approximately 75 square feet of riprap will be placed around the headwall to stabilize eroded banks.



Figure 8: Conceptual design for Roychester Park (Alternative 2)



**Figure 9: Conceptual design for Grove Park (Alternative 2)**

**Table 3: Possible Planting List**

Planting Zone	Name/Species
Mainstem Riparian	Riparian Seed Mix
	Black gum ( <i>Nyssa sylvatica</i> )
	Sweet gum ( <i>Liquidambar styraciflua</i> )
	American sycamore ( <i>Platanus occidentalis</i> )
	Swamp white oak ( <i>Quercus bicolor</i> )
	Paw paw ( <i>Asimina triloba</i> )
	Persimmon ( <i>Diospyros virginiana</i> )
	Smooth alder ( <i>Alnus serrulata</i> )
	Silky dogwood ( <i>Cornus amomum</i> )
Mainstem Riparian	Red-osier dogwood ( <i>Cornus sericea</i> )
	Silky willow ( <i>Salix sericea</i> )
	New England aster ( <i>Symphyotrichum novae-angliae</i> )
	Wrinkle-leaf goldenrod ( <i>Solidago rugosa</i> )
	Swamp milkweed ( <i>Asclepias incarnata</i> )
	Soft fox sedge ( <i>Carex conjuncta</i> )
	Great blue lobelia ( <i>Lobelia siphilitica</i> )
	Blazing-star ( <i>Liatris spicata</i> )
	Cinnamon fern ( <i>Osmunda cinnamomea</i> )
Forested Riparian	Forested Wetland Seed Mix
	Tulip poplar ( <i>Liriodendron tulipifera</i> )
	Pin oak ( <i>Quercus palustris</i> )
	Swamp white oak ( <i>Quercus bicolor</i> )
	Northern spicebush ( <i>Lindera benzoin</i> )
	Smooth alder ( <i>Alnus serrulata</i> )
	Sensitive fern ( <i>Onoclea sensibilis</i> )
	Royal fern ( <i>Osmunda regalis</i> )
	Orange jewelweed ( <i>Impatiens capensis</i> )
	Jack in the pulpit ( <i>Arisaema triphyllum</i> )
Upland Meadow	Meadow Formula
	big bluestem ( <i>Andropogon gerardii</i> )
	Little bluestem ( <i>Schizachyrium scoparium</i> )
	New England aster ( <i>Symphyotrichum novae-angliae</i> )
	blue vervain ( <i>Verbena hastata</i> )
	Canada goldenrod ( <i>Solidago canadensis</i> )
	Orange coneflower ( <i>Rudbeckia fulgida</i> )
	Common milkweed ( <i>Asclepias syriaca</i> )



Approximately 75 linear feet of the Sandy Run stream channel will be realigned in Reach D. The existing channel will be filled, and a similar size channel will be excavated. The stream channel will be approximately 10 feet wide and 4 feet deep. The banks will be stabilized with riprap choked with smaller stone, to a depth of 3 feet. The stream will have a total width of approximately 8 feet from bank to bank with 3H:1V side slopes and a longitudinal grade of approximately 1.5%, consistent with the existing stream channel in this area.

Targeted areas of the riparian zone along Sandy Run (approximately 0.6 acres) will be enhanced and connected to provide 20 to 25-foot continuous riparian buffers along the creek, to the extent possible. These areas will be planted with native riparian trees and herbaceous plants consistent with the Township's recent "Growing Greener" project. Table 3 provides a list of possible native plants that could be planted in reaches A, B, C, or D.

Two existing culverts within the stream will be replaced with pre-fabricated steel footbridges. The first of these culverts is located near Silver Ave between Reaches C and D and the other is located near the center of the park between Reaches A and B (see Figure 8).

In multiple locations throughout the Roychester Park reach of Sandy Run Creek, the sewer lines and manholes have been exposed due to ongoing erosion. The sanitary sewer will be relocated by removing approximately 755 feet of existing 10" vitrified clay sewer pipe, two concrete manholes, approximately 90 feet of existing 8" vitrified clay sewer pipe and one sanitary clean out. Approximately 780 feet of 10" PVC sewer pipe and two precast reinforced concrete manholes will then be installed in an alignment outside of the stream to eliminate future erosive damage. The pipe will be relocated outside of the eroding bank (see Figure 8).

The work at Roychester Park may also include the planting of a wildflower meadow on an existing upland adjacent to the stream. This wildflower meadow would be planted with native flowering species to support local pollinators.

#### **4.4.2 Grove Park**

Approximately 1,250 linear feet of Sandy Run will be regraded, stabilized, and re-planted with native plants in Sandy Run in Grove Park (Figure 9). The mainstem will remain in its current channel, but meanders for the low flow course (thalweg) will be created using large trees and boulders. The existing gabion baskets will be removed, and the stones will be reused and incorporated into the proposed design features. The banks will be re-graded with stream benches to better connect the main channel with the forested riparian buffer and provide more frequent access to the forested wetland enhancement area. The existing 370 linear feet of concrete channel bottom will be removed and replaced with stream substrate of riprap choked with smaller stone to a depth of approximately three feet, keeping the overall invert/slope the same as existing conditions. The banks will be bio-engineered where possible (e.g., stabilizing banks with vegetation and other natural materials). Examples of situations where bio-engineering may be ruled out include areas where velocities/shear stresses are too high or where space is limited, such as steep slopes (rock can be placed on steeper slopes,

typically). Where needed, additional stream stabilization will be provided by using large woody debris.

The riparian buffer will be planted with native trees, shrubs, and herbaceous species and will be approximately 50 feet in width from the top of bank on both sides of the stream. Upland plantings of native trees, shrubs and herbaceous plants will expand the riparian buffer into open high ground and will connect the riparian buffer to the existing adjacent forested area.

The dog park fence will be reconfigured to maintain the same area, using approximately 510 linear feet of new split rail fence and the existing split rail fence.

Local drainage will be redirected from a concrete-lined channel into a small historic tributary of Sandy Run located in the forested floodplain area on the eastern side of Grove Park. The concrete-lined channel (approximately 100 linear feet) will be left in place. A rip-rap channel block will be used to redirect the flow into the historic tributary remnant and created channel. The historic tributary will be excavated to re-introduce flow with the goal increasing flood storage by utilizing the filtering and storage capacity of the forested floodplain and wetlands in the park. The new channel will be defined by excavating in the forested floodplain area. It will be approximately 750 linear feet long, 12 feet wide, and 2.5 feet deep, and have a longitudinal slope of approximately 0.5%.

In the new channel, large woody debris will be used to dampen velocity, create storage, and improve habitat diversity. A biodegradable erosion control mat will be used for stabilization of the tributary channel prior to the establishment of vegetation. The outlet of the new tributary to the mainstem will be re-routed, leaving a 250-foot length of existing stream channel that will no longer receive flow; but resulting in 200-foot net increase in stream length meandering through the forested floodplain. Targeted areas within the forested floodplain will be graded to facilitate wetland function and provide additional habitat variability. Tree removal will be avoided and minimized as much as possible, and any large woody debris removed from the site will be reused to the extent possible. The goal is to improve ecosystem function in this area by improving habitat diversity. Habitat diversity will be increased by 1) enhancing forested floodplain development by improving on-site storage of more frequent smaller rain events through within the forested floodplain and 2) enhancing forested upland by expanding the riparian buffer into open higher ground. Additional benefits associated with directing the stormwater channel through the forested floodplain and channel creation will be to alter timing, reduce peak flows, and allow natural treatment of stormwater runoff through the adjacent wetlands.

## **5.0 Existing Environment**

The project is located in two separate community parks within the urbanized Sandy Run Creek watershed. Roychester Park and Grove Park contain upper headwater segments of Sandy Run Creek. At Roychester Park, the stream channel runs alongside recreational fields and a school and is experiencing high rates of erosion and sedimentation due to runoff from surrounding neighborhoods. At Grove Park, the stream channel was previously channelized, lined with

cement, and armored with gabion baskets. These stabilize the stream segment but also prevent the stream from accessing its floodplain and providing aquatic habitat. The high ratio of impervious surfaces within the Sandy Run Creek watershed have impacted the function and health of its stream network, causing significant erosion and sedimentation problems and reducing the quality and quantity of aquatic habitat.

The Sandy Run Creek watershed is 12.6 square miles and drains portions of Abington, Upper Dublin, Springfield, and Whitemarsh Townships in the eastern portion of Montgomery County, Pennsylvania. The watershed is home to approximately 37,500 people and the population density for the watershed is approximately 3000 persons per square mile, roughly twice that of the whole county (Gaadt Perspectives 2001). Stream channels within the watershed have been unable to keep up with the continual reduction in the watershed's absorptive capacity, floodplain access, and increases in runoff.

## **5.1 Air and Water Quality**

### **5.1.1 Air Quality**

The Clean Air Act of 1970 requires the EPA to set National Ambient Air Quality Standards (NAAQS) for six principal pollutants ("criteria air pollutants") that can be harmful to public health and the environment. These criteria air pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO<sub>2</sub>), Ozone (O<sub>3</sub>), Particle Pollution (PM) and Sulfur Dioxide (SO<sub>2</sub>). Standards for these pollutants are developed to protect the health of "sensitive" populations such as asthmatics, children, and the elderly, and also to protect against decreased visibility and damage to animals, crops, vegetation, and buildings. Stationary sources include power plants that burn fossil fuels, factories, boilers, furnaces, manufacturing plants, gasoline dispensing facilities, and other industrial facilities. Mobile sources include vehicles such as cars, trucks, boats, and aircraft. Ambient air quality is monitored by PADEP and is compared to the NAAQS throughout the state.

The project is located within Montgomery County, which is included in the Philadelphia-Wilmington-Atlantic City 8-hour Ozone Marginal Nonattainment Area (2008 Standard), PA-NJ-MD-DE (Philadelphia-Wilmington-Atlantic City Area). Ozone is controlled through the regulation of its precursor emissions, which include oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOCs). Additionally, Montgomery County is also part of a "maintenance area" for previous violations of the 2006 Particulate Matter (PM<sub>2.5</sub>) NAAQS.

### **5.1.2 Water Quality**

Sandy Run creek is typical of urban streams. Water quality is affected by municipal and industrial wastewater discharges, non-point sources from both residential and agricultural land uses development, impervious surface, and channelization. These conditions have led to an

increase in runoff, alterations of flow, increases in erosion, and other impacts on water quality (e.g., changes in temperature and velocity).

Pennsylvania, as required by the Federal Clean Water Act (CWA), has established water quality standards that apply to all streams and other waterbodies in the Commonwealth. The water quality standards, codified in 25 Pa. Code Chapter 93, establish water quality criteria that must be maintained to protect designated water uses.

PADEP classifies certain water uses as protected water uses (25 Pa. Code Section 93.3) and states that the protected water use designation for a given waterway is an indicator of its value for the protection and propagation of aquatic life. Since each protected use has chemical and biological characteristics, as well as other stream conditions that must be maintained, the designations are also indicators of stream quality. Therefore, the designations can be used to prioritize the unprotected stream and stream valley resources in a municipality. Sandy Run Creek is the main tributary of the Wissahickon Creek. The Wissahickon Creek Basin has two designated protected water uses - Trout Stocking (TSF) and Migratory Fish (MF) (25 Pa. Code Section 93.9f). The TSF protected water use designation requires the "maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat." (25 Pa. Code Section 93.3). According to PADEP, Sandy Run Creek is not currently stocked with trout (PAFBC 2021). The MF protected water use designation requires the "passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which move to or from flowing waters to complete their life cycle in other waters (25 Pa. Code Section 93.3).

PADEP is required under Section 303(d) of the CWA to list the stream segments in the State that do not meet water quality standards or do not achieve its designated water use. This list is referred to as the "Impaired Waters and 303(d) List." Sandy Run Creek watershed was included as part of the 303(d) listing in 1998 and is still listed as of 2020 (PADEP 2020). The 2020 Pennsylvania Integrated Report map viewer shows Sandy Run having an impairment for the TSF designated water use (PADEP 2020). The list attributes the impairment of the creek's designated water use to urban runoff, including storm sewers, municipal and industrial point sources, and habitat modification (PADEP 2020).

PADEP is required to develop Total Maximum Daily Loads (TMDLs) for impaired waters to meet their designated water uses. A TMDL allocates loading to a creek for both point and non-point sources, including a designated margin of safety. Permits for point source discharges (NPDES permits) will be adjusted over time to become compliant with the TMDLs (Gaadt Perspectives 2001). TMDLs for Sandy Run as part of the Wissahickon Creek Basin were developed in 2003 for nutrients and sediment (PADEP 2020).

## 5.2 Geology and Soils

Abington Township is located within the Piedmont physiographic province. The Piedmont physiographic province is characterized by low, rolling hills with elevations above sea level. Rock formations consisting of various deposits and ages are tangled together throughout the region (PAGEODE 2021). Geologic formations within the region of the project site include Chickies Formation of the Cambrian Age and the Conestoga Formation of the Ordovician and Cambrian Age (PAGEODE 2021).

The Chickies Formation consists of light gray to white hard quartzite and quartz schist containing “Skolithos” tubes, and some slate. Bedding is thick and well developed. The Conestoga Formation consists of limestone with shale partings. The formation is conglomeratic at the base. The thickness of the Conestoga Formation is at least 300 feet.

Surficial geology of the project area was determined using United States Department of Agriculture Soil Survey maps. In the area of Roychester Park, the surficial soils are classified as Urban Land-Edgemont complex (UrkB), which consists of varied channery loam to very channery sandy loam within the upper 5 feet of the profile. Urban land-Edgemont complex soils are classified as containing a matrix of well drained ridges (Urban land and Edgemont soils, composed of channery loam, not hydric), terraces (Buchanan, not hydric), and drainageways (Andover, hydric). Urban land refers to soils that were brought in for some kind of development purpose (estimated to characterize 65% of the site), while the remaining soil complex contains Edgemont soil (estimated to characterize 30% of the site), and two minor component soils called Buchanan and Andover.

The soils/surficial geology in the area of the Grove Run Park consists of Hatboro Silt Loam (Ha) with additional small areas of “Urban land, occasionally flooded”, and “Urban land-Duffield complex, 0 to 8 percent slopes”. Hatboro Silt Loam consists of silt loam to approximately 4.5 feet below the ground surface, transitioning to sandy clay loam and gravelly sand to clay approximately 6 feet below the ground surface. This soil is composed of poorly drained alluvium derived from metamorphic and sedimentary rock and is found in floodplains. Hatboro Silt-Loam contains minor components of Glenville soils, which are found on hillslopes and are not considered hydric. “Urban land, occasionally flooded” refers to soil covered by excessively drained pavement, buildings and other artificially covered areas present in a floodplain. Urban land-Duffield complex contains both soils covered by urban land, and soils of the Duffield complex. The Duffield complex contains parent material composed of well drained residuum weathered from limestone with minor components of Clarksburg soils (in valley flats, not hydric), Penlaw soils (in swales, not hydric), and Thorndale soils (in depressions, hydric). Generally, hydric soils are limited throughout the project areas.

### 5.3 Vegetation

Although both parks are primarily covered by mowed lawn, riparian plant communities are found along sections of Sandy Run and forested areas are found in both parks. In Roychester Park, the main channel of Sandy Run Creek is forested for most of its course, containing both native and non-native trees. It is dominated primarily by black walnut (*Juglans nigra*), boxelder maple (*Acer negundo*), Norway maple (*Acer platanoides*), and silver maple (*Acer saccharinum*), with various other native tree species throughout. The northeast end of the creek (adjacent to the work area) has a thriving community of native riparian plants and small area containing emergent wetland plants.

In the southeastern half of Grove Park there is a large, forested area containing several small wetlands and streams. This wooded area is primarily composed of native trees and shrubs, with both native and invasive species in the shrub and herbaceous layers, including large patches of Japanese knotweed (*Reynoutria japonica*). Riparian species are found along streams and wetland plant species are found in depressional areas throughout this wooded area. Typical floodplain tree species found throughout the woodland include boxelder maple (*Acer negundo*), red maple (*Acer rubrum*), sweet cherry (*Prunus avium*), silver maple (*Acer saccharinum*), American elm (*Ulmus americana*), and pin oak (*Quercus palustris*). The shrub and herbaceous layers include a mixture of native species such as northern spicebush (*Lindera benzoin*), southern arrowwood (*Viburnum dentatum*), jewelweed (*Impatiens capensis*), Virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Toxicodendron radicans*), Jack in the pulpit (*Arisaema triphyllum*), sensitive fern (*Onoclea sensibilis*), and large patches of invasive species, especially multiflora rose (*Rosa multiflora*), Japanese knotweed (*Reynoutria japonica*), Japanese honeysuckle (*Lonicera japonica*) and privet (*Ligustrum obtusifolium* and *Ligustrum vulgare*).

### 5.2 Wetlands

Wetlands are located in the project area in both Roychester and Grove Parks. While no wetlands were mapped in either area in the USFWS National Wetlands Inventory (NWI 2017), USACE biologists identified wetlands within the project area at both sites. A complex of palustrine forested wetlands (NWI category PF01A or a palustrine forested broad-leaved deciduous wetland that gets temporarily flooded) is located on the eastern side of Sandy Run in Grove Park. These forested wetlands total approximately 0.5 acre. A small emergent wetland is also located within the floodplain of Sandy Run Creek in Roychester Park. Wetland delineations were completed for the project sites in 2019 and 2020, and are described in further detail in Appendix B.

## 5.5 Aquatic Resources

### 5.5.1 Fish

Sandy Run Creek is typical of stressed urban streams, in that water quality degradation and channelization has caused degradation and loss of aquatic habitat, resulting in poor species diversity. A study of the Wissahickon Creek watershed was completed by the Wissahickon Valley Watershed Association (WVWA) in 2017, using data collected from 2004 to 2016. As part of this study, data was collected at three locations in and along Sandy Run. Data collected nearest to the project area (collected and analyzed from 2011 – 2013) demonstrated that fish habitat in the upper reaches of Sandy Run Creek was marginal. Similarly, fish habitat throughout the entire length of Sandy Run Creek was marginal. Gravel and sand were the dominant substrate components throughout the creek. One or more locations in Sandy Run Creek (not near the project site), were considered relatively deep, contained above average riffle conditions, and contained longnose dace (*Rhinichthys cataractae*). One location downstream from the project exhibited relative paucity of tessellated darters (*Etheostoma olmstedii*) and centrarchids, likely due to more turbid water conditions and wastewater treatment plant discharge. One trout was collected further downstream near the confluence with the Wissahickon Creek, which suggested that the fish had overwintered in the Wissahickon Creek Watershed. This is approximately 0.5 mi from the upstream extent of the trout stocking zone. Researchers concluded that this was a positive sign that water quality (in at least some parts of the watershed) is suitable for some salmonids to overwinter (WVWA 2017).

There is no Essential Fish Habitat in the project area pursuant to the Magnuson-Stevens Fishery Conservation and Management Act of 1976. In a letter dated 2017, NMFS stated that no NOAA trust resources are located in the project area. NMFS has identified resources within the Schuylkill River and in the lower portions of Wissahickon Creek including diadromous species, but both the natural and man-made conditions of Sandy Run Creek and the upper portions of Wissahickon Creek do not contain habitat that supports these species. As a result, they will not be providing any additional comments on this project beyond expressing their support for the ecological restoration of this waterway.

### 5.5.2 Benthic Macroinvertebrates

Benthic macroinvertebrates were collected from the Wissahickon Watershed 2011-2013 to understand the macroinvertebrate community throughout the stream system (WVWA 2017). The study utilized the Pennsylvania's index of biotic integrity (IBI) which uses six metrics for taxa richness, diversity, and pollution tolerance to measure a stream's ability to support healthy aquatic communities.

The study found that the Wissahickon Creek, as well as sites sampled within Sandy Run, all had an IBI below 26% for all sampling events, indicating all sites were impaired. The study found that there were few or no sensitive individuals at any of the Sandy Run sites, and that diversity was

low for all sites and sampling events. Macroinvertebrate communities throughout the stream system were typically dominated by one taxon, Chironomidae, commonly known as midges. Overall, there was little variability throughout the Wissahickon Watershed or over the study years (WVWA 2017).

## 5.6 Wildlife Resources

With very limited open space or intact riparian areas in the Sandy Run Creek Watershed, there is limited habitat for wildlife resources. The white-tailed deer (*Odocoileus virginianus*), chipmunk (*Tamias striatus*), woodchuck or groundhog (*Marmota monax*), opossum (*Didelphis virginiana*), skunk (*Mephitis spp.*), red fox (*Vulpes vulpes*), eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*), muskrat (*Ondatra zibethicus*), eastern mole (*Scalopus aquaticus*), mouse and rat species (Muridae), and the gray squirrel (*Sciurus carolinensis*) are common mammalian species that occur throughout the Sandy Run Creek Watershed. These species are also known throughout the rest of the State. The watershed generally lacks species diversity as a direct result of the elimination of habitat.

A Natural Areas Inventory (NAI) was prepared for Montgomery County by The Nature Conservancy in 1995. The NAI contains information on the locations of rare, threatened, and endangered species and of the highest quality natural areas in the county. None of the 59 priority sites identified within the NAI, were located within the Sandy Run Creek Watershed. In addition, none of the Important Bird Areas designated by the Audubon Society are located within the Sandy Run Creek Watershed as it is primarily suburban in nature (>50% residential and 12% non-residential) and consists of less than 1,200 acres of greatly dispersed woodlands, the habitat for sizeable or unique biological resources is limited (Gaadt Perspectives 2011).

While the project is located in a heavily developed area, it is possible that habitat within the project area may be used by species protected under the Migratory Bird Treaty Act. It was determined that no threatened and endangered species are located in the project area. Species that were evaluated for potential presence are outlined in the following section. A list of migratory birds that may be present in the project area can be found in the IPaC List located in Appendix C.

## 5.7 Threatened and Endangered Species

Responses to the project's NEPA scoping letter in 2017 did not identify any known resources of concern in the project area (Appendix A). However, a species list generated using USFWS' Information for Planning and Consultation (IPaC) tool on December 2, 2020 indicates that the project site is located within the range of the Federally endangered Indiana bat (*Myotis sodalis*) and Federally threatened northern long-eared bat (*Myotis septentrionalis*) (USFWS 2020) (Appendix C). Based on the results of a Pennsylvania Natural Diversity Inventory (PNDI)



screening, which accounts for known maternity roosts or hibernacula for these species, no such habitat is located in the vicinity of the project area.

A PNDI search (run on March 20, 2017 and re-verified December 18, 2020) indicated no known effects to threatened and endangered species and/or special concern species and other PADEP resources within the project areas (PANHP 2017, 2020) (Appendix C). This PNDI screening was coordinated with the Pennsylvania Department of Conservation and Natural Resources (DCNR) in 2019 (see Appendix A). DCNR determined that the project is not likely to affect species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features. This determination was based on the nature of the project, the immediate location, and DCNR's detailed resource information and was documented in a letter dated June 2019. Furthermore, the PNDI concluded "no known impacts" to threatened and endangered species and/or special concern species and resources within the project area under the purview of PA Game Commission, PA Fish and Boat Commission, and the U.S. Fish and Wildlife Service.

## **5.8 Floodplains**

Much of the proposed action occurs within the base floodplain of Sandy Run Creek and its tributaries. Executive Order 11988 requires Federal agencies to avoid to the extent possible the long and short-term adverse effects associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. An outline of the completed 8-step process required by USACE (ER 1126-2-65) to comply with Executive Order 11988 can be found in Appendix E.

## **5.9 Cultural Resources**

As a Federal agency, USACE has certain responsibilities for the identification, protection, and preservation of cultural resources that may be located within the Area of Potential Effect (APE) associated with the proposed action. Present statutes and regulations governing the identification, protection, and preservation of these resources include the National Historic Preservation Act of 1966 (NHPA), as amended; the National Environmental Policy Act of 1969; Executive Order 11593; the regulations implementing Section 106 of the NHPA (36 CFR Part 800, Protection of Historic Properties, August 2004); and the USACE Identification and Administration of Cultural Resources (33 CFR 305). Significant cultural resources include any material remains of human activity eligible for inclusion on the National Register of Historic Places (NRHP). This work is done in coordination with the PASHPO, Tribal Nations and other consulting parties.

The USACE contacted the PASHPO and the Tribes during the scoping period in 2017 (Appendix A). The PASHPO stated that there may be above ground historic properties within the project APE but that the project as proposed will have no effect on historic properties. They further

stated that the APE has a high probability for significant archaeological sites and recommended a Phase I archaeological survey (see Section 6.7 for results). There were no comments from the Tribes.

### **5.9.1 Description of Undertaking**

The proposed action/recommended plan includes Roychester Park Alternative 2 and Grove Park Alternative 2. Roychester Park Alternative 2 consists of streambank restoration, storm water improvements, creation of an upland wildflower meadow, and sanitary sewer relocation. Grove Park Alternative 2 consists of stream restoration with relocation of storm water outfalls, tributary relocation, and riparian floodplain enhancement. See Section 4.4 for a detailed description of the proposed action.

### **5.9.2 Area of Potential Effect**

The APE for below ground cultural resources includes the boundaries of both parks, Roychester Park and Grove Park, and the limits of disturbance that would be caused during construction along with access and staging. The APE for above ground cultural resources includes the boundaries of both parks and those locations that would be anticipated to have effects visually from the completed project.

### **5.9.3 Cultural Context and Known Resources**

#### *Native American Cultural Context*

In order to better understand the changes evident in Native American archaeology over the past 16,000 years, archaeologists have developed temporal frameworks, or chronologies, to divide Middle Atlantic prehistory into periods defined on the basis of diagnostic tools, ceramics, inferred cultural adaptations, associated radiocarbon dates, and settlement patterns. Over the past few decades, the basic Middle Atlantic chronological framework has evolved through an assortment of observed environmental, cultural, adaptive, and stylistic changes. Although these divisions of time are imperfect, at this point in archaeological history they are necessary for explaining cultural change through time. The cultural chronological framework commonly used for the Middle Atlantic region is divided into three major periods; these are Paleoindian (14,000 B.C. – 8000 B.C), Archaic (8,000 B.C. – 1000 B.C.), and Woodland (1000 B.C. – A.D. 1600). From this, further refinements are made dividing the periods into sub-periods of Early, Middle, and Late.

#### *Historical Context*

The earliest recorded European visitors to the lower Delaware Valley arrived in the sixteenth century, although settlement did not occur until the seventeenth century. The principal tribe of Native Americans at the time of European settlement along the Delaware River was the Lenape, who spoke a Unami dialect of the coastal Algonquian language group (Kraft 1986:xv). Early in the 1600s, the Dutch began to settle the area between the Delaware and Hudson Rivers, establishing the colony of New Netherlands from Delaware Bay to Albany. In 1691, King Charles

It granted William Penn the charter for Pennsylvania. Pennsylvania was to be a place of safety for the Quakers. With religious tolerance as its main value, Quakers and other religious groups that were persecuted in their home country came to Pennsylvania, with many settling in what is now Montgomery County (HSMCPA 2020). The project area lies within Abington Township, Montgomery County, located northwest of Philadelphia. The name Abington Township came into use around 1702, though there is no formal record of the town’s organization (Hocker 1956). Table 4 presents population data for Abington Township, Montgomery County, Pennsylvania for 1800-1980.

**Table 4. Population data for Abington Township**

Year	Abington Township Population	Year	Abington Township Population
1800	1,080	1910	5,896
1820	1,455	1920	8,684
1850	1,836	1930	18,648
1860	2,058	1940	20,857
1870	2,440	1950	28,988
1880	2,185	1960	55,831
1890	2,703	1970	63,625
1900	3,803	1980	58,836

The early transportation network leading out of Philadelphia resembled a hub and spoke structure, with roads connecting the City to Wilmington, Delaware, New Hope, York, Easton, Bethlehem, and Lebanon. One of the oldest of Pennsylvania’s roads is Old York Road which passes through Abington Township and the project area. The lower part of this road was authorized by the Governor’s Council in 1693; however, it had been in use for years prior. The extension of Old York Road was ordered in 1711 (Hocker 1956: 18). A trolley car line was built on Old York Road that ran from Willow Grove to Philadelphia in 1894 and was replaced by bus service in 1940 (Hocker 1956: 19). The North Pennsylvania Railroad was the first rail line into the project area in 1857 and created an immediate and significant effect on the region’s growth (Bean 1884:802). Farmers and millers obtained ready access to the Philadelphia markets, and the city’s elites acquired “country” estates a short train ride away. As mill seats had done in the previous century, rail stations became the nucleus for commercial and residential development in the nineteenth century. Trains also heralded the transition from water-powered to steam-powered mills, allowing for increased production and the manufacture of finished iron implements (PDP 1999).

The first recorded mill along Tookany Creek, which runs approximately two miles southwest of the project area, was Richard Dungworth’s gristmill and was built in 1690 (Fisher 1939). Other gristmills were built in following years and became the nucleus for the villages of

Shoemakertown, Ashbourne, and Abington Township where the project area is located. It was in Abington that the first Quaker Meeting House in Montgomery County was established in 1697 (Bean 1884:684).

Since a majority of Abington's residents were members of the Society of Friends and thus pacifists, they experienced unease during the time of the American Revolution. The project area was significantly affected by the political and military events of the American Revolution. In 1777, when it became evident that the British were preparing to proceed against Philadelphia, General Washington had his army advance from New Jersey into Pennsylvania, marching down Old York Road passing through Abington Township (Hocker 1956). After the British occupied Philadelphia, the residents of Montgomery County were cut off from commerce with the region's largest port. They also found themselves in harm's way following the defeat of Washington's forces at Germantown and the Continental Army's retreat to Whitemarsh, northwest of the project area. In early December 1777, General William Howe, British commander in Philadelphia, led his army up Old York Road through Cheltenham to attack the Americans before the onset of winter. Skirmishes occurred between the British and American militia at Edge Hill in Cheltenham on December 8, 1777. Although the fighting was largely favorable for the British, Howe decided that American defenses were too strong and returned his forces to Philadelphia (Bean 1884: 688). Following the withdrawal of British forces from Philadelphia in June 1778, Montgomery County residents reclaimed a substantial amount of economic and political stability.

In 1832 Abington contained only about ten to twelve residences and by 1870 there were as many as forty residences (Shaffer 1976). There was also a significant jump in population in Abington from this time, which could be due to the North Pennsylvania Railroad going through Abington Township and creating growth for commercial and residential development. This commercial and residential growth paved the way for the transition of Abington Township from an agricultural landscape to a more suburban landscape. Abington's population continued to grow slowly throughout the nineteenth century. Population growth continued more strongly into the twentieth century with the updating and construction of roads and the invention of the car. The population of Abington Township more than doubled between 1920 and 1930 and continued to grow following World War II, reaching almost 60,000 people in 1980 and stabilizing around that number up through today.

#### *Identified Historic Properties*

Database research was conducted to assess potential effects to recorded historic properties, and to assess the probability for below ground cultural resources, such as Native American archaeological sites.

Research identified 184 non-linear historic sites, three linear historic sites and 333 unmapped historic sites within one mile of Grove Dog Park, of which 11 are eligible for or listed on the NRHP. The review identified 51 non-linear historic sites, three linear historic sites, and 372 unmapped historic sites within one mile of Roychester Park, of which 16 are eligible for or listed on the NRHP.

## **5.10 Hazardous, Toxic, Radioactive Waste (HTRW)**

Roychester Park, acquired by Abington Township in 1900, was formerly farmland and is now surrounded primarily by residential housing. No particular areas of potential chemical contamination were noted during an initial reconnaissance. Review of historical aerial photographs revealed no buildings or facilities on the site.

Grove Park, acquired by Abington Township in 1977, is dominated by a channelized stream. Some of the surrounding area is residential, but there is an automobile repair facility adjacent to the project area. The current plan does not require extensive earthwork near this facility. No particular areas of potential chemical contamination were noted during an initial reconnaissance. Review of historical aerial photographs revealed no buildings or facilities on the site.

A search of the PADEP Environmental Site Assessment Database indicates that there has been no contamination at either project site (see Appendix C). The non-Federal sponsor is responsible for all costs associated with handling and removal of HTRW. USACE has been coordinating with Abington Township with regard to HTRW.

## **5.11 Recreation and Public Safety**

A goal of the Abington Township Department of Parks and Recreation is to provide essential park and recreation facilities to enhance the quality of life for the people who live in Abington Township. To that end, Roychester Park and Grove Park are two of more than 20 parks maintained by Abington Township. Roychester Park provides a baseball and little league fields, basketball court, an outdoor skating rink, sledding opportunities, a playground, tennis courts, and restrooms. Grove Park provides a dog park and a natural area with opportunities for wildlife viewing.

## **6.0 Environmental Effects**

### **6.1 Air and Water Quality**

#### **6.1.1 Air Quality**

As stated previously, the project is located in Montgomery County, Pennsylvania, which is located in the Philadelphia-Wilmington-Atlantic City Area 8-hour ozone Marginal Nonattainment Area, as well as a "maintenance area" for previous violations of the 2006 PM<sub>2.5</sub> NAAQS.

Construction of the stream restoration project would result in temporary effects on local ambient air quality due to emissions and fugitive dust generated by construction equipment. These temporary effects would not have a significant effect on the long-term air quality of the surrounding area.

## General Conformity Review and Emission Inventory

In 1993, the EPA promulgated the General Conformity Regulations, which ensure that Federal Actions comply with NAAQS. To meet this requirement, federal agencies must demonstrate that actions it takes conform to a nonattainment area's State Implementation Plan (SIP). In the case of the Abington Environmental Infrastructure Improvement Project, the Federal Action includes the stabilization and restoration of Sandy Run Creek at Roychester Park and Grove Park, as well as the relocation and replacement of the sanitary sewer line in Roychester Park. USACE will be responsible for construction.

The General Conformity Rule (GC) applies to this project. However, a conformity determination is not required if the total of direct and indirect emissions of the criteria pollutant caused by a Federal action will not equal or exceed any of the rates set forth in 40 CFR 93.153. Therefore, the total direct and indirect emissions associated with the proposed action were compared to the levels set forth at 40 CFR 93.153 ("GC trigger levels") to determine if a conformity determination is necessary. Table 5 provides the GC trigger levels

**Table 5: General Conformity Trigger Levels**

<b>Pollutant</b>	<b>Trigger Level (tons per year)</b>
NO <sub>x</sub>	100
VOC	50
PM <sub>2.5</sub>	100

The Clean Air Act assessment/GC review and emission inventory is provided in Appendix D. The GC review and emission inventory includes a list of equipment necessary for construction and an estimate of for NO<sub>x</sub>, VOC, and PM<sub>2.5</sub> emissions from the equipment based on the number of engines, engine size (hp), and duration of operation, load factor (LF) (i.e., average percentage of rated horsepower during use). Appendix D provides the emission factors and emission estimates for NO<sub>x</sub>, VOC, and PM<sub>2.5</sub> for each individual equipment/engine category and the combined total.

The total estimated emissions that would result from the proposed action is 5.4 tons of NO<sub>x</sub>, 0.5 ton of VOC, and 0.23 ton of PM<sub>2.5</sub> (Appendix D). Construction of the project will be completed in approximately 8 months. These emissions are well below the General Conformity trigger levels of 100 tons of NO<sub>x</sub> and PM<sub>2.5</sub> and 50 tons of VOC per year.

The direct and indirect emissions associated with the project were evaluated according to the requirements of 40 CFR Part 93, Subpart B. A conformity determination is not required because the total direct and indirect emissions from the project are below the conformity threshold values established at 40 CFR 93.153 (b) for ozone (NO<sub>x</sub> and VOC) in a Marginal Nonattainment Area (100 tons and 50 tons of each pollutant per year) and PM<sub>2.5</sub> in a maintenance area (100 tons). A Record of Non Applicability (RONA) can be found in Section 11.0. The project is not

considered regionally significant under 40 CFR 93.153 (i).

### **6.1.2 Water Quality**

Implementation of this project will have temporary effects on water quality during construction due to an increase in turbidity. Best management practices (BMPs), such as standard erosion and sediment controls, will be used during construction to avoid and minimize these effects. The proposed project is not anticipated to have any long-term adverse effects on water quality in the Sandy Run Creek watershed.

It is anticipated that this project will provide long-term water quality improvements for Sandy Run Creek in Abington by stabilizing eroding banks, naturalizing the stream corridor, reconnecting areas of floodplain, and incorporating native plantings. Riparian buffers will help to reduce pollutant loads to streams and improve shade over the Sandy Run, especially in Grove Park, where riparian vegetation is sparse. Directing stormwater through the new channel in the forested floodplain will alter stormwater timing, reduce peak flows, and allow natural treatment of stormwater runoff through the adjacent wetlands.

The project, which USACE is designing to provide a net increase in aquatic resource functions and services, is eligible for Nationwide Permit 27 (Aquatic Habitat Restoration) and therefore qualifies for the associated Section 401 Water Quality Certificate from PADEP. This determination has been coordinated and confirmed with PADEP. Nationwide Permit 27 is intended for Aquatic Habitat Restoration, Enhancement, and Establishment Activities. It permits activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services. Additionally, this permit authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services. In addition, the project will comply with Title 25 Pa. Code Chapter 102, Erosion and Sediment Control and Stormwater Management.

### **6.2 Geology and Soils**

Relocating the sanitary sewer line and grading the banks in Roychester Park will result in the removal of up to 1275 cubic yards (CY) of soil. Grading of the banks and relocating the tributary in Grove Park will result in the removal of approximately 2165 CY of soil. These changes are expected to result in improved ecosystem function. BMPs will be implemented to limit potential effects from construction, such as standard erosion-control practices (e.g., silt fencing, sediment traps, application of water sprays, phased construction, and prompt revegetation of disturbed areas). No prime farmland or farmland of statewide importance would be affected.

### **6.3 Vegetation**

The proposed action will result in the trampling and removal of some vegetation. Overall, the proposed action will result in an improvement in plant diversity at both parks. While some native trees would be removed, the project is being designed to avoid impacts to native trees to the maximum extent practicable. BMPs are being developed to avoid the unnecessary removal of woody vegetation during construction.

Invasive species will be removed, and riparian native species will be planted. The project maintenance plan will recommend that the non-Federal interest conduct annual inspections to manage invasive species.

The construction contractor will provide a warranty for plantings that do not survive after a year (the targeted survival rate is being determined). A visual site inspection will be conducted approximately 10 months after project construction to confirm the success of the plantings. Additionally, USACE will perform annual inspections for the first 5 years after construction.

### **6.4 Wetlands**

#### *Roychester Park*

The proposed action will improve riparian habitat in Roychester Park by stabilizing the eroding banks of Sandy Run Creek, reconnecting the floodplains, and restoring riparian habitat along the eroded above ground reaches of the creek. The proposed action will have no effect on wetlands in Roychester Park. All areas temporarily disturbed during construction will be planted with native plant species appropriate for the habitat type.

#### *Grove Park*

The proposed action will improve riparian habitat along Sandy Run Creek in Grove Park by removing gabions and naturalizing this reach through regrading, stabilizing, and re-planting the banks with native plants. The forested floodplain and wetland habitat at Grove Park will be enhanced by redirecting local drainage into a created/re-aligned tributary to increase storm water storage within the forested floodplain. The outlet to the mainstem will be re-routed, leaving a 250-foot channel that will no longer receive flow, but will remain in place, resulting in a net increase of approximately 200 feet of stream meandering through the forested floodplain. All areas temporarily disturbed during construction will be planted with native plant species appropriate for the habitat type.

The final plans for the tributary relocation in Grove Park are still in development. Final plans will avoid direct and indirect effects on forested wetlands to the maximum extent practicable. For those areas of existing wetlands that cannot be avoided, work will be designed to minimize adverse effects. The proposed stream channel route was intentionally located along an existing



overland flow path through the flat, low lying forested floodplain and intersects two depressional forested wetlands along its path. This alignment will take advantage of the existing onsite hydrology and minimize excavation in the forested area. No excavation or fill placement will occur in wetlands, in order to avoid wetland impacts.

The project intent is to maintain and enhance wetland hydrology in the existing forested wetlands while also providing for peak flow reduction in the main channel of Sandy Run through the creation of a new tributary. Directing stormwater through the new channel in the forested floodplain will alter stormwater timing, reduce peak flows, and allow natural treatment of stormwater runoff through the adjacent wetlands. The project is being designed to maintain and enhance wetland hydrology in the area of the existing wetlands that are located in the path of the proposed stream relocation. This includes grading the new channel no lower than the existing channel and designing the relocated stream's floodplain to encourage water to continue accumulating in the forested wetlands. It is anticipated that these wetlands will continue to function as wetlands and may even grow in size due to the introduction of additional water to the forested area.

The proposed plans include regrading an area along the excavated tributary to facilitate hydrologic conditions suitable for the creation of new wetlands. The project plans are currently being refined as the team works toward the 95% construction plans.

USACE is developing plans with the goal of no net decrease in forested wetland habitat acreage and quality and an overall improvement in forested floodplain habitat quality. These plans will be coordinated with PADEP as they become available. USACE will work with agencies to minimize loss of wetlands and their function.

## **6.5 Aquatic Resources**

Fisheries and other aquatic resources in the project area and in the upper reaches of Sandy Run Creek are extremely limited, likely due to stressors throughout the Sandy Run Creek watershed (WVWA 2017). Minor, temporary effects on aquatic resources could occur during construction. These include direct sediment disturbance, downstream sedimentation, and bypass flows (if used). BMPs will be used to minimize disturbance to the stream and aquatic resources, including fish, fish habitat, and macroinvertebrates. The project is designed to improve aquatic habitat and therefore will be beneficial. The restoration and enhancement of the wetlands and riparian habitats in this watershed will have a beneficial effect on downstream aquatic habitat.

## **6.6 Wildlife Resources**

The project is designed to provide a long-term positive effect to the wildlife in the Sandy Run Creek Watershed by improving habitat quality and availability along the riparian corridor. No long-term adverse effects to the wildlife resources in the Sandy Run Creek Watershed are anticipated as a result of the proposed action. A Pennsylvania Natural Diversity Inventory (PNDI) screening was completed (PANHP 2017) and subsequently coordinated with the Pennsylvania

Department of Conservation and Natural Resources (DCNR) in 2019. In 2019, DCNR screened the project for potential effects to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features. DCNR determined that the project is not likely to adversely affect these resources based on the nature of the project, the immediate location, and DCNR's detailed resource information (letter dated June 2019). An updated PNDI search in December 2020 confirmed previous findings (PANHP 2020). Noise and general disturbances in the stream area from construction activities will be temporary in nature and should not have a long-term negative effect on wildlife in the area.

An IPaC report was coordinated with the US Fish and Wildlife Service (USFWS) to determine potential effects to birds protected under the Migratory Bird Treaty Act (MBTA). It was concluded that the project area may serve as habitat for birds protected under MBTA, including the wood thrush (*Hylocichla mustelina*), and several species of warblers including the blue-winged warbler (*Vermivora pinus*), prairie warbler (*Dendroica discolor*), and prothonotary warbler (*Protonotaria citrea*). In order to avoid impacts to these species, USFWS recommends avoiding clearing vegetation from May 1 through July 30, and preferably from April 1 through August 31. These recommendations will be implemented to the maximum extent practicable.

## **6.7 Threatened and Endangered Species**

A web-based PNDI search and subsequent coordination with State resource agencies have confirmed that no State listed species are located within the project area. However, a web-based IPaC screening determined that Indiana bat (Federally endangered) and northern long-eared bat (Federally threatened) may be located in the project area (USFWS 2020). In accordance with the project review procedures provided by the USFWS Pennsylvania Field Office, USACE completed a PNDI review to screen the project for potential impacts to species of special concern, including federally listed and proposed species. The PNDI screening concluded that no further consultation is required for all four of the federal and state agencies that have jurisdiction over federal and state-listed species, including the USFWS, Pennsylvania Game Commission, Pennsylvania Fish and Boat Commission, and Pennsylvania Department of Conservation and Natural Resources. USFWS confirmed after coordination that no further consultation with their agency is required under Section 7 of ESA, as PNDI constitutes the best available scientific information because it screens for known maternity roosts and hibernacula used by these species, whereas IPaC does not (personal communication dated 31-March-2021). Based on the best scientific data available, the USACE has concluded that the project will not affect these species. Therefore, no further consultation is required under Section 7 of the Endangered Species Act of 1973 as amended by P.L. 96-159.

Coordination with USFWS under the Fish and Wildlife Coordination Act has also been completed (see Appendix A).

No threatened or endangered species under the jurisdiction of NMFS will be impacted by this project. In a letter dated 2017, NMFS stated that there are no species listed as threatened or endangered under the ESA under NMFS jurisdiction (i.e. sturgeon), and that no interagency consultation under section 7 of the Act is therefore needed. Consultation with NMFS will be necessary if any new information or information not previously considered should indicate that project activities may affect listed species.

## **6.8 Floodplains**

This project has been reviewed in accordance and complies with Executive Order 11988. This project is being completed at the request of the municipality to improve floodplain function and connectivity with the stream channel. An alternative outside of the floodplain would not achieve the basic project purpose; therefore, an in-floodplain alternative is the only feasible option. The project does not involve construction of new facilities within the floodplain and has been designed to minimize harm to the floodplain and to preserve, restore, and enhance the natural and beneficial values of the floodplain. None of the proposed work will result in an increase of flood risk, nor will it result in a loss of floodplain surface area, connectivity, or function. The proposed action will be implemented in compliance with minimization plans and flood insurance requirements. An outline of the completed 8-step process required by USACE (ER 1126-2-65) to comply with Executive Order 11988 can be found in Appendix E.

## **6.9 Cultural Resources**

### *Above Ground Cultural Resources*

Although the proposed action for Roychester Park and Grove Park may be in the vicinity of potentially eligible historic structures, the potential to cause visual adverse effects is unlikely due to the temporary effects and limited scope of the project.

### *Below Ground Cultural Resources*

Both Roychester Park and Grove Park have a moderate potential for the presence of intact below ground cultural resources potentially eligible for listing in the National Register of Historic Places (NRHP); therefore, a Phase I cultural resource investigation was conducted within the APE for each park based on the limits of construction.

The Phase IA investigation included background research and literature review of pertinent information on environmental conditions and cultural and historic conditions of the project area, a review of archaeological site forms and locational data maintained on PACRGIS, as well as a review of historic maps related to the project area. The Phase IB investigation consisted of walkover and subsurface testing of the APE within the portions of the project area that would be subject to significant disturbance by construction activities. A total of 34 shovel test pits (STPs)

were excavated within the Roychester Park APE and 77 STPs excavated within the Grove Park APE.

No historic properties eligible for or listed on the National Register of Historic Places were found and no additional work is required. A copy of the Cultural Resource Phase I A/B report, and a negative survey form was sent to the PASHPO on February 19, 2021. As of March 29, 2021 we have received no comments. Given that lack of response and the fact that no cultural material was found, PASHPO's concurrence with our *No Historic Properties Found* determination is presumed. A copy of the Negative Survey form was submitted to the Tribes and other Consulting Parties for their review.

### **6.10 Hazardous, Toxic, Radioactive Waste (HTRW)**

Final plans, including grading and excavation plans, are still in development. Excavated soil that requires offsite disposal will be sampled for HTRW and disposed according to all requirements. Soil that remains on site and is used for fill or regrading will not be sampled for HTRW. The non-Federal sponsor is responsible for all costs associated with handling and removal of HTRW. It is unlikely that the soils will be contaminated to the point of requiring disposal offsite as a hazardous waste. This assumption is based upon what is known of the areas' former and current uses and the PADEP Environmental Site Assessment Database results (see Appendix C).

If sampling is necessary prior to construction, the USACE Geo-Environmental Section will prepare and execute a Sampling and Analysis Plan (SAP) for sampling areas with proposed soil disturbance at each of the two sites in accordance with all appropriate guidance and requirements.

If USACE forgoes prior site sampling and analysis, the Contractor will be required to prepare a SAP for review and acceptance by the District. The Contractor will then execute the SAP, prepare the report(s) for District review and acceptance, and provide the results to the selected disposal facilities. During construction, contractors will be required to dispose of soils in accordance with all requirements.

### **6.11 Recreation and Public Safety**

There may be temporary insignificant effects on recreation during the construction of the project. Construction will be coordinated with the Abington Township Department of Parks and Recreation and planned to minimize disruptions to recreation to the maximum extent practicable. Applicable safety requirements would be followed and BMPs would be implemented to maintain a safe work environment and the safety of the public.

## **6.12 Cumulative Effects**

According to CEQ NEPA regulations (40 CFR 1508.7), the cumulative effect is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of who undertakes these actions. The proposed action must be evaluated with the additive effects of other actions in the project area to determine whether all the actions will result in a significant cumulative impact on the natural and human environment of the area.

No other known significant activities are planned within the project area and region that could potentially cumulatively affect the environment in conjunction with the Abington Township Environmental Infrastructure Improvement Project. However, it is expected that positive effects on the natural and human environment will result from the stream bank restoration, sanitary sewer relocation, and tributary relocation and forested floodplain enhancement. Furthermore, the riparian planting component of this project will build on recent native planting work in Roychester Park, which was completed by the municipality through PADEP's "Growing Greener" program. All negative effects associated with this project are short-term and minor. As a result, it is anticipated that future environmental benefits will be realized in the project areas at Roychester and Grove Parks as well as in the surrounding watershed will be realized with respect to improved aquatic and riparian habitats. It has been determined that there will be no cumulative negative effects as a result of this project and long term cumulative beneficial effects will be realized.

## **7.0 Environmental Justice**

In February of 1994 President Clinton signed EO 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." This EO directs Federal agencies "to make achieving environmental justice part of its mission by identifying and addressing, as appropriate disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low income populations in the United States..." The purpose of this order is to avoid the disproportionate placement of adverse environmental economic, social, or health impacts from Federal actions and policies on minority and low-income populations. In order to prevent the potential for discrimination and disproportionately high and adverse effects on specific populations, a process must identify minority and low-income populations that might be affected by the implementation of a proposed action or alternatives.

As defined by the "Environmental Justice Guidance Under NEPA" (CEQ 1997), "minority populations" includes persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin), or Hispanic. Race refers to Census respondents' self-identification of racial background. Hispanic origin refers to ethnicity and language, not race, and may include persons whose heritage is Puerto Rican, Cuban, Mexican, Central or South American.

A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. Low-income populations are identified using the Census Bureau’s statistical poverty threshold, which is based on income and family size. The Census Bureau defines a “poverty area” as a census tract with 20 percent or more of its residents below the poverty threshold and an “extreme poverty area” as one with 40 percent or more below the poverty level.

Using census data for Montgomery County as an indication for the project area, the population is not minority (19.9%) or low-income (5%) (US Census Bureau 2020).

## 8.0 Relationship of Selected Plan to Environmental Requirements, Protection Statutes, and Other Requirements

Compliance with environmental protection statutes and other environmental review requirements is ongoing. Table 6 provides a listing of compliance with environmental statutes.

**Table 6: Compliance with Appropriate Environmental Quality Protection Statutes and other Environmental Review Requirements**

STATUTE	COMPLIANCE STATUS
Clean Water Act	Full Compliance
Coastal Zone Management Act	N/A
Endangered Species Act	Full Compliance
Fish and Wildlife Coordination Act	Full Compliance
National Historic Preservation Act	Full Compliance
National Environmental Policy Act	Full Compliance
Clean Air Act	Full Compliance
Executive Order 11988 (Floodplains)	Full Compliance
Executive Order 12898 (Environmental Justice)	Full Compliance

**NOTE:**

**Full Compliance:** Having met all requirements of the statute, E.O., or other environmental requirements for the current stage of planning.

**Partial Compliance:** Some requirements of the statute, E.O., or other policy and related regulations remain to be met.

\*All applicable laws and regulations will be fully complied with upon completion of the environmental review, obtaining state water quality certification, coastal zone consistency determination, and concurrence with our determination on cultural resources.

**Noncompliance:** None of the requirements of the statute, E.O., or other policy and related regulations remain to be met.

## **9.0 Section 404(b)(1) Analysis**

A review of the impacts associated with discharges to waters of the United States for the Abington Environmental Infrastructure Improvement Project in Abington, PA is required by Section 404(b)(1) of the Clean Water Act, as amended (Public Law 92-500). This project was reviewed in accordance with Section 404(b)(1) of the Clean Water Act and has been found to be in compliance with the 404(b)(1) Guidelines. Documentation of the review is in Appendix F.

## **10.0 Climate Change**

Climate change could result in increased temperatures and more extreme precipitation events (PEC 2007). Hydrologic and hydraulic modelling will be assessed for variability in flows. Additionally, adaptability to future increases in stormwater associated with climate change has been considered in the design. Overall, the project would improve resiliency and response to increases in temperature and precipitation. Improving the riparian buffer will help to slow stormwater, reduce erosion, and filter pollutants entering Sandy Run Creek. Reconnecting the stream to its floodplain and improving flood storage in forested floodplain will improve ecosystem function and response to increases in precipitation.

## **11.0 Monitoring and Adaptive Management Plan**

Section 2039 of WRDA 2007 directs USACE to develop an adaptive management plan for all ecosystem restoration projects. The adaptive management plan must be appropriately scoped to the scale of the project and shall include a description of the monitoring activities, success criteria, actions to be taken if success criteria are not achieved, monitoring duration, and the estimated cost of the monitoring and adaptive management. The data generated by monitoring will be used by the Philadelphia District and the non-federal sponsor to guide decisions on operational or structural changes that may be needed to confirm that the project achieves the ecosystem enhancement goals and objectives. See Appendix G for the Monitoring and Adaptive Management Plan.

## **12.0 References**

Bean, Thomas W. (ed.). 1884. *History of Montgomery County, Pennsylvania*. Everts and Peck, Philadelphia.

Council for Environmental Quality. 1997. Environmental Justice Guidance Under the National Environmental Policy Act.

Fisher, Frank C. 1939. Cheltenham Village. *Old York Road Historical Society Bulletin*, 3.  
Gaadt Perspectives, LLC. 2001. Sandy Run Creek Watershed Conservation Plan.

Historic Society of Montgomery County PA (HSMCPA). 2020. Learn the History of Montgomery County PA. Online at <https://hsmcpa.org>, accessed September 18, 2020.

Hocker, Edward W. 1956. *A History of the Township of Abington*. The Board of Commissioners of the Township of Abington, Montgomery County, Pennsylvania.

Kraft, Herbert C. 1986. *The Lenape: Archaeology, History, and Ethnography*. New Jersey Historical Society, Newark.

Pennsylvania Department of Environmental Protection (PA DEP). 2020. Pennsylvania Integrated Water Quality Report – 2020. Available online: <https://www.dep.pa.gov/Business/Water/CleanWater/WaterQuality/IntegratedWatersReport/Pages/2020-Integrated-Water-Quality-Report.aspx>. Accessed on February 19, 2020.

Pennsylvania Environmental Council. 2007. Pennsylvania Climate Change Roadmap. Available online: <https://www.montcopa.org/DocumentCenter/View/3282/Pennsylvania-Climate-Change-Roadmap?bidId=>. Accessed on June 2, 2021.

Pennsylvania Fish and Boat Commission (PAFBC). 2021. Trout Streams. Available online: <https://pfbc.maps.arcgis.com/apps/webappviewer/index.html?id=65a89f6592234019bdc5f095eaf5c6ac>. Accessed on: 22 July 2021.

Pennsylvania Natural Heritage Program (PANHP). 2017. Pennsylvania Natural Diversity Inventory (PNDI) Search. Available online: <https://conservationexplorer.dcnr.pa.gov/content/resources>. Accessed: May 2017.

PANHP. 2020. PNDI Search. Available online: <https://conservationexplorer.dcnr.pa.gov/content/resources>. Accessed: December 18, 2020.

Preservation Design Partnership (PDP). 1999. Cultural Resources Survey, Cheltenham Township, Pennsylvania.

Shaffer, Helen L. 1976. *A Tour of Old Abington Bicentennial Edition*.  
United States Fish and Wildlife Service (USFWS). 2017. National Wetlands Inventory. Available online: <https://www.fws.gov/wetlands/data/mapper.html>. Accessed on May 23, 2017.

USFWS. 2020. Information for Planning and Consultation (IPAC). Available online: <https://ecos.fws.gov/ipac/>. Accessed on December 2, 2020.

U.S. Census Bureau. 2020. Persons in Poverty, and Race and Hispanic Origin. Available online: <https://www.census.gov/quickfacts/fact/table/abingtontownshipmontgomerycountypennsylvania>



[.US/PST045219.](#)

Wissahickon Valley Watershed Association. 2017. Wissahickon Watershed Stream Monitoring and Assessment Program. Available online:  
<https://wissahickontrails.org/uploads/attachments/ck7ouwd5d020jio4l7vsir9ah-streammonitoringreport.pdf>.

## 12.0 Record of Non-Applicability (RONA)

### RECORD OF NON-APPLICABILITY (RONA)

Project Name: Abington Environmental Infrastructure Improvement Project

Reference: Abington Environmental Infrastructure Improvement Project Environmental Assessment.

Project/Action Point of Contact: Rachel Ward, CENAP-PL-E

Begin Date (tentative): December 2021

End Date (tentative): August 2022

1. Project Description: The project entails improvements to two distinct reaches of Sandy Run Creek in Abington, PA. Improvements will be made by relocation of a sewer line, replacement of culverts, grading and planting degraded sections of the stream channel to restore connection to the floodplain, stabilizing eroding areas with stone, removing concrete lining and gabion baskets, and encouraging a meandering thalweg with stone, logs, and root wads. Additionally, a stormwater outlet will be re-located to create a stream, which will entail grading in a forested area for the new stream channel as well as grading to create depressional areas to encourage on-site storage of runoff and stream overflows. The purpose of this project is to improve channel stability, floodplain function, and aquatic habitat in Sandy Run Creek at Roychester Park and Grove Park in Abington Township, Pennsylvania.
2. An emissions estimate was completed to determine the Nitrogen Oxides (NO<sub>x</sub>) and Volatile Organic Carbon (VOC) emissions (precursors to ozone formation) and Particulate Matter (specifically PM<sub>2.5</sub>) associated with the Abington Environmental Infrastructure Project. The total estimated emissions that will result from the construction is 5.4 tons of NO<sub>x</sub>, 0.5 ton of VOC, and .23 ton of PM<sub>2.5</sub> (Table 1 – Appendix D). Construction of the project will be completed in approximately 8 months. These emissions are well below the de minimis levels established by the EPA of 100 tons of NO<sub>x</sub> and PM<sub>2.5</sub> and 50 tons of VOC per year. A conformity determination is not required for this project because the total direct and indirect emissions from the project are below the de minimis levels set forth at 40 CFR 93.153 (b) for ozone (NO<sub>x</sub> and VOC) in a Marginal Nonattainment Area (100 tons and 50 tons of each pollutant per year) and PM<sub>2.5</sub> in a maintenance area. The project is not considered regionally significant under 40 CFR 93.153 (i).
3. The project described above has been evaluated for Section 176 of the Clean Air Act.

Project related emissions associated with the Federal action were estimated to evaluate whether a conformity determination is required in accordance with General Conformity regulations (40CFR Part 93, Subpart B).

4. The project is located in Abington, PA, which has the following nonattainment-related designations with respect to the National Ambient Air Quality Standards (40 CFR §81.133): Marginal Nonattainment for the 2015 8-hour Ozone Standard (primary and secondary), and Maintenance Area for the 2006 PM<sub>2.5</sub> Standard.
5. A conformity determination is not required because the total direct and indirect emissions from this project are less than the 100 tons de minimis level for NO<sub>x</sub> and PM<sub>2.5</sub> for each project year and significantly below the 50 tons de minimis level for VOC (40 CFR §93.153(b)(1) & (2)), as VOCs, are typically a fraction of total NO<sub>x</sub> emissions. The estimated emissions for the project for each pollutant are provided below.

<b>CALENDAR YEAR</b>	<b>MONTHS</b>	<b>TONS NO<sub>x</sub></b>	<b>TONS VOC</b>	<b>TONS PM<sub>2.5</sub></b>
2021-22	8	5.4	0.5	0.23

6. The project conforms with the General Conformity requirements (40 CFR §93.153(c)(1)), and is exempted from the requirements of 40 CFR §93 Subpart B.

\_\_\_\_\_  
 Peter R. Blum, P.E.  
 Chief, Planning Division

\_\_\_\_\_  
 Date

## APPENDICES



## **Appendix A: Pertinent Correspondence**



## **Pertinent Coordination and Correspondence**

Part 1 – Correspondence during Public Review of the Draft Environmental Assessment and Preparation and Review of the Final Environmental Assessment

Part 2 – Correspondence during Preparation of the Draft Environmental Assessment

Part 3 – Correspondence During Scoping





Part 1 – Correspondence during Public Review of the Draft Environmental Assessment and Preparation and Review of the Final Environmental Assessment





DEPARTMENT OF THE ARMY  
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS  
100 PENN SQUARE EAST, 7<sup>th</sup> FLOOR WANAMAKER BUILDING  
PHILADELPHIA, PENNSYLVANIA 19107-3390

April 8, 2021

Environmental Resources Branch

Ms. Jennifer Anderson  
Greater Atlantic Region Fisheries Office  
National Marine Fisheries Service  
55 Great Republic Drive  
Gloucester, MA 01930  
[jennifer.anderson@noaa.gov](mailto:jennifer.anderson@noaa.gov)

Dear Ms. Anderson:

This letter is to notify you that the Philadelphia District, U.S. Army Corps of Engineers (USACE) has prepared a draft Environmental Assessment (EA) titled: *Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act*. We are requesting your review of this document in accordance with Section 102 of the National Environmental Policy Act.

The USACE is proposing stream and habitat improvements to Sandy Run Creek in Roychester Park and Grove Park. In Roychester Park, the USACE proposes to grade and stabilize the banks of Sandy Run Creek, replace and re-locate a sanitary sewer line, replace two in-stream culverts, and plant native plants in riparian and upland portions of the park. In Grove Park the USACE proposes to remove an existing concrete lining, disassemble existing gabion baskets, grade bench cuts into the stream banks, install a new steel footbridge, grade a new tributary stream which will receive hydrology from a re-directed a stormwater outfall, and plant native riparian and wetland plants.

The draft EA was prepared in accordance with National Environmental Policy Act (NEPA) regulations, the Council on Environmental Quality's regulations for implementing NEPA and *U.S. Army Corps of Engineers Procedures for Implementing NEPA, Engineering Regulation (ER) 200-2-2*. The EA evaluates existing environmental, cultural, and socio-economic conditions in the study area, and the effects of the project on existing resources in the immediate and surrounding areas.

The EA can be downloaded from our District website:  
<http://www.nap.usace.army.mil/Missions/CivilWorks/PublicNoticesReports.aspx>

The National Marine Fisheries Service (NMFS) has confirmed that the project area contains no species listed as threatened or endangered under the Endangered Species Act (ESA) that are under the jurisdiction of NMFS. No interagency consultation under section 7 of the ESA is therefore needed.

Pursuant to the NEPA, and the FWCA, we request your review and comments on the draft report within 30 days of the date of this letter.

If you have any questions please contact Ms. Rachel Ward, Biologist, Environmental Resources Branch at (215-656-6733) [Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil). Thank you for your attention to this matter.

Sincerely,

FOR Peter R. Blum, P.E.  
Chief, Planning Division

cc:

[Peter.b.Johnsen@noaa.gov](mailto:Peter.b.Johnsen@noaa.gov)



**DEPARTMENT OF THE ARMY**  
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS  
100 PENN SQUARE EAST, 7<sup>th</sup> FLOOR WANAMAKER BUILDING  
PHILADELPHIA, PENNSYLVANIA 19107-3390

April 8, 2021

Environmental Resources Branch

Karen Greene, Fishery Biologist  
Habitat Conservation Division  
National Marine Fisheries Service  
Sandy Hook Laboratory  
74 Magruder Road  
Highlands, NJ 07732  
[karen.greene@noaa.gov](mailto:karen.greene@noaa.gov)

Dear Ms. Greene:

This letter is to notify you that the Philadelphia District, U.S. Army Corps of Engineers (USACE) has prepared a draft Environmental Assessment (EA) titled: *Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act*. We are requesting your review of this document in accordance with Section 102 of the National Environmental Policy Act.

The USACE is proposing stream and habitat improvements to Sandy Run Creek in Roychester Park and Grove Park. In Roychester Park, the USACE proposes to grade and stabilize the banks of Sandy Run Creek, replace and re-locate a sanitary sewer line, replace two in-stream culverts, and plant native plants in riparian and upland portions of the park. In Grove Park the USACE proposes to remove an existing concrete lining, disassemble existing gabion baskets, grade bench cuts into the stream banks, install a new steel footbridge, grade a new tributary stream which will receive hydrology from a re-directed a stormwater outfall, and plant native riparian and wetland plants.

The draft EA was prepared in accordance with National Environmental Policy Act (NEPA) regulations, the Council on Environmental Quality's regulations for implementing NEPA and *U.S. Army Corps of Engineers Procedures for Implementing NEPA, Engineering Regulation (ER) 200-2-2*. The EA evaluates existing environmental, cultural, and socio-economic conditions in the study area, and the effects of the project on existing resources in the immediate and surrounding areas.

The EA can be downloaded from our District website:  
<http://www.nap.usace.army.mil/Missions/CivilWorks/PublicNoticesReports.aspx>

Since the National Marine Fisheries Service has confirmed that there is no Essential Fish Habitat (EFH) in the project area, consultation with your office pursuant to the Magnuson Stevens Fishery Conservation and Management Act (MSA) is not required.

Pursuant to the NEPA, and the FWCA, we request your review and comments on the draft report within 30 days of the date of this letter.

If you have any questions please contact Ms. Rachel Ward, Biologist, Environmental Resources Branch at (215-656-6733) [Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil). Thank you for your attention to this matter.

Sincerely,

FOR Peter R. Blum, P.E.  
Chief, Planning Division

cc:  
[keith.hanson@noaa.gov](mailto:keith.hanson@noaa.gov)



**DEPARTMENT OF THE ARMY**  
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS  
100 PENN SQUARE EAST, 7<sup>th</sup> FLOOR WANAMAKER BUILDING  
PHILADELPHIA, PENNSYLVANIA 19107-3390

April 8, 2021

Environmental Resources Branch

Mr. John Hohenstein, Environmental Program Manager  
Waterways and Wetlands Program, Southeast Regional Office  
Pennsylvania Department of Environmental Protection  
2 East Main Street  
Norristown, PA 19401  
[johohenste@pa.gov](mailto:johohenste@pa.gov)

Dear Mr. Hohenstein:

This letter is to notify you that the Philadelphia District, U.S. Army Corps of Engineers (USACE) has prepared a draft Environmental Assessment (EA) titled: *Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act*. We are requesting your review of this document in accordance with Section 102 of the National Environmental Policy Act.

The USACE is proposing stream and habitat improvements to Sandy Run Creek in Roychester Park and Grove Park. In Roychester Park, the USACE proposes to grade and stabilize the banks of Sandy Run Creek, replace and re-locate a sanitary sewer line, replace two in-stream culverts, and plant native plants in riparian and upland portions of the park. In Grove Park the USACE proposes to remove an existing concrete lining, disassemble existing gabion baskets, grade bench cuts into the stream banks, install a new steel footbridge, grade a new tributary stream which will receive hydrology from a re-directed a stormwater outfall, and plant native riparian and wetland plants.

The draft EA was prepared in accordance with National Environmental Policy Act (NEPA) regulations, the Council on Environmental Quality's regulations for implementing NEPA and *U.S. Army Corps of Engineers Procedures for Implementing NEPA, Engineering Regulation (ER) 200-2-2*. The EA evaluates existing environmental, cultural, and socio-economic conditions in the study area, and the effects of the project on existing resources in the immediate and surrounding areas.

The EA can be downloaded from our District website:  
<http://www.nap.usace.army.mil/Missions/CivilWorks/PublicNoticesReports.aspx>



Based on a review of all applicable regulations and policies it is USACE's finding that the proposed action, as described in the report, complies with Pennsylvania's approved 401 Water Quality Certification Program and will be conducted in a manner consistent with the program, and will not violate PA water quality standards. USACE is designing the project to provide a net increase in aquatic resources, functions, and services, and to meet the terms and conditions of Nationwide Permit 27 (Aquatic Habitat Restoration) and therefore will qualify for the associated section 401 Water Quality Certificate that has been issued by the Pennsylvania Department of Environmental Protection. We request your concurrence with our determination pursuant to Section 401 of the Clean Water Act.

Pursuant to NEPA, USACE requests your review and comment on the draft EA within 30 days of the date of this letter. Steps proposed to be taken in order to reduce potential adverse impacts to natural resources are presented in the report. All necessary permits and approvals issued by the regulatory agencies will be obtained prior to construction.

If you have any questions please contact Ms. Rachel Ward, Biologist, Environmental Resources Branch at (215-656-6733) [Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil). Thank you for your attention to this matter.

Sincerely,

FOR Peter R. Blum, P.E.  
Chief, Planning Division

cc:

[rsharp@pa.gov](mailto:rsharp@pa.gov)  
[doknorr@pa.gov](mailto:doknorr@pa.gov)



DEPARTMENT OF THE ARMY  
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS  
100 PENN SQUARE EAST, 7<sup>th</sup> FLOOR WANAMAKER BUILDING  
PHILADELPHIA, PENNSYLVANIA 19107-3390

April 8, 2021

Environmental Resources Branch

Ms. Barbara Rudnick, NEPA Team Leader  
U.S. Environmental Protection Agency, Region 3  
Office of Environmental Programs  
Environmental Assessment & Innovation Division  
1650 Arch Street  
Philadelphia, PA 19103-2029  
[Barbara.Rudnick@epa.gov](mailto:Barbara.Rudnick@epa.gov)

Dear Ms. Rudnick:

This letter is to notify you that the Philadelphia District, U.S. Army Corps of Engineers (USACE) has prepared a draft Environmental Assessment (EA) titled: *Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act*. We are requesting your review of this document in accordance with Section 102 of the National Environmental Policy Act.

The USACE is proposing stream and habitat improvements to Sandy Run Creek in Roychester Park and Grove Park. In Roychester Park, the USACE proposes to grade and stabilize the banks of Sandy Run Creek, replace and re-locate a sanitary sewer line, replace two in-stream culverts, and plant native plants in riparian and upland portions of the park. In Grove Park the USACE proposes to remove an existing concrete lining, disassemble existing gabion baskets, grade bench cuts into the stream banks, install a new steel footbridge, grade a new tributary stream which will receive hydrology from a re-directed a stormwater outfall, and plant native riparian and wetland plants.

The draft EA was prepared in accordance with National Environmental Policy Act (NEPA) regulations, the Council on Environmental Quality's regulations for implementing NEPA and *U.S. Army Corps of Engineers Procedures for Implementing NEPA, Engineering Regulation (ER) 200-2-2*. The EA evaluates existing environmental, cultural, and socio-economic conditions in the study area, and the effects of the project on existing resources in the immediate and surrounding areas.

The EA can be downloaded from our District website:  
<http://www.nap.usace.army.mil/Missions/CivilWorks/PublicNoticesReports.aspx>

Pursuant to NEPA, the USACE requests your review and comment on the draft EA within 30 days of the date of this letter. Steps proposed to be taken in order to reduce potential adverse impacts to natural resources are presented in the report. All necessary permits and approvals issued by the regulatory agencies will be obtained prior to construction.

If you have any questions please contact Ms. Rachel Ward, Biologist, Environmental Resources Branch at (215-656-6733) [Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil). Thank you for your attention to this matter.

Sincerely,

FOR Peter R. Blum, P.E.  
Chief, Planning Division



DEPARTMENT OF THE ARMY  
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS  
100 PENN SQUARE EAST, 7<sup>TH</sup> FLOOR WANAMAKER BUILDING  
PHILADELPHIA, PENNSYLVANIA 19107-3390

April 8, 2021

Environmental Resources Branch

U.S. Fish and Wildlife Service  
Pennsylvania Field Office  
Attn: Rick McCorkle  
110 Radnor Rd; Suite 101  
State College, PA 16801  
[richard\\_mccorkle@fws.gov](mailto:richard_mccorkle@fws.gov)

Dear Mr. McCorkle:

This letter is to notify you that the Philadelphia District, U.S. Army Corps of Engineers (USACE) has prepared a draft Environmental Assessment (EA) titled: *Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act*. We are requesting your review of this document in accordance with Section 102 of the National Environmental Policy Act.

The USACE is proposing stream and habitat improvements to Sandy Run Creek in Roychester Park and Grove Park. In Roychester Park, the USACE proposes to grade and stabilize the banks of Sandy Run Creek, replace and re-locate a sanitary sewer line, replace two in-stream culverts, and plant native plants in riparian and upland portions of the park. In Grove Park the USACE proposes to remove an existing concrete lining, disassemble existing gabion baskets, grade bench cuts into the stream banks, install a new steel footbridge, grade a new tributary stream which will receive hydrology from a re-directed a stormwater outfall, and plant native riparian and wetland plants.

The draft EA was prepared in accordance with National Environmental Policy Act (NEPA) regulations, the Council on Environmental Quality's regulations for implementing NEPA and *U.S. Army Corps of Engineers Procedures for Implementing NEPA, Engineering Regulation (ER) 200-2-2*. The EA evaluates existing environmental, cultural, and socio-economic conditions in the study area, and the effects of the project on existing resources in the immediate and surrounding areas.

The EA can be downloaded from our District website:  
<http://www.nap.usace.army.mil/Missions/CivilWorks/PublicNoticesReports.aspx>

In accordance with the procedures outlined in Section 7 of the Endangered Species Act, USACE has determined that the project will have *no effect* to threatened and

endangered species. Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, a *no effect* determination has been made for this project and no consultation pursuant to the Endangered Species Act of 1973 as amended by P.L. 96-159 is required.

In accordance with the Fish and Wildlife Coordination Act (FWCA), USACE requests your review and comment on the draft EA. Steps proposed to be taken in order to reduce potential adverse impacts to natural resources are presented in the report. All necessary permits and approvals issued by the regulatory agencies will be obtained prior to construction.

We request your review and comments on the draft report within 30 days of the date of this letter.

If you have any questions please contact Ms. Rachel Ward, Biologist, Environmental Resources Branch at (215-656-6733) [Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil). Thank you for your attention to this matter.

Sincerely,

FOR Peter R. Blum, P.E.  
Chief, Planning Division



DEPARTMENT OF THE ARMY  
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS  
100 PENN SQUARE EAST, 7<sup>th</sup> FLOOR WANAMAKER BUILDING  
PHILADELPHIA, PENNSYLVANIA 19107-3390

April 8, 2021

Environmental Resources Branch

Dear Colleague:

This letter is to notify you that the Philadelphia District, U.S. Army Corps of Engineers (USACE) has prepared a draft Environmental Assessment (EA) titled: *Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act*. We are requesting your review of this document in accordance with Section 102 of the National Environmental Policy Act.

The USACE is proposing stream and habitat improvements to Sandy Run Creek in Roychester Park and Grove Park. In Roychester Park, the USACE proposes to grade and stabilize the banks of Sandy Run Creek, replace and re-locate a sanitary sewer line, replace two in-stream culverts, and plant native plants in riparian and upland portions of the park. In Grove Park the USACE proposes to remove an existing concrete lining, disassemble existing gabion baskets, grade bench cuts into the stream banks, install a new steel footbridge, grade a new tributary stream which will receive hydrology from a re-directed a stormwater outfall, and plant native riparian and wetland plants.

The draft EA was prepared in accordance with National Environmental Policy Act (NEPA) regulations, the Council on Environmental Quality's regulations for implementing NEPA and *U.S. Army Corps of Engineers Procedures for Implementing NEPA, Engineering Regulation (ER) 200-2-2*. The EA evaluates existing environmental, cultural, and socio-economic conditions in the study area, and the effects of the project on existing resources in the immediate and surrounding areas.

The EA can be downloaded from our District website:

<http://www.nap.usace.army.mil/Missions/CivilWorks/PublicNoticesReports.aspx>

Pursuant to NEPA, the USACE requests your review and comment on the draft EA within 30 days of the date of this letter. Steps proposed to be taken in order to reduce potential adverse impacts to natural resources are presented in the report. All necessary permits and approvals issued by the regulatory agencies will be obtained prior to construction.

If you have any questions please contact Ms. Rachel Ward, Biologist,  
Environmental Resources Branch at (215-656-6733)  
[Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil). Thank you for your attention to this matter.

Sincerely,

FOR Peter R. Blum, P.E.  
Chief, Planning Division

Enclosures  
Public Notice  
Coordination List

## Public Notice

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**US Army Corps  
of Engineers**

Philadelphia District

Public Notice No.  
CENAP-PLE-21-02

Date  
8 APR 2021

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In Reply Refer to: Environmental Resources Branch

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**ABINGTON ENVIRONMENTAL INFRASTRUCTURE IMPROVEMENT  
SECTION 566, WATER RESOURCE DEVELOPMENT ACT OF 1996  
DRAFT ENVIRONMENTAL ASSESSMENT  
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA**

Pursuant to Section 102 of the National Environmental Policy Act, Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, NOTICE IS HEREBY GIVEN THAT the Philadelphia District of the U.S. Army Corps of Engineers (USACE) has completed a draft Environmental Assessment (DEA) to address the need for erosion reduction and habitat function improvements along the upper reaches of Sandy Run Creek, located in Montgomery County, Pennsylvania. The DEA titled: "Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act" is available for public review and comment. The plan detailed in the DEA addresses the need for erosion reduction and habitat function improvements along the upper reaches of Sandy Run Creek within Roychester Park and Grove Park in Abington Township.

The USACE is proposing stream and habitat improvements to Sandy Run Creek in Roychester Park and Grove Park. In Roychester Park, the USACE proposes to grade and stabilize the banks of Sandy Run Creek, replace and re-locate a sanitary sewer line, replace two in-stream culverts, and plant native plants in riparian and upland portions of the park. In Grove Run Park the USACE proposes to remove an existing concrete lining, disassemble existing gabion baskets, grade bench cuts into the stream banks, install a new steel footbridge, grade a new tributary stream which will receive hydrology from a re-directed a stormwater outfall, and plant native riparian and wetland plants.

In accordance with the National Environmental Policy Act of 1969, a draft Environmental Assessment has been developed for this project and is being circulated to the appropriate State and Federal agencies; local, State, and Federal officials; and private organizations.



Impacts to Water Quality have been evaluated in accordance with the Section 404(b)(1) guidelines of the Clean Water Act and are not adverse. USACE is designing the project to provide a net increase in aquatic resources, functions, and services, and to meet the terms and conditions of Nationwide Permit 27 (Aquatic Habitat Restoration) and therefore will qualify for the associated section 401 Water Quality Certificate that has been issued by the Pennsylvania Department of Environmental Protection (PADEP). This determination is in the process of being coordinated with PADEP. In addition, the project will comply with Title 25 Pa. Code Chapter 102, Erosion and Sediment Control and Stormwater Management regulations.

In accordance with the procedures outlined in Section 7 of the Endangered Species Act, USACE has determined that the project will have *no effect* on threatened or endangered species. Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, a *no effect* determination has been made for this project and no further consultation pursuant to the Endangered Species Act of 1973 as amended by P.L. 96-159 is required.

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires all Federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). The National Marine Fisheries Service has confirmed that no EFH is present in the project area, and therefore no further consultation under MSFCMA is required.

The USACE, was in consultation with the PASHPO, the Tribes and other Consulting Parties pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36CFR800. A Phase I A/B Cultural Resources Investigation was conducted within the project's Area of Potential Effect (APE). No historic properties were found, and no additional comments were received.

All practicable means to avoid or minimize adverse environmental effects have been incorporated into the recommended plan.

The public and all agencies are invited to comment on this proposal. Copies of the EA and other related documents for the proposed project can be obtained by visiting:

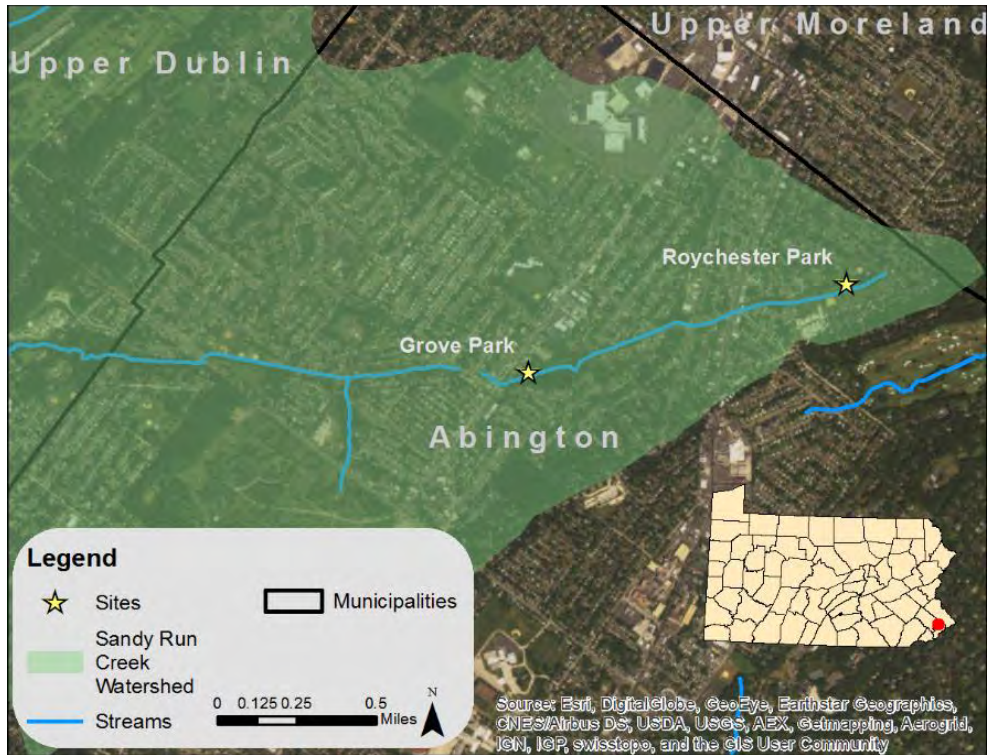
<https://www.nap.usace.army.mil/Missions/Civil-Works/Public-Notices-Reports/>

Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this proposal. Requests for a public hearing shall state, in detail, the reasons for holding a public hearing.

All comments on the work described in this public notice should be directed to [PDPA-NAP@usace.army.mil](mailto:PDPA-NAP@usace.army.mil) no later than 30 days from the date of this notice.

FOR THE DISTRICT ENGINEER:

FOR Peter R. Blum, P.E.  
Chief, Planning Division  
Philadelphia District  
U.S. Army Corps of Engineers



**Figure 1: Project Location**



**Figure 2: Map of Roychester Park showing location of Sandy Run Creek**



**Figure 3: Map of Grove Park showing location of Sandy Run Creek**



## COORDINATION LIST (Enclosure #2)

Ms. Barbara Rudnick, NEPA Team Leader  
U.S. Environmental Protection Agency, Region 3  
Office of Environmental Programs  
Environmental Assessment & Innovation Division  
1650 Arch Street  
Philadelphia, PA 19103-2029  
[Barbara.Rudnick@epa.gov](mailto:Barbara.Rudnick@epa.gov)

Ms. Janet Kremer  
U.S. Environmental Protection Agency  
Region 3, Air Emissions  
1650 Arch Street  
Philadelphia, PA 19103-2029  
[kremer.janet@epa.gov](mailto:kremer.janet@epa.gov)

U.S. Fish and Wildlife Service  
Pennsylvania Field Office  
Attn: Rick McCorkle  
110 Radnor Rd; Suite 101  
State College, PA 16801  
[richard\\_mccorkle@fws.gov](mailto:richard_mccorkle@fws.gov)

Karen Greene, Fishery Biologist  
Habitat Conservation Division  
National Marine Fisheries Service  
Sandy Hook Laboratory  
74 Magruder Road  
Highlands, NJ 07732  
[karen.greene@noaa.gov](mailto:karen.greene@noaa.gov)  
cc: [keith.hanson@noaa.gov](mailto:keith.hanson@noaa.gov)

Jennifer Anderson  
Assistant Regional Administrator  
Greater Atlantic Region Fisheries Office  
National Marine Fisheries Service  
55 Great Republic Drive  
Gloucester, MA 01930  
[jennifer.anderson@noaa.gov](mailto:jennifer.anderson@noaa.gov)  
cc: [Peter.b.Johnsen@noaa.gov](mailto:Peter.b.Johnsen@noaa.gov)

Mr. John Hohenstein, Environmental Program Manager  
Waterways and Wetlands Program, Southeast Regional Office  
Pennsylvania Department of Environmental Protection  
2 East Main Street  
Norristown, PA 19401  
[johohenste@pa.gov](mailto:johohenste@pa.gov)  
cc: [rsharp@pa.gov](mailto:rsharp@pa.gov)  
cc: [doknorr@pa.gov](mailto:doknorr@pa.gov)

Tyler Neimond  
Stream Habitat Section Chief  
PA Fish & Boat Commission  
450 Robinson Lane  
Bellefonte PA, 16823  
[tneimond@pa.gov](mailto:tneimond@pa.gov)

Delaware Riverkeeper Network  
925 Canal Street  
7th Floor, Suite 3701  
Bristol, PA 19007  
[drn@delawareriverkeeper.org](mailto:drn@delawareriverkeeper.org)

Mr. Douglas C. McLearen  
Chief, Division of Archaeology and Protection  
Pennsylvania Historical and Museum Commission  
Bureau for Historic Preservation  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093

Ms. Susan Bachor  
Delaware Tribe Historic Preservation Representative  
PO Box 64  
Pocono Lake, PA 18347

Ms. Nekole Alligood,  
NAGPRA and Cultural Preservation Director  
Delaware Nation  
31064 State Highway 281  
PO Box 825  
Anadarko, OK 73005

Ms. Robin Dushane  
Cultural Preservation Director  
Eastern Shawnee Tribe of Oklahoma  
12705 S. 705 Road  
Wyandotte, OK 74370

Mr. Jesse Bergevin  
Tribal Historic Preservation Officer  
Oneida Indian Nation  
2037 Dream Catcher Plaza  
Oneida, NY 13421

Ms. Bonney Hartley  
Tribal Historic Preservation Officer  
Stockbridge-Munsee Community of Mohican Indians  
New York Office  
65 1st Street  
Troy, NY 12180

Mr. Arnold Printup  
Tribal Historic Preservation Officer  
St. Regis Mohawk Tribe  
412 State Route 37  
Hogansburg, NY 13655

Mr. Paul Racette  
Watershed Programs Manager  
Pennsylvania Environmental Council  
1315 Walnut Street, Suite 532  
Philadelphia, PA 19107

Rita Stevens  
Chairperson – Shade Tree Commission  
115 Stanley Avenue  
Glenside, Pa, 19038  
[abingtontrees@gmail.com](mailto:abingtontrees@gmail.com)



Jennifer Sherwood  
Chairperson Environmental Advisory Board  
651 Montgomery Avenue  
Jenkintown, Pa. 19046  
[jas750@comcast.net](mailto:jas750@comcast.net)

Jim Webb, EAC Chair  
[jnkwebb13@aol.com](mailto:jnkwebb13@aol.com)

Colin Watson, STC Chair  
[stc@abingtonpa.gov](mailto:stc@abingtonpa.gov)

## Comment

**From:** Josh Lippert <[jjl5073@gmail.com](mailto:jjl5073@gmail.com)>  
**Sent:** Wednesday, April 14, 2021 8:20 AM  
**To:** Philadelphia District Public Affairs-NAP <[PDPA-NAP@usace.army.mil](mailto:PDPA-NAP@usace.army.mil)>  
**Cc:** Bradfield, William <[wbradfield@pa.gov](mailto:wbradfield@pa.gov)>  
**Subject:** [Non-DoD Source] Abington Environmental Infrastructure Public Comments

Hello,

I'd like to comment on the proposed project from a floodplain management perspective. Was an H&H study conducted for the scope to compare to the effective FEMA FIRM/FIS?

Per Abington - ORDINANCE NO. #2102 - Floodplain Overlay District 600.6.3 Changes in Identification of Areas  
The Floodplain Conservation District may be revised or modified by the Township Board of Commissioners where studies or information provided by a qualified agency or person documents the need for such revision. However, prior to any such change, approval must be obtained from the FEMA. Additionally, as soon as practicable, but not later than six (6) months after the date such information becomes available, a community shall notify FEMA of the changes by submitting technical or scientific data.

- This would require the municipality to submit a CLOMR to FEMA prior to construction and a LOMR within 6 months of final construction. And applies to any changes positive or negative in BFE's, SFHA boundary or zones. **Is this part of the USACE scope for the project?**
- Here are some proposed changes that would likely change the BFE, SFHA boundary, or flood zone (all proposed changes should be examined for impacted on the SFHA)
  - Culvert Replacement: Replace two culverts with pre-fabricated steel footbridges. **- Are these on the current FIS?**
  - Install New Footbridge: A new pre-fabricated steel footbridge will be installed near the Easton Road entrance to the park. **Is this on the current FIS?**

Please let me know if you have any questions.

Thanks,

**Josh Lippert** CFM, ASLA  
[jjl5073@gmail.com](mailto:jjl5073@gmail.com)  
412-551-4165

## Response

The intent of the design is to be flood neutral, and USACE working toward that goal with iterations between the design and H&H modeling as we move to complete the design. We are using portions of the effective FEMA modeling, including bridge/culvert geometry where possible, and boundary conditions (flows, rating curves), and will be comparing results between existing and with-project conditions to ensure our design results in no increases to flood levels.

The current effective Flood Insurance Study (FIS) does not show the two culverts that are proposed to be replaced with footbridges. Draft model results do not indicate the proposed culvert replacements would result in increases to flood levels from existing to with-project conditions.

The new footbridge, which is also not shown on the current effective FIS, is proposed at a location within a backwatered zone of the creek, and again draft model results do not indicate the proposed footbridge would result in increases to flood levels from existing to with-project conditions.

Finally, Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) submission was not part of our scope, however the Township could use our modeling and analysis to support a submission, as necessary, in the future. A CLOMR is typically required for anticipated increases to base flood elevations (BFEs), and we do not intend to propose a design that increases flood levels from existing to with-project conditions.



**From:** [Minnichbach, Nicole C CIV USARMY CENAP \(USA\)](#)  
**To:** [Brett Barnes \(thpo@estoo.net\)](#); [Darren Bonaparte](#); [Erin Paden](#); [Jesse Bergevin](#); [Nathan Allison \(nathan.allison@mohican-nsn.gov\)](#); [Paul Lepsch \(paul.lepsch@sni.org\)](#); [Temple University Archaeology](#)  
**Cc:** [Ward, Rachel J CIV USARMY CENAP \(US\) \(Rachel.J.Ward@usace.army.mil\)](#)  
**Subject:** Request for Review - Abington Environmental Assessment  
**Date:** Monday, April 19, 2021 10:59:00 AM  
**Attachments:** [Abington-Environmental-Infrastructure-Public-Notice-April-8-2021 \(Final Draft\).pdf](#)  
[EA Transmittal Letter.pdf](#)

---

Good Morning,

Attached is the Public Notice regarding the release of the Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania.

A Phase I A/B was conducted within the project's Area of Potential Effect (APE). No cultural materials were recovered. A negative survey form was submitted to the Pennsylvania State Historic Preservation Office, and we received no comment.

A copy of the report can be sent to you via email. Please let me know if you would like a copy of the report for review.

Thank you.

Respectfully,

Nicole Cooper Minnichbach  
Cultural Resource Specialist and Tribal Liaison  
CENAP-PLE  
100 Penn Square East  
Philadelphia, PA 19107  
(O) 215-656-6556  
(M) 215-834-1065

**From:** [Minnichbach, Nicole C CIV USARMY CENAP \(USA\)](#)  
**To:** [Diehl, Emma](#); [Hanson, Casey](#)  
**Cc:** [Ward, Rachel J CIV USARMY CENAP \(US\) \(Rachel.J.Ward@usace.army.mil\)](#)  
**Subject:** Public Notice of Abington Environmental Infrastructure Environmental Assessment  
**Date:** Monday, April 19, 2021 11:04:00 AM  
**Attachments:** [Abington-Environmental-Infrastructure-Public-Notice-April-8-2021 \(Final Draft\).pdf](#)  
[EA Transmittal Letter.pdf](#)

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Good Morning,

I wanted to let you both know that I had submitted a copy of the Abington Phase I A/B report and a negative survey form to your electronic submission system on February 19<sup>th</sup>, 2021. I have not yet received formal comment from your office, but I wanted to send you the Public Notice for the release of the Environmental Assessment in case you had any comments.

Thank you.

Nicole Cooper Minnichbach  
Cultural Resource Specialist and Tribal Liaison  
CENAP-PLE  
100 Penn Square East  
Philadelphia, PA 19107  
(O) 215-656-6556  
(M) 215-834-1065



US Army Corps  
of Engineers  
Philadelphia District

# Abington Environmental Infrastructure Improvement Project

## Section 566

### Site Visit

#### 23 April 2021

#### Participants:

Valerie Whalon (NAP – Planning,  
Project Manager)  
Rachel Ward (NAP – Environmental  
Resources)  
Matt Chando – (NAP – Civil)  
Jake Helminiak (NAP – H&H, lead  
designer)

Erik Rourke (NAP – PPMD, Section 566  
Program Manager)  
Adrian Leary (NAP – Deputy Chief of  
Planning)  
Ashley McIlvaine (Abington)  
Tim Clark (Abington)  
Donald Knorr (PADEP)

#### -----Notes-----

- The site visit started in the Grove Run Dog Park Parking Lot.
- The team made introductions.
- Rachel indicated that the primary purpose of the site visit was to walk PA DEP through the project, get their advice and input on the project, and confirm that the USACE Plan to comply with terms and conditions of NWP 27 and be covered by the blanket water quality certification was appropriate.
- Donald Knorr confirmed that if the project complied with Nationwide Permit 27, then it would be covered by the associated PADEP water quality certification. The Township would also want to be covered by Waiver 16 to a Section 105 permit. The Township should be the applicant because it would be covered for construction, as well as operations and maintenance. Donald provide a list of the application requirements to Ashley and Rachel. Most of the information would be in the restoration plan and the Environmental Assessment. Most of the information has been addressed by USACE in the EA that went out to public review. Don will also find out if the project needs a sanitary sewer relocation permit and a MS4 permit. Don will find out if we can cover all permits with one application submission. Both projects will be considered in one project, but as Phase 1 (Grove Park) and Phase 2 (Roychester Park).
- The application should be submitted by June 1 in order to receive the permit by mid-July.
- The goal of the project is to be flood neutral. H&H and civil are currently in the process of balancing the H&H modeling with the grading.
- Jake and Matt walked the group through the project.
  - The gabions will be removed, and the banks will be graded. The dog park fence will need to be reconfigured to accommodate the banks.
  - A low spot in the forested floodplain will be regraded into a tributary; the terminus is in the remnant historic channel across from the dog park.
  - The remnant channel at the bridge won't change, it will be left in place as habitat. The new tributary will cross it.

- Most of the concrete lining will be naturalized, but about 25-30 feet from the headwall will remain for scour protection.
- The channel between the main stem of Sandy Run Creek and the headwall with three stormwater outlets will be filled and the stormwater will be re-directed into a newly excavated naturalized meandering channel, that will be a couple of feet deep and about 12 feet wide. This will create an area that will accumulate water in the flood plains. Woody debris will be incorporated into the design. The channel will cross some remnant channels in the forested floodplain. The channel becomes more defined after the culvert at Pershing Ave, to where it enters the main stem of Sandy Run Creek.
- There is already a walking path from Pershing Av to the main stem, we can just put mulch on this existing path.
- Control of invasive species (e.g., Japanese knotweed) will be incorporated into the contract. Some of the bigger non-native species such as Norway maple might remain. Matt is adding a note in the specs to avoid larger trees. Rachel, Matt, and Jake will conduct a survey to decide the course of the tributary and which trees to avoid. Ashley would like to be notified of that survey, someone from the tree commission might want to attend.
- USACE should consider construction access from Pershing Ave.
- Val, Jake, Adrian, and Rachel proceeded to Roychester Park and ran through the project for Adrian. Erik suggested that if Real Estate at Roychester would hold up the project, we could proceed by having Roychester Park as an option (e.g., to be issued within 90 days of NTP or re-negotiated).

**From:** [Jesse Bergevin](#)  
**To:** [Minnichbach, Nicole C CIV USARMY CENAP \(USA\)](#)  
**Cc:** [Ward, Rachel J CIV USARMY CENAP \(US\)](#)  
**Subject:** [Non-DoD Source] RE: Request for Review - Abington Environmental Assessment  
**Date:** Monday, April 26, 2021 10:38:22 AM  
**Attachments:** [image001.png](#)

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Ms. Minnichbach,

The Oneida Indian Nation has no concerns or comments regarding this project.

Please let me know if there are any questions.

Best Regards,

**JESSE BERGEVIN**

Historical Resources Specialist

**ONEIDA INDIAN NATION**

P: 315.829.8463  
2037 Dream Catcher Plaza  
Oneida, NY 13421



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**From:** Minnichbach, Nicole C CIV USARMY CENAP (USA) [mailto:Nicole.C.Minnichbach@usace.army.mil]  
**Sent:** Monday, April 19, 2021 11:00 AM  
**To:** Eastern Shawnee Tribe of Oklahoma (THPO); Darren Bonaparte; Delaware Nation, Oklahoma; Jesse Bergevin; Nathan Allison (nathan.allison@mohican-nsn.gov); Paul Lepsch (paul.lepsch@sni.org); Temple University Archaeology  
**Cc:** Ward, Rachel J CIV USARMY CENAP (US)  
**Subject:** Request for Review - Abington Environmental Assessment

Good Morning,

Attached is the Public Notice regarding the release of the Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania.

A Phase I A/B was conducted within the project's Area of Potential Effect (APE). No cultural materials were recovered. A negative survey form was submitted to the Pennsylvania State Historic Preservation Office, and we received no comment.

A copy of the report can be sent to you via email. Please let me know if you would like a copy of the report for review.

Thank you.



Respectfully,

Nicole Cooper Minnichbach  
Cultural Resource Specialist and Tribal Liaison  
CENAP-PLE  
100 Penn Square East  
Philadelphia, PA 19107  
(O) 215-656-6556  
(M) 215-834-1065

# Comments

# Responses



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Pennsylvania Field Office  
110 Radnor Road, Suite 101  
State College, Pennsylvania 16801-4850



May 5, 2021

Peter R. Blum, P.E.  
Chief, Planning Division  
Philadelphia District  
U.S. Army Corps of Engineers

RE: Abington Environmental Infrastructure Improvement Project, Abington Township,  
Montgomery County, Pennsylvania, Section 566, Water Resource Development Act,  
DRAFT Environmental Assessment

Dear Mr. Blum:

The U.S. Fish and Wildlife Service (Service) has reviewed the U.S. Army Corps of Engineers (USACE) draft Environmental Assessment (EA) for the proposed Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania. The following comments are submitted pursuant to the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

### Finding of No Significant Impact. Endangered Species Impact

The Service acknowledges the results of the project screening through the Information for Planning and Consultation (IPaC) tool and the Pennsylvania Natural Diversity Inventory (PNDI) screening tool, that the project site is located within the ranges of the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*), and that the project will have no effect on these listed species.

### 4.0 Alternatives Analysis

The Service agrees with the USACE in their selection of the preferred alternative, and supports the proposed construction and ecological improvements at Roychester Park and Grove Park in the community of Abington Township in Montgomery County, Pennsylvania. The proposed alternative will result in net increases in stream and wetland habitats, improvements to stream habitat quality, floodplain reconnection and increased flood storage, riparian buffer expansion and improvement, and an overall increase in fish and wildlife habitat.

1.

1. Comment noted.

2.

2. Comment noted.

#### 4.4.1 Roychester Park

Regarding the proposed realignment and heavy riprapping of 75 linear feet of Reach D of Sandy Run in Roychester Park, the Service recommends careful consideration of more natural bioengineering alternatives where possible. Considering the approximate longitudinal slope of 1.5% for this reach, and natural sinuosity of more wooded downstream sections of Sandy Run (Figures 1 and 2), we recommend consideration be given to maintaining the sinuosity of Reach D. This may be possible through more natural stabilization of each bank, with a lower, more gradually sloping bank and point bar on the inside of each channel bend, and higher banks on the outsides of these bends. Mud sill cribbing or other bioengineering approaches should be considered to ensure bank stability on the outer bends.

A comparison of aerial images from 2010 and 2019 does indicate possible erosion and migration of the most upstream outer bend at this location. Channelization and armoring of upstream reaches have likely increased flow velocity and erosive forces at this location during peak runoff events. Restoration of a more natural stream channel in the upstream reaches may reduce erosive forces at this location and, possibly, the need for channel realignment and heavy riprapping.

Installation of j-hooks, root wad deflectors or some combination of these or other similar techniques should also be considered at this location, to redirect flow away from the outer channel bends. The USACE states that the stream will have 3H:1V side slopes, consistent with the existing stream channel in this area. However, more natural reaches of Sandy Run, as depicted in Figures 1 and 2, should serve as reference reaches for determining appropriate streambank slopes, longitudinal (channel) slope, and sinuosity. Where feasible, restored reaches that are consistent with nearby reference reaches will further the educational objectives of this project. However, the Service has not been on site to observe all of the factors the USACE has considered here, and we understand there may be contextual or other important reasons for the proposed realignment and heavy use of riprap at this location (e.g., heavy recreational use).

3.

3. Current stream alignment is eroding into school district property, with impacts to the adjacent ball field likely without intervention. Space constraints on river left (school district property, ball field) and river right (sanitary sewer manhole, asphalt pavement) led to less bioengineered approach than on upstream reaches of proposed restoration measures.

4.

4. Proposed restoration measures upstream are not anticipated to have an appreciable impact on erosive forces within Reach D. As such, given space constraints mentioned in previous response, the proposed stabilization measures are appropriate to mitigate further migration.

5.

5. As stated, in the previous response, given space constraints, the proposed stabilization measures are appropriate to mitigate further migration. The stream design and geometry was guided by stable reaches within the lengths of streams that are being restored.



Figures 1 and 2: Wooded sections of Sandy Run, downstream of Roslyn Park, demonstrating natural stream sinuosity where encroachment of development has not led to channelization and elimination of natural stream meanders that help to maintain stream channel stability.

The Service supports the possible inclusion of a wildflower meadow on an adjacent upland, to be planted with native flowering species to support local pollinators. A geographically appropriate pollinator planting guide that may be helpful can be found at the following link: <https://www.pollinator.org/PDFs/EasternBroadleaf.Oceanic.rx18.pdf>

#### 4.4.2 Grove Park

Replacement of 370 linear feet of concrete channel bottom with riprap, choked with smaller stone, will be an improvement over the current condition. However, the Service recommends the USACE consider reducing the amount and depth of riprap currently proposed for this reach, to the extent this can be achieved without promoting channel erosion and incision. Channel roughness should be related to slope and sinuosity to ensure bed-load transport and channel stability, where the channel is neither degrading nor aggrading over time.

The proposed heavy armoring is undesirable from a biological and aesthetic perspective, but we understand that this reach occurs within a highly urbanized area, such that flows may be very flashy, precluding the possibility of restoring this reach to a fully natural condition. An explanation of the reasoning behind the proposed channel armoring would be helpful. Also, although it is stated that the overall channel slope will be maintained, the USACE proposes replacing the 1-foot-thick concrete lining with riprap and smaller stone to a depth of approximately 3 feet. We recommend the EA include additional details regarding excavation associated with removal of the concrete lining, amount and depth of riprap and smaller stone proposed, and how the existing channel slope will be maintained.

Thank you for this opportunity to provide comments. If you have any questions or would like to discuss these comments, please contact Richard McCorkle of my staff at [richard\\_mccorkle@fws.gov](mailto:richard_mccorkle@fws.gov).

Sincerely,



Sonja Jahrsdoerfer  
Project Leader

6.

6. The wildflower meadow will be planted with native, geographically appropriate, flowering species to support local pollinators. The guidance in the link provided will be considered.

7.

7. Depth of proposed naturalized streambed substrate is designed in accordance with USACE EM guidance to prevent mobilization during design events. Given the need for this streambed material to be mostly immobile, reduction in design thickness would not be prudent (i.e., there is no replenishment of coarse material [cobbles, boulders] from upstream since those reaches are piped). There has been no evidence of significant sedimentation through this reach of Sandy Run Creek to warrant further assessment of sediment transport.

8.

8. The current reach of Sandy Run Creek through Grove Run Park serves as a flood control conveyance. Given that constraint, the proposed design attempts to naturalize the stream corridor as much as feasible while maintaining flood conveyance, and not negatively impact flood levels. Proposed streambed replacement material will be placed to the same channel invert elevations that exist in the concrete lined channel, thereby maintaining existing slope. Quantity of excavation, riprap placement, and choke material, will be detailed on the plans and specifications.

## Ward, Rachel J CIV USARMY CENAP (US)

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**From:** Ward, Rachel J CIV USARMY CENAP (US)  
**Sent:** Wednesday, May 26, 2021 4:04 PM  
**To:** McCorkle, Richard  
**Subject:** RE: [EXTERNAL] RE: USFWS comments on the draft EA for the Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act

Thanks Rick!

---

**From:** McCorkle, Richard <[richard\\_mccorkle@fws.gov](mailto:richard_mccorkle@fws.gov)>  
**Sent:** Wednesday, May 26, 2021 3:39 PM  
**To:** Ward, Rachel J CIV USARMY CENAP (US) <[Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil)>  
**Subject:** [Non-DoD Source] Re: [EXTERNAL] RE: USFWS comments on the draft EA for the Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act

It sounds like you know your birds! I agree, highly unlikely that bald eagle or red-headed woodpecker would be nesting in the area. I also question some of the warblers. Wood thrush is a slight possibility, but it has some sensitivity to forest fragmentation and generally needs a woodland meeting a minimum size threshold, especially when surrounded by development. Anyway, it sounds like you are on top of it.

Rick

Richard C. McCorkle  
Fish and Wildlife Biologist  
U.S. Fish & Wildlife Service  
Pennsylvania Field Office  
110 Radnor Road, Ste 101  
State College, PA 16801  
Office: ~~814-206-7470~~  
Personal cell (while teleworking): 302-382-0284

---

**From:** Ward, Rachel J CIV USARMY CENAP (US) <[Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil)>  
**Sent:** Wednesday, May 26, 2021 3:30 PM  
**To:** McCorkle, Richard <[richard\\_mccorkle@fws.gov](mailto:richard_mccorkle@fws.gov)>  
**Subject:** RE: [EXTERNAL] RE: USFWS comments on the draft EA for the Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act

Hi Rick,

That is really helpful info. I think you're right, most birds that would nest in vegetation that would be disturbed by the project will nest between early May and late July. I will let you know if we need a letter with an official letterhead (hopefully that won't be necessary).

The IPaC listed several warblers, red headed woodpecker, rusty blackbird, wood thrush, and both eagles. There are definitely no eagles nesting at or near the sites, and I'd be really surprised to see a red headed woodpecker there, so I'd say it would just be some of the warblers, and possibly the wood thrush.

Thanks again Rick!

Rachel

---

**From:** McCorkle, Richard <[richard\\_mccorkle@fws.gov](mailto:richard_mccorkle@fws.gov)>  
**Sent:** Wednesday, May 26, 2021 12:01 PM  
**To:** Ward, Rachel J CIV USARMY CENAP (US) <[Rachel.J.Ward@usace.army.mil](mailto:Rachel.J.Ward@usace.army.mil)>  
**Subject:** [Non-DoD Source] Re: [EXTERNAL] RE: USFWS comments on the draft EA for the Abington Environmental Infrastructure Improvement Project, Abington Township, Montgomery County, Pennsylvania, Section 566, Water Resource Development Act

Hi Rachel,

Here is some standard language we use in our letters that identifies the preferred time of year to conduct any nesting habitat clearing, to avoid impacts to migratory birds:

"Due to the difficulty in assessing the entire project site for all bird nests, we recommend that the clearing of natural or semi-natural habitats (e.g., forests, reverting fields, fencerows, shrubby areas) be carried out between September 1 and March 31, which is outside the nesting season for most native bird species. Without undertaking specific analysis of breeding species and their respective nesting seasons on the project site, the avoidance of habitat impacts during the aforementioned time frame will avoid impacts to most breeding birds, their nests, and their young (i.e., eggs, hatchlings)."

I realize that is a somewhat narrow window for conducting clearing activities (e.g., invasive tree/shrub removal), but it takes into account early nesting raptors (e.g., owls, bald eagle), although it would still overlap with nesting periods, even for those species (e.g., bald eagle nesting usually begins late winter). And some species may nest as late as August; hence the September 1 start of that window for habitat clearing. You may want to look at the IPaC query results again, although I question some of the species identified in those results (e.g., prairie warbler) as far as potential for them to nest in the project area. Based on my own experience participating in a breeding bird atlas and having done many bird surveys in the past, I would say that most birds that may nest in vegetation that would be disturbed by the project will nest between early May and late July.

I would recommend avoiding clearing vegetation from May 1 through July 30, and preferably from April 1 through August 31, the latter agreeing with the standard recommendation, above in quotes, for any habitat clearing to be carried out between September 1 and March 31. 1.

I hope this helps! I don't know how soon I could get it to you, but if you would like the above recommendation on USFWS letterhead, I can do that. Thanks for the additional opportunity to weigh in on this. Good luck keeping up with the ever-changing WOTUS interpretation.

1. The recommendations outlined will be followed to the maximum extent practicable.

Rick

Richard C. McCorkle  
Fish and Wildlife Biologist  
U.S. Fish & Wildlife Service  
Pennsylvania Field Office  
110 Radnor Road, Ste 101  
State College, PA 16801  
Office: ~~814-206-7470~~  
Personal cell (while teleworking): 302-382-0284

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Part 2 – Correspondence during Preparation of the Draft Environmental Assessment



**From:** [Minnichbach, Nicole C CIV USARMY CENAP \(USA\)](#)  
**To:** [PA SHPO Environmental Review](#)  
**Subject:** USACE Abington\_Negative Survey Form\_20201116.pdf  
**Date:** Friday, February 19, 2021 11:03:00 AM  
**Attachments:** [USACE Abington Phase I Report Negative Survey Form\\_20201116.pdf](#)

---

Please see the attached negative survey form for the Abington Environmental Infrastructure Improvement Project, Montgomery County, PA.

Thank you

Nicole Cooper Minnichbach  
Cultural Resource Specialist and Tribal Liaison  
CENAP-PLE  
100 Penn Square East  
Philadelphia, PA 19107  
(O) 215-656-6556  
(M) 215-834-1065



# Negative Survey Form

(This form may be used if the Phase I guidelines have been followed and no cultural resources have been identified.)

### 1. Project Identification:

**ER Number** 2017-0771-091-A-COE

**Project Name &/or Agency Tracking #:** Phase IA/B Cultural Resources Investigation, Abington Environmental Infrastructure Improvement Project

**Agency:** U.S. Army Corps of Engineers, Philadelphia **Applicant:** Tetra Tech, Inc.

**Preparers Name and affiliation:** Gail M. Ostapczuk, Tetra Tech, Inc.

**Date Prepared:** November 16, 2020

**Project Area County/Municipality** (list all)

County	Municipality
Montgomery County	Abington Township

### 2. Project Setting: (check all that apply)

- urban/suburban;  rural
- upland;  floodplain/terrace ( active;  stable terrace)

7.5" USGS Quadrangle(s) Name (list all):

Name	Date
Hatboro	2019
Ambler	2019

Physiographic Zone(s)(list All. Use DCNR Map 13 compiled by W.D. Sevon, Fourth Edition, 2000.):

Physiographic Zone
Piedmont Lowland
Piedmont Highland

Project Area Drainage(s), (list all) (Sub-basin and Watershed can be obtained from CRGIS):

Sub-basin	Watershed	Major Stream	Minor Stream
(3) Lower Delaware River	Wissahickon	Wissahickon Creek	Sandy Run

### 3. Basic Field Conditions:

(Text fields will expand as needed. Please be complete)

Area of APE / Project Area in hectares: 3.07 Hectares tested: 3.07

General Description of APE / Project Area: The area of potential effects (APE) for archaeology is defined as the estimated boundary of construction at Roychester Park and Grove Dog Park. Roychester Park is a municipally owned park and contains approximately 950 linear feet of stream (Figure 1). Grove Dog Park is a municipally owned park and contains approximately 1,300 linear feet of Sandy Run (Figure 1).

Type of Proposed Project / Impact: The objectives of the Project are to enhance and restore aquatic, wetland, and riparian habitat, improve infiltration flood waters, stabilize stream banks, control invasive species and reconnect

floodplains along the Sandy Run Creek in Roychester Park and Grove Dog Park, Abington Township, Montgomery County. The Project will investigate, select, design, and construct the best alternative to restore ecosystem function along Sandy Run Creek at Roychester Park and Grove Dog Park using natural stream stabilization methods.

Date of field investigation(s): 11-02-2020 to 11-06-2020

Description of Field Conditions including percentage of surface visibility:

In Roychester Park field conditions ranged from grassy lawn along Sandy Run and within a baseball field, and low brush and grass. Surface visibility in Roychester Park was between 0% and 25%.

In Grove Dog Park field conditions ranged from grassy lawn along Sandy Run, low brush and grass, and dense vegetation. The soils within Grove Dog Park showed signs of heavy disturbance and fill material beneath the subsoil. Surface visibility in Grove Dog Park was between 0% and 25%.

**4. Previously Recorded Archaeological Sites within APE / Project Area and not relocated by this project:**

PASS Site Number	Reason not re-located
N/A	N/A

**5. Survey Methodology:** (check all that apply to the entire project; attach any supporting documents)

- |  |  |
|--|--|
| <input type="checkbox"/> PASS file Research        | <input type="checkbox"/> Contacted Local Historical Association/Commission/Park/Etc. |
| <input type="checkbox"/> Informant Data            | <input type="checkbox"/> Historic Records/Maps/Photos                                |
| <input checked="" type="checkbox"/> Surface Survey | <input type="checkbox"/> SCS Soil Maps   |
| <input type="checkbox"/> Test Units                | <input checked="" type="checkbox"/> STPs   |
|  | <input type="checkbox"/> Remote Sensing  |
- Other: \_\_\_\_\_

Professional Geomorphologist was  Present or  Not Present During Field Investigations

Name: N/A Affiliation: N/A

Formal Geomorphological Report Prepared:  Yes  No

**6. Results:** (Describe both the design and the results of every methodology checked in 5. Include the size and condition of the area tested by each. )

The Phase IA reconnaissance, file and literature reviews, and report for this study conform to applicable regulations and guidelines, including 36CFR800, Guidelines for Archaeological Investigations in Pennsylvania, and Pennsylvania Architectural Field Guide (BHP 2008, PHMC 2020a, PHMC 2020b). Supervisory personnel for this survey exceeded the professional qualifications listed in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (National Park Service 1983) for principal investigators in archeology.

A review of the online Pennsylvania Cultural Resources Geographic Information System (PA CRGIS) identified no recorded archaeological sites within one mile of the Project Area. The closest recorded archeological site is located two-miles from the Project Area and is unevaluated for the National Register of Historic Places (NRHP) (PHMC 2020c). The review of PA CRGIS identified no archaeological surveys previously undertaken within one mile of the Project Area.

A review of the online PA CRGIS identified multiple Historic Sites within one mile of the Project Area. Within one mile of the Grove Run Dog Park Project area there are 184 non-linear historic sites, 596 linear historic sites, and 333 unmapped historic sites, of the 1,113 historic sites only 11 are NRHP-listed or NRHP-eligible (PHMC 2020c). Within one mile of the Roychester Park Project area there are 51 non-linear historic sites, 596 linear historic sites, and 372 unmapped historic sites, of the 1,019 historic sites only 16 are NRHP-listed or NRHP-eligible (PHMC 2020c).

The Phase IB survey consisted of walkover and subsurface testing of portions of the Project Area that would be subject to significant disturbance by construction activities. The APE for archaeology is defined as the estimated boundary of construction at Roychester Park and Grove Dog Park. A total of 111 shovel test pits (STPs) were dug

in portions of the APE which appeared on the surface to be relatively undisturbed; three STPs contained isolated historic material within fill contexts. The STPs conducted in Grove Dog Park showed consistent evidence of disturbance throughout the entire APE, characterized by a mix of subsoil, gravel, asphalt, and concrete.

Grove Dog Park APE (Figure 2) measured approximately 4.8 acres. The APE was surveyed by 77 STPs. Three STPs yielded isolated historic material within disturbed fill contexts. Geotechnical work was performed in October 2020 and the resulting report noted the presence of a stratum of fill material beneath the topsoil in three of the five test pits excavated in Grove Dog Park (USACE 2020). The large-scale disturbances observed in both the geotechnical pits and archaeological STPs are the result of re-channelization of Sandy Run by the USACE-Philadelphia District in the second half of the twentieth century. Due to these disturbances the historic material identified in STPs A13, B2, and B39 are categorized as non-significant isolated finds. Tetra Tech recommends that no further archaeological work is needed in Grove Dog Park.

Roychester Park APE (Figure 3) measured approximately 2.79 acres. Of the 2.79 acres, 0.79 acres was walked over and not excavated due to slope and/or prior disturbance. The remaining 2.0 acres was shovel tested and consisted of 34 STPs. All STPs in Roychester Park were negative for cultural material. No prehistoric material, historic material, or above ground cultural resources were identified in the course of this survey. Tetra Tech recommends that no further archaeological work is needed in Roychester Park.

**7. Statewide Pre-Contact Probability Model Analysis:** (Use the model from CRGIS to determine portions of the project area that were located within each sensitivity tier and list all testing methods used within each tier. If more than one method was used, estimate the percentage of the tier tested by each method. In the Sites Located section, include Isolated Finds for which a number is assigned.)

Sensitivity Tier	Area within this Tier	Percent of Total Project Area	Method(s) Used to test this tier (Use list from 5 above. Include % if multiple. )	Number of Sites Located
High	714.1 sq. m.	2.32 %	STPs	0
Moderate	20,227.8 sq. m.	65.86 %	STPs	0
Low	9,773.73 sq. m.	31.82 %	STPs (67.3%), Surface Survey (32.7%)	0

**8. Required Attachments:**

- 7.5' USGS Quadrangle Map delineating APE / Project Area
- Project map showing testing strategy(ies)
- Testing strategy justification / predictive model
- Supporting photographs with descriptions of view and view direction
- Engineering / Project Plans if prepared
- Geomorphological Report if prepared
- Representative excavation profiles and descriptions

List all other attachments to this Negative Survey Form:

Attachment Type
Shovel Test Catalog
Artifact Catalog
Photograph Catalog
Draft Geotechnical Report
References



US Army Corps  
of Engineers  
Philadelphia District

# Abington Environmental Infrastructure Improvement Project Section 566 9 March 2021

## Meeting Attendees:

Krista Brown (PADEP)	Rachel Ward (USACE)
Beth Brandreth (USACE)	Valerie Whalon (USACE)
Donald Knorr (PADEP)	Jeff Yates (USACE)
John Hohenstein (PADEP)	
Ranjana Sharp (PADEP)	

## -----Notes-----

- Introductions were made.
- USACE provided an overview of the project.
- The Draft EA is currently being reviewed internally.
- PADEP discussed permits that might be required.
- Abington Township will likely have to apply for the permits.
- USACE believes that the project would fit the terms and conditions of NWP 27 for restoration.
- PADEP will have to confirm that a Waiver for a Section 105 permit would fit. There is a checklist, most of the information will be in the EA and the restoration plan.
- PADEP indicated that the sanitary sewer might be a separately permitted activity.
- USACE will have to talk to the County Soil District about the E&S permit.
- PADEP and USACE will plan a site visit for early April.





**From:** [McCorkle, Richard](#)  
**To:** [Ward, Rachel J CIV USARMY CENAP \(US\)](#)  
**Subject:** [Non-DoD Source] Re: [EXTERNAL] Abington Township Ecological Restoration Project (UNCLASSIFIED)  
**Date:** Wednesday, March 25, 2020 11:06:16 AM

---

Dear Ms. Ward,

Thank you for following up on these proposed projects, and for including the previous correspondence between me and Mark to refresh my memory. Yes, the informal consultation approach should work well for these projects. I did share your follow up message with the person in my office who oversees our endangered species program to make sure he is comfortable with the approach, but I anticipate he will concur. I will let you know if he has any concerns. Otherwise, I look forward to seeing the draft EA in a few months.

Rick

Richard C. McCorkle  
Fish and Wildlife Biologist  
U.S. Fish & Wildlife Service  
Pennsylvania Field Office  
110 Radnor Road, Ste 101  
State College, PA 16801  
Office: 814-206-7470  
Personal cell (while teleworking): 302-382-0284

*"The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased and not impaired in value."*

*President Theodore Roosevelt*

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**From:** Ward, Rachel J CIV USARMY CENAP (US) <Rachel.J.Ward@usace.army.mil>  
**Sent:** Tuesday, March 24, 2020 10:20 AM  
**To:** McCorkle, Richard <richard\_mccorkle@fws.gov>  
**Subject:** [EXTERNAL] Abington Township Ecological Restoration Project (UNCLASSIFIED)

**CLASSIFICATION: UNCLASSIFIED**

Dear Mr. McCorkle,

I am contacting you to follow up on the Abington Township Ecological Restoration project that my colleague Mark Eberle discussed with you in 2017. I wanted to let you know that I am now writing

the EA for this project in Mark's stead, since he has taken a job with the National Park Service.

The Draft EA is a few months away from being published and I wanted to revisit the discussion of doing an informal consultation. Does informal consultation still sound like a good path forward to you? In this scenario we would send your office the draft EA and your office would reply with a letter stating your comments and our compliance with the FWCA. The project details remain the same as they did in 2017 when you and Mark spoke.

I have included the email between you and Mark just to refresh your memory (see below). I have also attached a recent PNDI coordination letter from DCNR.

Please feel free to contact me with any questions.

Thank you,

Rachel Ward  
Biologist  
USACE Philadelphia District  
(215) 656-6733

-----Original Message-----

From: McCorkle, Richard [[mailto:richard\\_mccorkle@fws.gov](mailto:richard_mccorkle@fws.gov)]  
Sent: Thursday, May 11, 2017 9:30 AM  
To: Eberle, Mark D CIV USARMY CENAP (US) <Mark.D.Eberle@usace.army.mil>  
Subject: [Non-DoD Source] Re: USACE Philadelphia Area Ecosystem Restoration Projects - Abington Twp. And Bartram's Garden

Hi Mark,

Thank you for taking the time to describe the two proposed projects, both of which will be ecologically beneficial, including benefits to some of our federal trust resources. Given the small scale and urban nature of the projects, the approach you propose for completing FWCA review sounds reasonable. If the project managers have not already done so, we recommend that they screen their proposed projects using the Pennsylvania Natural Heritage Program's Conservation Planning and PNDI Environmental Review tool (BlockedBlocked<https://conservationexplorer.dcnr.pa.gov/>) which will help to identify any resource concerns up front. We look forward to reviewing the projects and providing comments, including FWCA and Endangered Species Act compliance determinations.

Best regards,

Rick

On Fri, May 5, 2017 at 10:36 AM, Eberle, Mark D CIV USARMY CENAP (US) <Mark.D.Eberle@usace.army.mil> <<mailto:Mark.D.Eberle@usace.army.mil>> > wrote:

Hi Rick,

I wanted to discuss with you two small ecosystem restoration projects that we have started working on in the Philadelphia area. The first project is Abington and we are working closely with the Township of Abington to evaluate alternatives for ecological restoration along Sandy Run Creek, a

tributary of the Wissahickon Creek in Abington Township, Pennsylvania. The main objectives of this effort are to enhance and restore aquatic, wetland, and riparian habitat. In addition, secondary objectives include: improve infiltration of flood waters, stabilize streambanks, control invasive species, and reconnect floodplains along the Sandy Run Creek. We have identified two locations in this suburban area to do stream and riparian buffer restoration. We sent your office a NEPA scoping letter (attached) in February 2017, but did not receive a response.

The other project that I wanted to discuss is the Schuylkill River Aquatic Ecosystem Restoration project and is located in the city of Philadelphia. This project is located at Bartram's Garden on the Schuylkill River (see attached maps) and our conceptual ideas include a living shoreline, freshwater mussel habitat creation, and wetland restoration. The proposed feasibility study will develop an array of alternatives to restore subtidal, intertidal and supratidal habitat along the Schuylkill River in Philadelphia. From our discussions with the Partnership for the Delaware Estuary (PDE), it is our understanding that there are a few vestigial mussel beds remaining in the Schuylkill River to provide source material. In addition, the PDE and Bartram's Garden are also planning a joint project to install a mussel hatchery at Bartram's Garden. Wetland species that could benefit from this project include many species of migratory birds and native plant species. Waders would be a guild of birds that would likely benefit from increased foraging and roosting areas along the Schuylkill River. Native plant species that would benefit from the project will depend on the final planting plan, but would likely include wild rice, water celery, and spatterdock. In addition, the newly created tidal marshes will benefit key migratory fish species, such as American shad and blueback herring that are found in the Schuylkill River.

Due to the small scale and urban nature of these two projects areas, as well as your office's busy work load, I was hoping that we could complete our requirements under the Fish and Wildlife Coordination (FWCA) in the same simple and informal way that we did recently with the Cobbs Creek Fish Passage Project in Philadelphia. As a reminder, that was very informal with no negotiated signed scope of work, no Planning Aid or 2(b) report, and consisted of us sending your office the draft EA and your office replying with a letter (dated 4/29/16 - also attached) stating your comments and our compliance with the FWCA. Does this approach sound reasonable to you for these two projects? If so, can you please send me an email confirming that and I'll share with the Project Managers on these two studies.

Any questions, please let me know-

Thanks,  
Mark

Mark Eberle, Biologist  
U.S. Army Corps of Engineers, Philadelphia District  
100 E Penn Sq Fl 7, Wanamaker Bldg.  
CENAP-PL-E  
Philadelphia, PA 19107-3390  
(215) 656-6562  
CLASSIFICATION: UNCLASSIFIED



Date: June 11, 2019

**PNDI Number: 682780**  
Version: Final\_1; 5/8/2019

**Genevieve Rybicki**  
**U.S. Army Corps of Engineers**  
**100 Penn Square East**  
**Philadelphia, PA 19107**

Email: Genevieve.t.rybicki@usace.army.mil (hard copy will not follow)

**Re: Roychester Park (Stream restoration)**  
**Township: Abington**                      **County: Montgomery**

Dear Ms. Rybicki,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **682780 (Final\_1)** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

### **No Impact Anticipated**

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

### **Recommended Actions to avoid the spread of invasive species:**

- Clean boot treads, construction equipment, and vehicles thoroughly (especially the undercarriage and wheels) before they are brought on site. This will remove invasive plant seeds and invasive earthworms/cocoons that may have been picked up at other sites.
- Do not transport unsterilized leaves, mulch, compost, or soil to the site from another location.
- Do not use seed mixes that include invasive species. Please also use weed-free straw or hay mixes. More information about invasive species in Pennsylvania can be found at the following link:  
<http://www.dcnr.pa.gov/Conservation/WildPlants/InvasivePlants/Pages/default.aspx>
- Use habitat appropriate seed mixes. For example, when reseeding along a waterway, utilize a riparian seed mix. The Bureau of Forestry Planting & Seeding Guidelines can be found here for recommendations:  
[http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr\\_20031083.pdf](http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20031083.pdf)
- Report occurrences of invasive species to iMapInvasives at <https://www.imapinvasives.org/>. Focus on large infestations and species that are not yet well established in the region or in Pennsylvania (<https://www.paimapinvasives.org/be-on-the-lookout>).

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

**Should you have any questions or concerns, please contact Rich Shockey, Ecological Information Specialist, by phone (717-772-0263) or via email (c-rshockey@pa.gov).**

Sincerely



Greg Podnieszinski, Section Chief  
Natural Heritage Section

## Part 3 – Correspondence During Scoping







DEPARTMENT OF THE ARMY  
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS  
100 EAST PENN SQUARE, FLOOR 7, WANAMAKER BUILDING  
PHILADELPHIA, PENNSYLVANIA 19107-3390

FEB 06 2017

Environmental Resources Branch

Mike Kaufmann  
Pennsylvania Fish and Boat Commission  
PO Box 356  
Revere, PA 18953

Dear Mr. Kaufmann:

In accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the U.S. Army Corps of Engineers, Philadelphia District, working closely with the Township of Abington is evaluating alternatives for ecological restoration along Sandy Run Creek, a tributary of the Wissahickon Creek in Abington Township, Pennsylvania. The main objectives of this effort are to enhance and restore aquatic, wetland, and riparian habitat. In addition, secondary objectives include: improve infiltration of flood waters, stabilize streambanks, control invasive species, and reconnect floodplains along the Sandy Run Creek. This project is in the information gathering stage and we are soliciting comments from the public and resource agencies to identify any significant issues, problems and concerns, as well as any pertinent information regarding ecosystem restoration along Sandy Run Creek and the enclosed list of preliminary alternatives. In accordance with NEPA, an Environmental Assessment or Environmental Impact Statement will be prepared accordingly in the future for this project. That document will discuss the selected plan of action and will be circulated to the public for comment.

By this letter, we are inviting your agency to participate in the scoping of this study. Please review the enclosed project scoping summary (Enclosure #1) and provide any relevant information within your agency's purview, and any comments or suggestions within 30 days of the date of this letter. Please direct comments to Mr. Mark Eberle of the Environmental Resources Branch at the address provided above. If you have any questions, you may reach Mark at (215) 656-6562. Enclosure #2 provides a list of all addressees receiving this letter. Thank you for your cooperation.

Sincerely,

A handwritten signature in blue ink that reads "Peter R. Blum".

Peter R. Blum, P.E.  
Chief, Planning Division

Enclosures  
Scoping Summary  
Coordination List

**NEPA Scoping Summary (Enclosure #1)  
Abington Township, Pennsylvania**

The project areas are located in Abington Township, Pennsylvania adjacent to and along Sandy Run Creek (Figure 1). Sandy Run Creek, part of the Wissahickon Creek Watershed, is a stream system adversely affected by development and land use practices over the past century. Due to high levels of impervious surfaces throughout the watershed, the creek responds quickly during rain events, and increases in stream flow with erosive forces occur almost immediately following the onset of storm events. These changes in hydrologic conditions within the watershed have caused severe channel destabilization and riparian habitat degradation within much of the watershed. The objectives of the project are to enhance and restore aquatic, wetland, and riparian habitat, improve infiltration of flood waters, stabilize stream banks, control invasive species, and reconnect floodplains along the Sandy Run Creek in Roychester Park and Grove Park in Abington Township, Pennsylvania



Figure 1: Location of the Sandy Run Creek Project Locations within Abington Township, Montgomery County, PA.

In April 2016, staff from the US Army Corps of Engineers (USACE) and Abington Township visited potential project sites along Sandy Run Creek to identify areas within Roychester Park and Grove Park (Figure 1) as potential high priority sites for ecosystem restoration.

Roychester Park

Roychester Park is a municipally owned park of approximately 12.7 acres. Many recreational and community features are present in the park including a playground, baseball fields, basketball courts, tennis courts, and the Roychester Community House, which serves as a venue for community functions and gatherings. The headwaters of Sandy Run Creek flow through Roychester Park. The park contains approximately 950 linear feet of stream and about 150 linear feet of which is currently diverted into a below ground channel (Figure 2). The segment of stream which has been diverted underground currently has no aquatic habitat value.



Figure 1: Map of Roychester Park showing location of Sandy Run Creek

The banks of the above ground segments of Sandy Run Creek within Roychester Park are severely eroded (Figure 3). The significant erosion of these banks disconnects the streambed from the surrounding floodplain, provides poor habitat for both aquatic and wetland species, as well as transports sediment to downstream locations creating further aquatic habitat impairment. The municipality has installed some native vegetation plantings in the riparian buffer area of the

stream, but the presence of invasive species in the riparian area continue to degrade the riparian habitat by preventing the further recruitment and establishment of native species. Native plant species provide vital habitat to wildlife inhabiting the riparian buffer areas.



Figure 2: Eroded stream bank in Roychester Park

### Grove Park

Grove Park is a municipally owned park of approximately 2 acres. The park contains approximately 1,300 linear feet of Sandy Run Creek (Figure 4). About 400 linear feet of stream within the park are lined with gabion baskets on the banks and a 24 foot wide and 12 inches thick rebar enforced concrete channel on the stream bottom (Figure 5). The concrete channel provides no useful aquatic habitat and increases the velocity and temperature of the water, which further impairs downstream habitat through increased sedimentation and water temperature. Downstream of the concrete lined stream bottom, the stream banks are lined with gabion baskets (Figure 6). The gabions provide lower quality habitat for aquatic species and prevent the stream bed from connecting to the surrounding floodplains.



Figure 3: Map of Grove Park showing location of Sandy Run Creek



Figure 4: Concrete lined stream bottom with gabion baskets lining the stream banks of Sandy Run Creek in Grove Park



Figure 5: Gabion lined stream banks of Sandy Run Creek downstream of Figure 5 in Grove Park

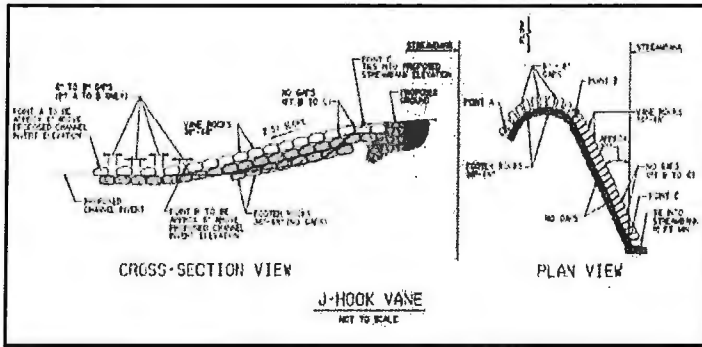
The main stem of Sandy Run Creek was relocated to its current location in Grove Park. The original channel still exists, but it does not have base flow; and only serves as a high flow channel during storm events (Figure 7). The limited vegetated buffer of this high flow channel has significant invasive species issues, which severely degrade the habitat value of the riparian buffer.



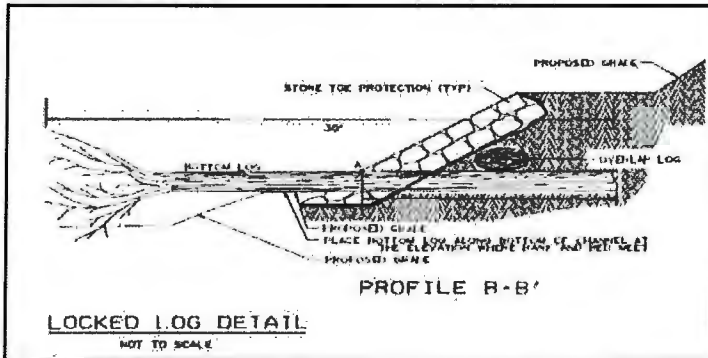
Figure 6: Former location of main stem of Sandy Run Creek in Grove Park

This project will investigate, select, design and construct the best alternative to restore ecosystem function along Sandy Run Creek at Roychester Park and Grove Park using natural stream stabilization methods such as J-hook vanes, locked logs, cross vanes, bendway weirs, longitudinal stone toe protection, and native streambank vegetation (Figures 8 and 9).

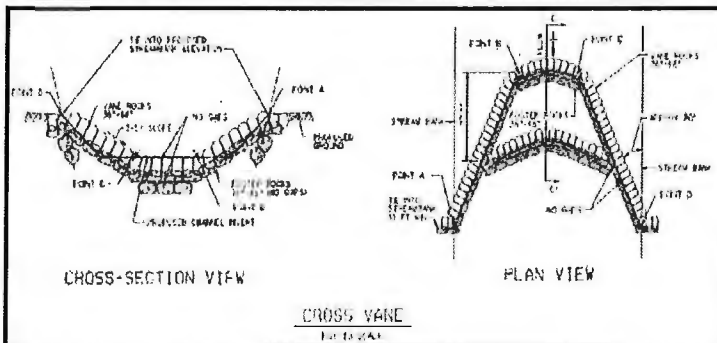




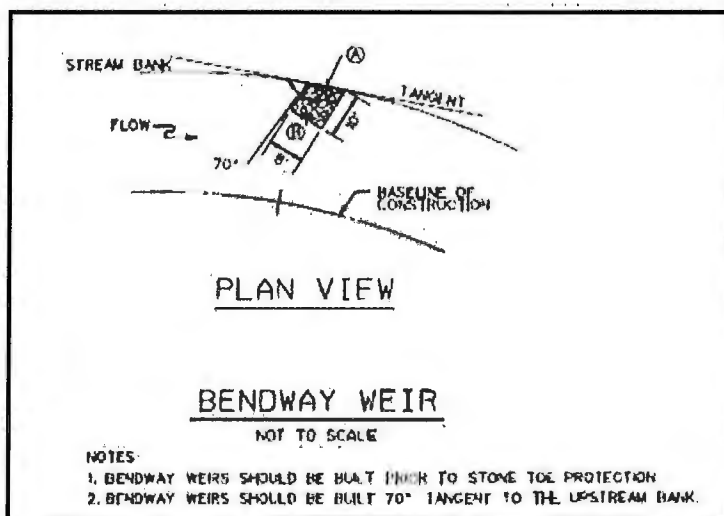
**J-Hook Vanes:** redirect higher velocity flows away from outside banks reducing erosion and create aquatic habitat through riffle formation



**Locked Logs:** Dissipate energy, reduce near-field scour, provide toe protection, and provide aquatic habitat complexity



**Cross vanes:** Redirect water away from stream banks and into the center of the channel, decreasing stress on unstable banks and forming pool habitat in the channel center. Double cross vanes (W weirs) are a variation suitable for wider channels.



**Bendway Weirs:** Redirect flow from the outside streambank as the water moves through a bend in the channel.

Figure 7: Conceptual Examples of Natural Stream Stabilization Structures



Figure 9: Example of a stream that was restored using natural stream stabilization structures and native vegetation Image Source: .Doll, B.A., Grabow, G.L., Hall, K.R., Halley, J, Harman, W.A., Jennings, G.D., & D.E. Wise. 2003. Stream Restoration: A Natural Channel Design Handbook. NC Stream Restoration Institute, NC State University.

Under the authority of Section 566 of the Water Development Resource Act (WRDA) of 1996 (Public Law 104-303), the US Army Corps of Engineers (USACE), Philadelphia District entered into an agreement with the City of Philadelphia to implement this project. The USACE will complete an Environmental Assessment or Environmental Impact Statement to serve as the decision document for the selection of a recommended plan in accordance with the appropriate policies and procedures specified in the Corps of Engineers Regulations (ER).

The Project Delivery Team (PDT), together with the Township of Abington, developed an initial list of potential alternatives. The PDT recommended the following three preliminary alternatives for more detailed investigations:

- **No Action**
- **Potential Actions at Roychester Park**
- **Potential Actions at Grove Park**

The USACE completed an internal review of available alternatives and are now seeking comments from external sources. Again, these alternatives, including the no action alternative, are in the preliminary planning stages, and the COE will review all available information prior to selecting a preferred alternative.

## **1. No Action.**

The “no action” alternative would not restore riparian and wetland habitat along Sandy Run Creek, and therefore the USACE considers this option unacceptable. The USACE will keep the “no action” alternative in the analysis pursuant to National Environmental Policy Act regulations.

## **2. Potential Action at Roychester Park**

At Roychester Park, opportunities exist to daylight the approximately 150 linear feet of Sandy Run Creek that is currently below ground and to implement natural stream stabilization methods and native vegetation plantings to reconnect the floodplains and restore riparian and wetland habitat of the 800 linear feet of above ground reaches of Sandy Run Creek within Roychester Park where the stream banks are currently extremely eroded (Figures 2 and 3).

## **3. Potential Action at Grove Park**

At Grove Park, opportunities exist to remove the concrete lining on an approximately 400 linear foot portion of the stream bed (Figures 4 and 5) and the gabion baskets lining the approximately 1,300 linear feet of stream banks (Figures 5 and 6) and use natural stream stabilization methods and native vegetation plantings to reconnect the floodplains and restore riparian and wetland habitat of the banks of Sandy Run Creek. The former main stem of Sandy Run Creek within Grove Park (Figure 7) is populated by the invasive species multiflora rose (*Rosa polyantha*), which degrades the existing habitat by competing with native species. Removal of multiflora rose from this section of the park will be a priority as a way to improve the success of the native vegetation plantings around the main stem of Sandy Run Creek at Grove Park.

## COORDINATION LIST (Enclosure #2)

### Mike Kaufmann

Pennsylvania Fish and Boat Commission  
PO Box 356  
Revere, PA 18953

U.S. Fish and Wildlife Service  
Pennsylvania Field Office  
Attn: Lora Zimmerman, Field Supervisor  
110 Radnor Rd; Suite 101  
State College, PA 16801

Pennsylvania Department of Environmental Protection  
Division of Coastal Programs  
Attn: Coastal Zone Management Coordinator  
Rachel Carson State Office Building  
P.O. Box 2063  
Harrisburg, Pennsylvania 17105-8555

Pennsylvania Department of Environmental Protection  
Division of Coastal Programs  
PA Department of Environmental Protection, Southeast Regional Office  
2 East Main Street  
Norristown, PA 19401

Karen Greene, Fishery Biologist  
Habitat Conservation Division  
National Marine Fisheries Service  
Sandy Hook Laboratory  
74 Magruder Road  
Highlands, NJ 07732

Michelle Magliocca, NOAA Fisheries  
Habitat Conservation Division  
177 Admiral Cochrane Drive  
Annapolis, MD 24104

Mark Murray-Brown, Section 7 Coordinator  
Protected Resources Division  
NOAA National Marine Fisheries Service  
Greater Atlantic Regional Fisheries Office  
55 Great Republic Drive  
Gloucester, MA 01930

Mr. Christopher A. Urban, Chief  
Pennsylvania Fish and Boat Commission  
Division of Environmental Services  
Natural Diversity Section  
450 Robinson Lane  
Bellefonte, PA 16823

Mr. Douglas C. McLearen  
Chief, Division of Archaeology and Protection  
Pennsylvania Historical and Museum Commission  
Bureau for Historic Preservation  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093

Mr. Paul Racette  
Watershed Programs Manager  
Pennsylvania Environmental Council  
1315 Walnut Street, Suite 532  
Philadelphia, PA 19107

Delaware Riverkeeper Network  
925 Canal Street  
7th Floor, Suite 3701  
Bristol, PA 19007

Mr. James Rebarchak  
Air Quality Program Manager, Southeast Regional Office  
Pennsylvania Department of Environmental Protection  
2 East Main Street  
Norristown, PA 19401

Mr. Dominic Rocco, P.E.  
Watershed Management Program Manager, Southeast Regional Office  
Pennsylvania Department of Environmental Protection  
2 East Main Street  
Norristown, PA 19401

Mr. Nathan Havens, Wildlife Impact Review Coordinator  
Pennsylvania Game Commission  
Division of Environmental Planning  
And Habitat Protection  
Bureau of Wildlife Habitat Management  
2201 Elmerton Avenue  
Harrisburg, PA 17110-9797

Ms. Barbara Rudnick, NEPA Team Leader  
U.S. Environmental Protection Agency, Region 3  
Office of Environmental Programs  
Environmental Assessment & Innovation Division  
1650 Arch Street  
Philadelphia, PA 19103-2029

Ms. Janet Kremer  
U.S. Environmental Protection Agency  
Region 3, Air Emissions  
1650 Arch Street  
Philadelphia, PA 19103-2029

Ms. Joyce Epps, Director  
Pennsylvania Department of Environmental Protection  
Rachel Carson State Office Building  
Bureau of Air Quality  
P.O. Box 8468  
Harrisburg, PA 17105

Jack Kraeuter, Chief, Environmental and Geological Services Section  
Pennsylvania Department of Environmental Protection  
Rachel Carson State Office Building  
Bureau of Waterways Engineering and Wetlands  
400 Market Street  
Harrisburg, PA 17101

Bob Pierson  
Federal Emergency Management Agency  
FEMA Region III  
615 Chestnut Street  
One Independence Mall, Sixth Floor  
Philadelphia, PA 19106-4404

American Rivers  
Philadelphia Office  
P.O. Box 14986  
Philadelphia, PA 19149

Ms. Susan Bachor  
Delaware Tribe Historic Preservation Representative  
PO Box 64  
Pocono Lake, PA 18347

Ms. Nekole Alligood,  
NAGPRA and Cultural Preservation Director  
Delaware Nation  
31064 State Highway 281  
PO Box 825  
Anadarko, OK 73005

Ms. Robin Dushane  
Cultural Preservation Director  
Eastern Shawnee Tribe of Oklahoma  
12705 S. 705 Road  
Wyandotte, OK 74370

Mr. Jesse Bergevin  
Tribal Historic Preservation Officer  
Oneida Indian Nation  
2037 Dream Catcher Plaza  
Oneida, NY 13421

Ms. Bonney Hartley  
Tribal Historic Preservation Officer  
Stockbridge-Munsee Community of Mohican Indians  
New York Office  
65 1st Street  
Troy, NY 12180

Mr. Arnold Printup  
Tribal Historic Preservation Officer  
St. Regis Mohawk Tribe  
412 State Route 37  
Hogansburg, NY 13655

Township contacts

Rita Stevens  
Chairperson – Shade Tree Commission  
115 Stanley Avenue  
Glenside, Pa, 19038

Jennifer Sherwood  
Chairperson Environmental Advisory Board  
651 Montgomery Avenue  
Jenkintown, Pa. 19046

Wissahickon Clean Water Partnership

Dr. Lora Toran, Hydrogeologist P.G.  
Temple University  
Department of Geology  
1901 N. 13<sup>th</sup> Street  
Phila. Pa. 19122-6081

Patrick Starr  
Executive Vice-President  
Penna. Environmental Council (PEC)  
1315 Walnut Street  
Phila. Pa. 19107

Drew Shaw AICP  
Environmental Planning Specialist  
Montgomery County Planning Department  
P.O. Box 311  
Norristown, Pa. 19404-0311

Jennifer Fields P.E.  
Environmental Program Manager  
Penna. Department of Environmental Protection  
2 E. Main Street  
Norristown, Pa. 19401





**From:** [Peter Johnsen - NOAA Federal](#)  
**To:** [Eberle, Mark D CIV USARMY CENAP \(US\)](#)  
**Cc:** [Karen Greene - NOAA Federal](#); [Blum, Peter R CIV CPMS \(US\)](#); [Mark Murray-Brown](#); [Michelle Magliocca - NOAA Federal](#)  
**Subject:** Re: [EXTERNAL] Scoping comments on Sandy Run Creek restoration and enhancement, Abington Township, PA  
**Date:** Monday, February 27, 2017 11:28:03 AM

---

Peter and Mark,

Just to make clear, the email from Karen also covers and is true for species listed as threatened or endangered under the ESA and under our jurisdiction, i.e. sturgeon. No interagency consultation under section 7 of the Act is therefore needed. Consultation with NOAA Fisheries will be necessary if any new information or information not previously considered should indicate that project activities may affect listed species. If you have any questions, please feel free to call me on phone number 978-282-8416 or contact me via email.

Sincerely,

Peter Johnsen

On Fri, Feb 24, 2017 at 4:04 PM, Eberle, Mark D CIV USARMY CENAP (US) <Mark.D.Eberle@usace.army.mil <<mailto:Mark.D.Eberle@usace.army.mil>> > wrote:

Hi Karen,

Thanks for your comments and support for this project.

Mark

Mark Eberle, Biologist

USACE - Philadelphia District

100 Penn Square East

Philadelphia, PA 19107

(215) 656-6562 <tel:(215)%20656-6562>

---

From: Karen Greene - NOAA Federal [karen.greene@noaa.gov <<mailto:karen.greene@noaa.gov>> ]  
Sent: Friday, February 24, 2017 1:41 PM  
To: Eberle, Mark D CIV USARMY CENAP (US); Blum, Peter R CIV CPMS (US); Mark Murray-Brown;  
Peter Johnsen - NOAA Federal  
Cc: Michelle Magliocca - NOAA Federal

Subject: [EXTERNAL] Scoping comments on Sandy Run Creek restoration and enhancement, Abington Township, PA

Hello Peter and Mark,

This responds to your February 6, 2017, letter inviting our participation in the scoping for the NEPA document the Corps will be developing for the ecological restoration of Sandy Run Creek in Abington Township, PA. There are no NOAA trust resources in the project area. We do have resources within the Schuylkill River and in the lower portions of Wissahickon Creek including diadromous species, but both the natural and man-made conditions of Sandy Run Creek and the upper portions of Wissahickon Creek do not contain habitat that supports these species. As a result, we will not be providing any additional comments on this project beyond expressing our support for the ecological restoration of this waterway. The restoration of the wetland and riparian habitats in this watershed will have a benefit on the downstream watersheds.

If you have any questions or need additional information, please feel free to contact me or Michelle Magliocca of my office (after May 1).

Thanks.

Karen

Karen Greene  
Mid-Atlantic Field Offices Supervisor  
NOAA/National Marine Fisheries Service  
Greater Atlantic Regional Fisheries Office  
Habitat Conservation Division  
James J. Howard Marine Sciences Laboratory  
74 Magruder Rd.  
Highlands, NJ 07732  
732 872-3023 <tel:(732)%20872-3023> (office)

--

Peter B. Johnsen  
Fisheries Biologist (section 7)  
Greater Atlantic Region Fisheries Office  
National Marine Fisheries Service  
55 Great Republic Drive  
Gloucester, MA 01930  
Phone: 978-282-8416  
email: peter.b.johnsen@noaa.gov <<mailto:peter.b.johnsen@noaa.gov>>



# pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF AIR QUALITY

March 2, 2017

Mr. Mark Eberle  
Environmental Resources Branch  
U.S. Army Corps of Engineers  
Philadelphia District  
Wanamaker Building  
100 Penn Square East  
Philadelphia, PA 19107-3390

Re: Comments on the February 2017 National Environmental Policy Act (NEPA) Scoping Summary for the Sand Run Creek Project

Dear Mr. Eberle:

The Pennsylvania Department of Environmental Protection (DEP) appreciates the opportunity to comment on the United States Army Corps of Engineers (Corps) Scoping Summary for the Sandy Run Creek Project in Abington Township, Montgomery County, Pennsylvania.

Montgomery County, Pennsylvania is designated by the U.S. Environmental Protection Agency (EPA) as a "marginal" nonattainment area for the 2008 8-hour ozone National Ambient Air Quality Standards (NAAQS). Montgomery County is also part of a "maintenance area" for previous violations of the 2006 PM<sub>2.5</sub> NAAQS. The project is located in a nonattainment or maintenance area for criteria pollutant NAAQS, therefore, the project is subject to the federal and state General Conformity requirements. The EPA General Conformity requirements are codified at 40 CFR Part 93, Subpart B (relating to determining conformity of general Federal actions to state or Federal implementation plans) and adopted and incorporated by reference in their entirety in the *Pennsylvania Code* at 25 Pa. Code Chapter 127, Subchapter J (relating to general conformity).


The DEP would like to bring to your attention the following criteria to consider and address while preparing your Air Quality Analysis for General Conformity purposes:

1. All of the project's direct *and indirect* air emissions must be estimated in an Air Quality Analysis for the purpose of determining if General Conformity is applicable under 40 CFR §92.153. This analysis would include not only direct emissions from construction vehicle engines involved in the stream restoration activities (e.g. earthmoving, clearing and grubbing equipment, internal combustion generators, light rigs, etc.) but also those of all construction support vehicles used on site (e.g. contractor pick-up trucks, materials delivery vehicles, worker commuting vehicles, etc.). Indirect emissions, for example, would include fugitive dust generated from earthmoving activities and off-road use of vehicles.

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2. Emissions that are “reasonably foreseeable” within the scope of the project should be quantified, documented and included in the analysis.
3. In accordance with 40 CFR §93.159 (regarding procedures for conformity determinations of general Federal actions) the analysis must use the “latest planning assumptions” and “latest and most accurate emissions estimations techniques.” For on-road motor vehicle emissions, the EPA MOVES 2014a model is the most current approved model. The NONROAD model contained in MOVES 2014a is the most current approved model for nonroad equipment emissions estimation. For non-motor vehicle sources (e.g. road dust, earthmoving fugitive emissions) the latest emissions factors specified by EPA’s “Compilation of Air Pollutant Emissions Factors” (“AP-42”) must be used unless more accurate emissions data are available.
4. In the event that the estimated total project emissions exceed the applicable annual emissions rate thresholds specified in 40 CFR §92.153, the Air Quality Analysis must include a General Conformity Determination (GCD) that demonstrates what appropriate project-level mitigation measures the Corps will undertake to mitigate or offset the non-conforming emissions in their entirety and not just the emissions above the applicability rate threshold. If the total project emissions are below the thresholds, then the Air Quality Analysis should document and support a statement of project non-applicability of General Conformity to be included in the GCD.

Thank you again for the opportunity to comment on the project scoping summary. Should you have questions or need additional information, please contact me by e-mail at [britrowbri@pa.gov](mailto:britrowbri@pa.gov) or by telephone at 717.787.9492.

---

Sincerely,



Brian Trowbridge  
Air Quality Program Specialist  
Bureau of Air Quality

cc: Jim Rebarchak (SERO)  
ARM Reading File - 2017



March 3, 2017

Mark Eberle  
Environmental Resource Branch  
Department of the Army  
Philadelphia District, Corps of Engineers  
100 East Penn Square, Floor 7, Wanamaker Building  
Philadelphia, PA 19107-3390

**RE: Sandy Run Creek restoration - Abington Township**

Dear Mr. Eberle:

The Delaware Riverkeeper Network received the scoping letter and attachments for the proposed restoration projects for Sandy Run Creek in Roychester Park and Grove Park. We wish to express our gratitude for being included in this scoping phase, as well as our agreement that restoration work appears to be appropriately targeted to this stream.

Our vision for a healthy, functioning stream and riparian corridor would include a stream channel connected both horizontally and vertically to the riparian and hyporheic corridor, and a riparian zone appropriately sized to the channel and containing a mixture of both woody and non-woody native species. Floodplain storage within the riparian zone would also be a beneficial use of these corridor areas, both ecologically and for the water quality benefit they would provide. Where existing riparian coverage exists, even if less than ideal, we encourage you and your project partners to retain these established riparian corridors and to minimize disturbance of mature vegetation that is impossible to recover in the short-term.

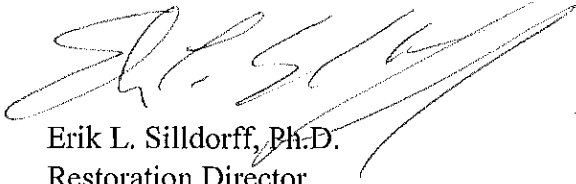
We expect much of the design and restoration efforts will target both the concrete and gabion basket stream channel, and we strongly agree that these areas would benefit most from the restoration efforts. Although the specifics of your design and proposal are yet to be articulated, we expect that great progress can be made, particularly in this section of Grove Park.

DELAWARE RIVERKEEPER NETWORK  
925 Canal Street, Suite 3701  
Bristol, PA 19007  
Office: (215) 369-1188  
fax: (215) 369-1181  
dm@delawareriverkeeper.org  
www.delawareriverkeeper.org

We are eager to continue our involvement in this project and would be happy to provide additional feedback and suggestions as the project scoping moves forward. Among other contributions, this could include joining the project team on-site to examine the challenges and to evaluate solutions.

Again, thank you for including the Delaware Riverkeeper Network in this important work to address long-standing challenges within the Sand Run Creek watershed and the Wissahickon more broadly. We look forward to continued collaboration to improve the health of our streams, our forests, and our watersheds.

Sincerely,



Erik L. Silldorff, Ph.D.  
Restoration Director

cc. Rita Stevens, Abington Township Shade Tree Commission  
Jeffiner Sherwood, Abington Township Environmental Advisory Commission  
Dr. Lora Toran, Temple University  
Jenifer Fields, PADEP-SERO  
Drew Shaw, Montgomery County Planning Department  
Patrick Starr, Pennsylvania Environmental Council

ABINGTON



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

March 9, 2017

Department of the Army  
Philadelphia District, Corps of Engineers  
Attn: Peter R. Blum, P.E., Chief, Planning Division  
100 Penn Square, Floor 7, Wanamaker Building  
Philadelphia, PA 19107-3390

RE: ER 2017-0771-091-A – COE: NEPA Sandy Run Creek Restoration, Abington Township, Montgomery County

Dear Mr. Blum:

Thank you for providing information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 *et seq.* (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources. Our comments are as follows:

**Historic (Above Ground) Resources**

There may be above ground historic properties within the project area of potential effect. However, in our opinion, the project as proposed will have no effect on historic properties, should they exist. Should the scope and/or nature of the project change, the PA SHPO should be contacted immediately.

**Archaeological Resources**

Based on an evaluation by our staff, including a review of the Statewide Pre-Contact Predictive Model, there is a high probability that National Register significant archaeological sites are present within this project area. These resources could be adversely affected by project activities. Our review considers the locations of known archaeological resources, soil type, topographic setting, slope direction and distance to water, among other regionally specific predictive factors for archaeological site locations. It is our opinion that a Phase I archaeological survey should be conducted to locate potentially significant resources. Guidelines and instructions for conducting all phases of archaeological survey in Pennsylvania are available on our website <http://www.phmc.pa.gov/Preservation/About/Documents/SHPO-Guidelines-Archaeological-Investigation.pdf>.

If you have any questions or comments concerning our review, please contact Mark Shaffer at (717) 783-9900 or [MShaffer@pa.gov](mailto:MShaffer@pa.gov).

Sincerely,

A handwritten signature in dark ink, appearing to read 'Douglas C. McLearn'.

Douglas C. McLearn, Chief  
Division of Archaeology and Protection





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

March 6, 2017

Mr. Mark Eberle  
Department of the Army  
U.S. Army Corps of Engineers, Philadelphia District  
Environmental Resource Branch  
Wanamaker Building, 100 Penn Square East  
Philadelphia, PA 19107-3390

RE: Scoping for ecological restoration along Sandy Run Creek in Abington Township, Pennsylvania

Dear Mr. Eberle:

The U.S. Environmental Protection Agency (EPA) has received and reviewed the February 6, 2017 letter from the U.S. Army Corps of Engineers (USACE) regarding ecological restoration of Sandy Run Creek, a tributary of Wissahickon Creek, in Abington Township, Pennsylvania. EPA appreciates the coordination effort by USACE. In accordance with the National Environmental Policy Act of 1969 (NEPA) and Section 309 of the Clean Air Act, EPA welcomes the opportunity to comment on the scope of the proposed project. The proposed project's main objectives are to enhance and restore aquatic, wetland, and riparian habitat. The project aims to improve the infiltration of flood waters, stabilize streambanks, control invasive species, and reconnect floodplains along Sandy Run Creek. The proposed project outlines three alternatives including (1) No action, (2) Potential Action at Roychester Park, and (3) Potential Action at Grove Park.

The EPA is supportive of the objectives of the proposed restoration and we are appreciative of the opportunity to provide comments early in the planning process. Please consider the scoping points in the enclosed Technical Comments. We look forward to continuing coordination with you on this project as more information becomes available. If you have any questions and would like to discuss our comments, please feel free to contact me at 215-814-3322 or [rudnick.barbara@epa.gov](mailto:rudnick.barbara@epa.gov) or the staff contact for this project is Ms. Nora Theodore, at 215-814-2728 or [theodore.nora@epa.gov](mailto:theodore.nora@epa.gov).

Sincerely,

A handwritten signature in cursive script, appearing to read "Barbara Rudnick".

Barbara Rudnick  
NEPA Team Leader  
Office of Environmental Programs

Enclosure



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# Responses

## Enclosure

Technical Comments on Scoping for Sandy Run Creek Ecological Restoration  
Abington Township, Pennsylvania

### General Comments: Purpose and Need

The purpose or objective of the proposal should be defined in relationship to the need for the action. Therefore, the need for the action should identify and describe the underlying problem or deficiency; facts and analyses supporting the problem or deficiency in the particular location at the particular time should be specified; and the context or perspective of the agency mission in relation to the need for action should be stated. 1.

The scoping summary mentions that the area surrounding Sandy Run Creek has been adversely affected by development and land use practices. This information will be important to include in the purpose and need section of the prepared NEPA analysis to help explain why the proposed action is being undertaken and what objectives the project intends to achieve. Furthermore, elaborating upon the changes in hydrologic conditions within the watershed, and changes in frequency and intensity of storms in the region, if observed, should be discussed and considered in design. 2.

### Alternatives Analysis

The alternatives analysis is central to a NEPA analysis. In general, EPA is supportive of a natural stream channel design for reconnection of a stream to its floodplain, stream daylighting, removal of cement channel, and establishment of native species in restoration projects. In a NEPA analysis, it may be appropriate to mention other approaches that the Project Delivery Team (PDT) considered and dismissed from detailed study. 3.

The USACE scoping enclosure outlines two main sites for potential restoration along Sandy Run Creek. In order to inform the decision-making process, it is anticipated that sufficient detail will be presented in the proposed alternative designs to understand the design options. For example, it is suggested that alternative analysis portray a suite of alternative stream restoration structures, as outlined in Figure 7, with attributes. Bendaway weirs were mentioned in this figure; it would be relevant to describe that these structures are generally used on larger waterbodies than those included in the scoping summary. It is encouraged that USACE consider and evaluate a range of stream structures based on their efficacy in other comparable systems. It is important that the right type of structure be used for the right problem in the appropriate size stream; and also that the alternatives are presented and discussed in the NEPA study. 3.

EPA suggests including a table comparing potential ecological uplift of the alternative projects such as anticipated sediment reduction, acres of improved habitat, and improvements to benthic habitat among others. It appears that the concrete lined stream bottom in Grove Park has high potential for ecological uplift; removing gabion baskets from such a large area would also be an improvement and could help encourage wildlife to inhabit the area. These are considerations that can be included in the NEPA analysis. 4.

Section 3.0, Purpose and Need for action defines the purpose in relation to the need for the action and describes the deficiencies. 1.

This information is provided in the Introduction and throughout the existing conditions including 5.1.2 and 5.3. A discussion of response to climate change has been added to Section 10. 2.

Initial design decisions considered the size, setting, and function of the water body (e.g., maintenance of flood control capacity, space constraints). Design decisions were fine-tuned to balance project goals based on an iterative process between design and H&H modeling to arrive at proposed design conditions. 3.

4. This information is provided in Tables 1 and 2.



**Monitoring**

EPA recommends that baseline conditions be presented in the NEPA study; a reference reach or other comparisons may be of use. Success criteria should be developed for this restoration project. EPA suggests that USACE implement evaluation and monitoring of restoration efforts to help determine whether design objectives have been met. It is recommended that monitoring cover functioning of in-stream structures, channel stability, sediment transport, stream bank erosion rates, and biological responses, as outlined in the cited Natural Channel Design Handbook.

5.

**Invasive Species**

It is recommended that approaches to address invasive species, including monitoring and adaptive management, be presented in the NEPA documentation.

6.

**Terrestrial Environment**

The NEPA analysis should provide a description of the terrestrial habitat resources in the restoration study area. It is recommended that a species lists for mammals, birds, amphibians, reptiles, and plants present in the study area be prepared, summarizing the composition and characteristics of community type, the functions and total acreage. Consideration of the terrestrial species would be appropriate to understand impact of the proposed restoration and enhancement projects. Please note that both adverse and positive impacts can be evaluated.

7.

**Community Impacts and Involvement**

The NEPA study should consider use of the facility by the community and any potential impact the project may have on use of the area. In addition, public participation is a critical component of the NEPA process, so outreach efforts should be documented in the study. Community input is of particular concern in the urban landscape; therefore, public education may be considered as part of the project objectives. Methods to communicate to the public the restoration and enhancements goals under study may assist in public engagement, input and acceptance.

8.

Furthermore, it is encouraged that USACE determine if any communities are environmental justice (EJ) communities in the vicinity of the proposed project sites and if any special outreach methods should be employed. Please consider various methods to identify EJ communities. To assist in this effort, EPA has developed an EJ mapping and screening tool called EJSCREEN. It is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. It can be accessed at: <https://www.epa.gov/ejscreen>. Additionally, please consider referring to "Promising Practices for EJ Methodologies in NEPA Reviews": <https://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews>.

9.

**Natural and Human Environment, Secondary and Cumulative Impacts**

Consideration of impacts offset in time or location is part of proposed project analysis. The Council on Environmental Quality (CEQ) in 40 CFR 1508.8 defines secondary effects as "caused by an

10.

Stream design and geometry was guided by stable reaches within the lengths of streams that are being restored. Additionally, the project is an environmental infrastructure improvement project and the goal is improvement and enhancement, but not a full "Natural Channel Design". Monitoring of function of the stream restoration, plantings, and invasive species will be included in the maintenance plan that will be developed for the non-federal sponsor.

5.

BMPs regarding invasive species were added to Section 6.3, Vegetation. These include: Plans to replace plantings that do not survive are being developed. A visual site inspection of the site will be conducted approximately 10 months after project construction to confirm the success of the plantings. The project maintenance plan will recommend that the sponsor conduct annual inspections maintain the project free of invasive species.

6.

7.

The NEPA analysis provides and considers the terrestrial habitat resources.

8.

A section was included to discuss the impact on recreation. The Township also discussed the project at several Township meetings and the project was well-received.

9.

Environmental Justice was addressed in Section 7.

10.

Section 6.0 considers impacts offste in time. Section 6.11 considers cumulative impacts.



action and are later in time or farther removed in distance but are still reasonably foreseeable". Examples of these could be the environmental effects of interconnected projects, such as additional infrastructure that may be needed to support the project. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The CEQ in 40 CFR 1508.7 defines cumulative impacts as "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." It is recommended that a cumulative impacts assessment be a part of USACE's NEPA analysis. Impacts may be adverse or positive to a resource.



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**From:** [Kukola, Regina L CIV USARMY CENAP \(US\)](#)  
**To:** [Rita Stevens](#)  
**Cc:** [Eberle, Mark D CIV USARMY CENAP \(US\)](#)  
**Subject:** RE: [EXTERNAL] Regrets + One correction  
**Date:** Thursday, March 09, 2017 8:28:27 AM

---

Hi Rita,

Thanks for sending along the correction to the site description. I have CC'ed Mark Eberle, the project Biologist, to this e-mail. He has been compiling and reviewing all of the feedback from the scoping letter.

Also, thank you for the information you were able to provide on the existing site conditions at Grove and Rochester Parks at our initial site visit. We have the Abington STC added to our list of stakeholders for the project.

Best,  
Regina

-----Original Message-----

From: Rita Stevens [<mailto:abingtontrees@gmail.com>]  
Sent: Monday, March 06, 2017 6:06 PM  
To: Kukola, Regina L CIV USARMY CENAP (US) <[Regina.L.Kukola@usace.army.mil](mailto:Regina.L.Kukola@usace.army.mil)>  
Subject: [EXTERNAL] Regrets + One correction

Hello Regina,

I apologize for missing today's site visit at Roychester and Grove Parks. Following an overly busy weekend, I did not check today's calendar in time. (Nor did Glen!)

I have offer only one correction to the letter from Peter Blum requesting for comment. Would you please forward this, as I do no have his email address:

Enclosure page 1-3: Grove Park is a 9 acre parcel (not 2 acre)

Please continue to let me know how the STC can assist. Regards, Rita

--

Rita W. Stevens  
ISA Certified Arborist PD-2329A

Abington Township Shade Tree Commission  
a volunteer group commissioned by Abington Township  
education and outreach to plant and preserve trees  
Blocked<http://www.facebook.com/AbingtonTrees>





## Pennsylvania Fish & Boat Commission

---

### Division of Environmental Services

Natural Diversity Section

450 Robinson Lane

Bellefonte, PA 16823

814-359-5237

March 20, 2017

### IN REPLY REFER TO

SIR# 47342

Department of the Army  
Mark Eberle  
10 E. Penn Square  
Philadelphia, Pennsylvania 19107

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species  
PNDI Search No.  
Sandy Run Creek  
MONTGOMERY County: Abington Township**

Dear Mark Eberle:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search “potential conflict” or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

Except for occasional transient species, rare, candidate, threatened or endangered species under our jurisdiction are not known to exist in the vicinity of the project area. Therefore, no biological assessment or further consultation regarding rare species is needed with the Commission. Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

### Our Mission:

[www.fish.state.pa.us](http://www.fish.state.pa.us)

*To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.*



**If you have any questions regarding this review, please contact Robert Morgan at 814-359-5129 and refer to the SIR # 47342.** Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Christopher A. Urban". The signature is written in a cursive style with a large, prominent initial "C".

Christopher A. Urban, Chief  
Natural Diversity Section

CAU/RTM/dn

## **Appendix B: Wetland Report**



# WETLAND DELINEATION REPORT

## Abington Environmental Infrastructure Project Montgomery County, Pennsylvania

Section 566 Water Resources and Development Act



## **INTRODUCTION**

The wetland delineation performed at the site included an investigation of any wetlands or waters present within the project areas at Grove Park and Roychester Park in Abington Township, PA. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Environmental Laboratory (1987), Department of the Army, Waterways Experimental Station, January 1987 Final Report, p. A14, Attachment A.).

A wetland delineation requires the investigation of three components that characterize wetlands: (1) the presence of hydrophytic plants; (2) the presence of hydric or saturated soils that have become anaerobic due to long term saturation during the growing season; and (3) an indication of the presence of water flooding or saturating the site from ground or surface sources.

## **DESCRIPTION OF SITE**

Grove Park and Roychester Park are two separate public recreational parks located in an urbanized landscape. These two parks are located less than a mile apart from one another, and each contain a reach of Sandy Run Creek. The above-ground portion of Sandy Run Creek begins at the northeastern edge of Roychester Park, where it travels aboveground toward the southwest for about 1,400 feet (except for a brief 100 foot piped section under a recreational field), and continues downstream in an underground stormwater conveyance. Sandy Run Creek resumes its above-ground course at the northeastern extent of Grove Park, and travels southwest for about 1,300 feet until it returns to an underground conveyance.

Roychester Park is primarily a mowed green containing recreational fields as well as two impervious courts (for basketball and tennis) and a parking lot. The riparian area within the park is primarily forested. Grove Park is primarily a mowed green intersected by the main channel of Sandy Run Creek and bordered by woodland. The southeastern side of Grove Park is dominated by a forested area containing wetlands and small streams that empty into the main channel of Sandy Run Creek via outfalls.

## **METHODS**

Representatives of USACE Regulatory visited the site on October 8, 2019 to perform a wetland delineation. A delineation verification visit was conducted by USACE Environmental Resources on November 10, 2020. The initial wetland investigation included a visual survey of the sites followed by collection of data points in order to establish a line of transition between upland and wetland areas. At each data point the dominant vegetation was recorded and soil probes were performed in order to observe the soil characteristics. Soil borings were taken to a depth of approximately 16 inches and observations of soil colors and consistency were noted at a series of depths. The soil probe was used as the center of each data point for vegetation investigation and data collection.

Data points were taken in several locations. The findings were compared with descriptions of the mapped soil types at this location in the Montgomery County Soil Survey (USDA, 2020). Dominant vegetation was recorded within a 5-ft diameter of the soil probe for the herbaceous, shrub or understory tree layer, and within a 30-ft diameter for trees. Each recorded plant species was then characterized by its status as shown in Table 1 according to Reed (1988).

For the delineation verification visit (conducted by USACE Environmental Resources on November 10, 2020), soil borings were not permitted therefore vegetation, geomorphic position, and secondary indicators were utilized to determine wetland status. Observational data was supplemented by use of aerial photography and LiDAR data (see Attachment A)

**Table 1: Wetland Plant Status**

Category	Abbreviation	Definition
Not Listed	NL	Not listed in Reed, 1988
No Indicator	NI	Insufficient information available to determine indicator status
Obligate upland	UPL	Occurs <1% of the time in wetlands
Facultative upland	FACU	Occurs 1% to 33% of the time in wetlands
Facultative	FAC	Occurs 34% to 66% of the time in wetlands
Facultative wetland	FACW	Occurs 67% to 99% of the time in wetlands
Obligate wetland	OBL	Occurs >99% of the time in wetlands

If 50% or more of the sampling area is dominated by plants that are categorized as FAC, FACW, or OBL, the site's vegetative parameter is considered positive for hydrophytic or wetland vegetation.

Observations were recorded in data sheets for each data point (see Attachment B). These data sheets recorded soil and plant characteristics, as well as indicators of wetland hydrology.

## RESULTS

As a result of the investigation USACE identified five wetlands and several streams in Grove Park and one wetland, one stream, and two drainage swales in Roychester Park. These features are identified on the attached Wetland/Stream Boundary Plans.

### Soils

The Montgomery County Soil Survey (2014) has mapped soils in Roychester Park as "Urban land-Edgemont complex", and soils in Grove Park as primarily "Hatboro Silt-Loam" with additional small areas of "Urban land, occasionally flooded", and "Urban land-Duffield complex, 0 to 8 percent slopes". A copy of the soil maps for each park are included in Attachment A. Soil profile observations were recorded during the initial site visit, which corresponded to on the data sheets in Attachment C.

The Montgomery County Soil Survey (2014) identifies "Urban land-Edgemont complex" in Roychester Park and soils in Grove Park as primarily "Hatboro Silt-Loam" with additional small areas of "Urban land, occasionally flooded", and "Urban land-Duffield complex, 0 to 8 percent slopes". Urban land-Edgemont complex soils are classified as containing a matrix of well drained ridges (Urban land and Edgemont soils, composed of channery loam, not hydric), terraces (Buchanan, not hydric) and drainageways (Andover, hydric). Urban land refers to soils that were brought in for some kind of development purpose (estimated to characterize 65% of the site), while the remaining soil complex contains Edgemont soil (estimated to characterize 30% of the site), and two minor component soils called Buchanan and Andover.

The majority of Grove Park is mapped as containing Hatboro Silt-Loam. This soil is composed of poorly drained alluvium derived from metamorphic and sedimentary rock, and is found in floodplains. Hatboro Silt-Loam contains minor components of Glenville soils, which are found on hillslopes and are not considered hydric. The soil map unit "Urban land, occasionally flooded" refers to excessively drained pavement, buildings and other artificially covered areas present in a floodplain. Urban land-Duffield complex of contains both urban land, and soils of the Duffield complex. The Duffield complex contains parent material composed of well drained residuum weathered from limestone with minor components of Clarksburg soils (in valley flats, not hydric), Penlaw soils (in swales, not hydric), and Thorndale soils (in depressions, hydric).

## **Hydrology**

Surface drainage in both parks generally flows from the northeast toward the southwest. In Roychester Park, Sandy Run Creek originates from a stormwater outfall at the northeast end of the park and empties into another stormwater pipe at the southwest end of the park. Several stormwater swales and pipes empty into the main channel at other locations along the stream channel. A relatively short portion of the mainstem is piped underground in the middle of Roychester Park but resurfaces approximately 150-feet downstream.

In Grove Park, Sandy Run Creek originates from a stormwater outfall at the northeast end of the park and empties into another stormwater pipe at the southwest end of the park. Several stormwater swales and pipes, as well as three streams empty into the main channel at other locations along the main channel.

## **Vegetation**

Both parks are primarily covered by mowed lawn, however riparian plant communities are found along sections of Sandy Run, and forested areas are found in both parks. In Roychester Park, the main channel of Sandy Run Creek is forested for most of its course, containing both native and non-native trees. The northeast end of the creek has a thriving community of native riparian plants and small area containing emergent wetland plants. In the southeastern half of Grove Park there is a large forested area containing several small wetlands and streams. This wooded area appears to be primarily composed of native trees and shrubs, with a primarily invasive herbaceous layer. Riparian and wetland plant species are found along streams and depressions throughout this wooded area.

## **SUMMARY OF FINDINGS**

It was determined that Roychester Park contains one stream (Sandy Run Creek), one emergent wetland (about 1000 square feet) and two drainage features. It was determined that Grove Park contains four streams (including Sandy Run Creek mainstem), five forested wetlands (totaling about 24,000 square feet or about .55 acre) and two drainage features (see Attachment A for drawings).

Enclosures

Attachment A: Maps and Drawings

Attachment B: Data Sheets

# ATTACHMENT A

## MAPS

Figure 1: Site Locations

Figure 2-3: Soil Maps

Figure 4: Soil Boring Map

Figure 5: Aerial Photograph of Grove Park

Figure 6: LiDAR Hillshade for Grove Park

Figure 7-8: Wetland/Stream Locations



Figure 1: Site Locations Map

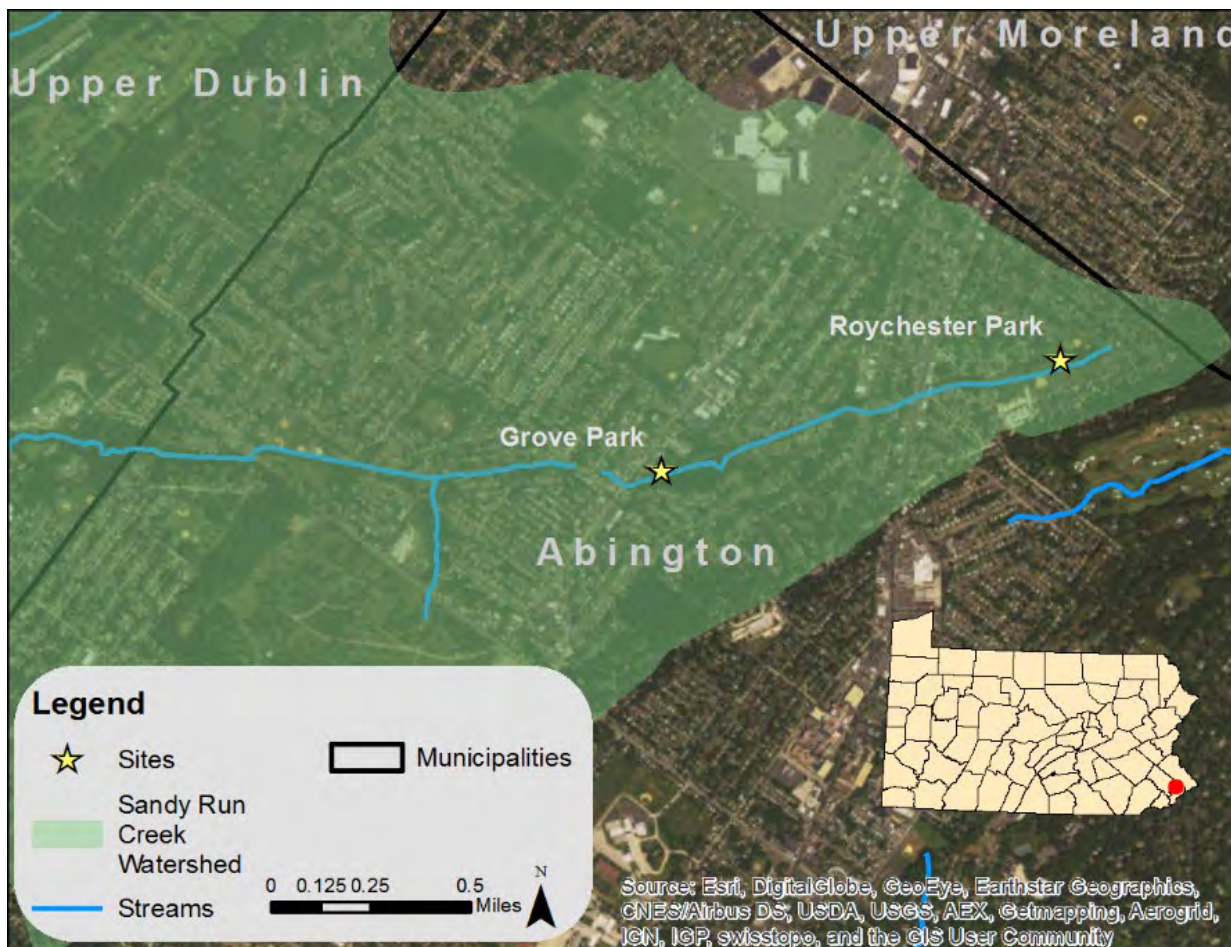


Figure 2: Roychester Park Soil Map



Figure 3: Grove Park Soil Map



Figure 4: Soil Boring Locations (USACE Regulatory Dept., Oct. 8, 2019)

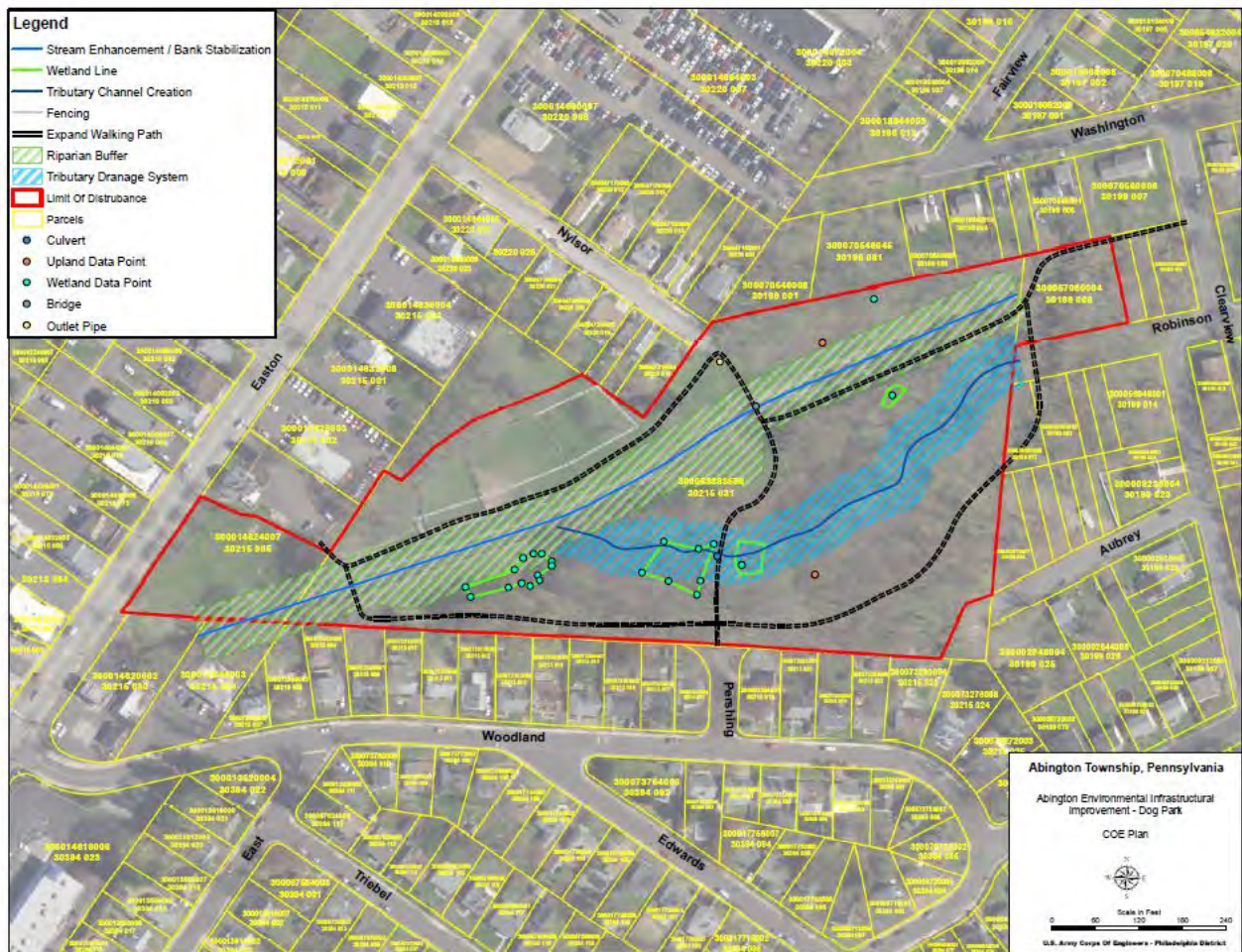


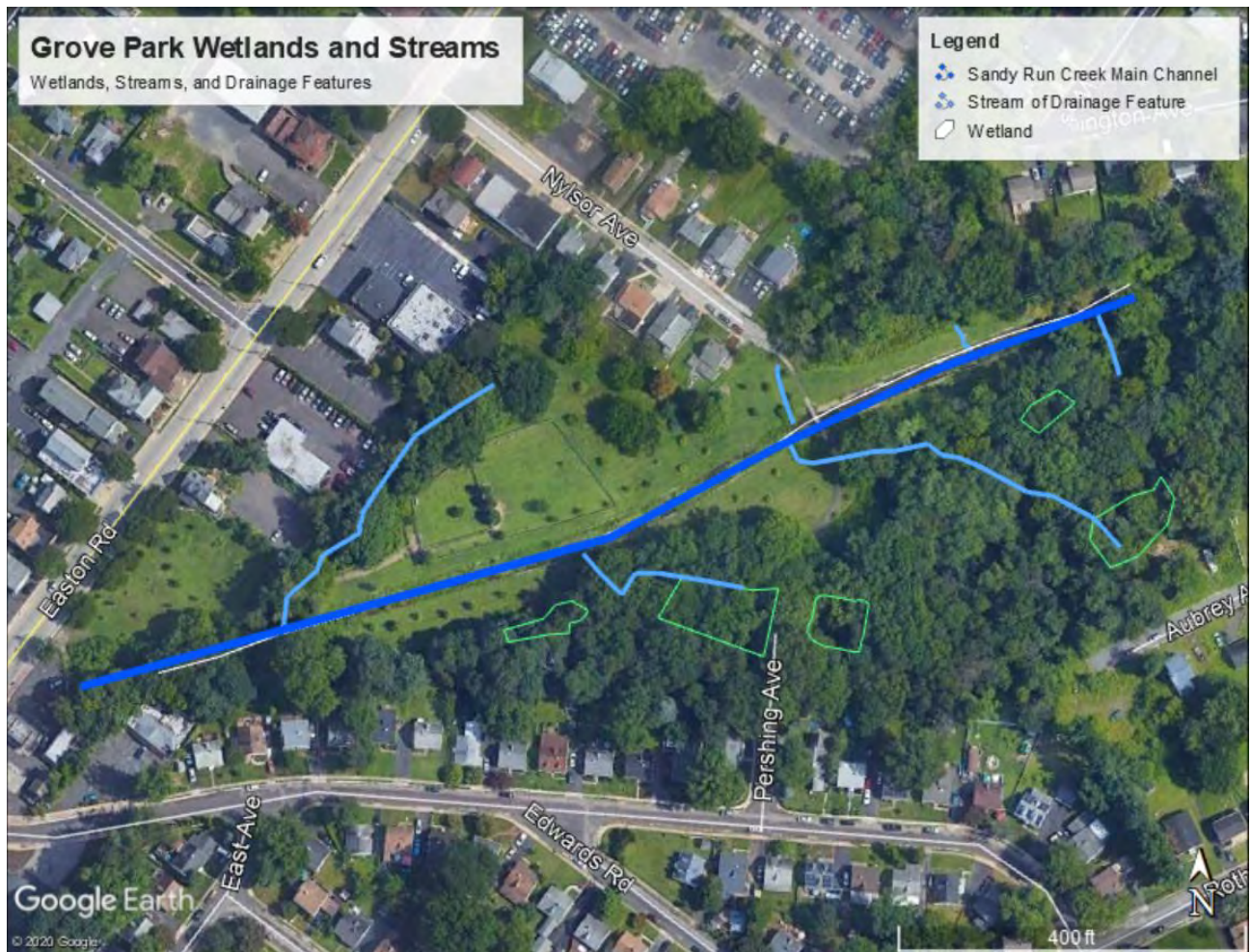
Figure 5: Aerial Photograph of Grove Park (Source: PASDA Pennsylvania Imagery Navigator)



Figure 6: LiDAR Hillshade of Grove Park (Source: USGS)



**Figure 7: Grove Park Wetland and Stream Location Drawing**  
(USACE Environmental Resources Dept., Nov. 10, 2020)



**Figure 8: Roychester Park Wetland and Stream Location Drawing**  
(USACE Environmental Resources Dept., Nov. 10, 2020)



**ATTACHMENT B**

**DATA SHEETS**



Project/Site: Grove Run Dog Park City/County: Abington Township Sampling Date: 8-9-19

Applicant/Owner: Abington Township State: PA Sampling Point: 1

Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_

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

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_

Soil Map Unit Name: \_\_\_\_\_ 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 _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks:	

**HYDROLOGY**

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

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

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

Remarks:

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

Sampling Point: 1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	=Total Cover		
50% of total cover: _____	20% of total cover: _____		

Sapling/Shrub Stratum (Plot size: <u>15</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
	=Total Cover		
50% of total cover: _____	20% of total cover: _____		

Herb Stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Epilobium ciliatum</u>	<u>95</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Impatiens capensis</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
3. <u>Apocynum cannabinum</u>	<u>20</u>	<u>No</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>120</u> =Total Cover		
50% of total cover: <u>60</u>	20% of total cover: <u>24</u>		

Woody Vine Stratum (Plot size: <u>5</u> )	Absolute % Cover	Dominant Species?	Indicator Status
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: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>95</u>	x 3 = <u>285</u>
FACU species <u>20</u>	x 4 = <u>80</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120</u> (A)	<u>375</u> (B)
Prevalence Index = B/A = <u>3.13</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

   4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

   Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Definitions of Four Vegetation Strata:**

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

**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

**Hydrophytic Vegetation Present?** Yes X No

**SOIL**

Sampling Point: 1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 4/2	100						
5-12	10YR 4/2	100						fill material

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

<sup>2</sup>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)
- 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 Mucky Mineral (F1) **(MLRA 136)**
- 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 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_ No X

Remarks:  
 Very rocky

Project/Site: Grove Run Dog Park City/County: Abington Township Sampling Date: 8-9-19  
 Applicant/Owner: Abington Township State: PA Sampling Point: 1  
 Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.129445 Long: -75.125948 Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks:	

**HYDROLOGY**

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

<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>15</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>10</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
---	--

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

Remarks:

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

Sampling Point: 1

	Absolute % Cover	Dominant Species?	Indicator Status																																									
<b>Tree Stratum</b> (Plot size: <u>30</u> )																																												
1. <u>Acer rubrum</u>	<u>80</u>	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>9</u> (A)  Total Number of Dominant Species Across All Strata: <u>10</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>90.0%</u> (A/B)																																								
2. <u>Quercus palustris</u>	<u>15</u>	No	FACW																																									
3. <u>Morus</u>	<u>5</u>	No																																										
4. _____																																												
5. _____																																												
6. _____																																												
7. _____																																												
	<u>100</u> =Total Cover																																											
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>																																										
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> )																																												
1. <u>Viburnum dentatum</u>	<u>5</u>	Yes	FAC	<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;">Total % Cover of:</th> <th style="width:10%;"></th> <th style="width:10%;">Multiply by:</th> <th style="width:10%;"></th> <th style="width:10%;"></th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td style="text-align:center;"><u>5</u></td> <td>x 1 =</td> <td style="text-align:center;"><u>5</u></td> <td></td> </tr> <tr> <td>FACW species</td> <td style="text-align:center;"><u>55</u></td> <td>x 2 =</td> <td style="text-align:center;"><u>110</u></td> <td></td> </tr> <tr> <td>FAC species</td> <td style="text-align:center;"><u>92</u></td> <td>x 3 =</td> <td style="text-align:center;"><u>276</u></td> <td></td> </tr> <tr> <td>FACU species</td> <td style="text-align:center;"><u>7</u></td> <td>x 4 =</td> <td style="text-align:center;"><u>28</u></td> <td></td> </tr> <tr> <td>UPL species</td> <td style="text-align:center;"><u>0</u></td> <td>x 5 =</td> <td style="text-align:center;"><u>0</u></td> <td></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align:center;"><u>159</u> (A)</td> <td></td> <td style="text-align:center;"><u>419</u> (B)</td> <td></td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A =</td> <td></td> <td style="text-align:center;"><u>2.64</u></td> <td></td> </tr> </tbody> </table>	Total % Cover of:		Multiply by:			OBL species	<u>5</u>	x 1 =	<u>5</u>		FACW species	<u>55</u>	x 2 =	<u>110</u>		FAC species	<u>92</u>	x 3 =	<u>276</u>		FACU species	<u>7</u>	x 4 =	<u>28</u>		UPL species	<u>0</u>	x 5 =	<u>0</u>		Column Totals:	<u>159</u> (A)		<u>419</u> (B)		Prevalence Index = B/A =			<u>2.64</u>	
Total % Cover of:		Multiply by:																																										
OBL species	<u>5</u>	x 1 =	<u>5</u>																																									
FACW species	<u>55</u>	x 2 =	<u>110</u>																																									
FAC species	<u>92</u>	x 3 =	<u>276</u>																																									
FACU species	<u>7</u>	x 4 =	<u>28</u>																																									
UPL species	<u>0</u>	x 5 =	<u>0</u>																																									
Column Totals:	<u>159</u> (A)		<u>419</u> (B)																																									
Prevalence Index = B/A =			<u>2.64</u>																																									
2. <u>Fraxinus pennsylvanica</u>	<u>15</u>	Yes	FACW																																									
3. <u>Cornus amomum</u>	<u>5</u>	Yes	FACW																																									
4. _____																																												
5. _____																																												
6. _____																																												
7. _____																																												
8. _____																																												
9. _____																																												
	<u>25</u> =Total Cover																																											
	50% of total cover: <u>13</u>	20% of total cover: <u>5</u>																																										
<b>Herb Stratum</b> (Plot size: <u>5</u> )																																												
1. <u>Fraxinus pennsylvanica</u>	<u>10</u>	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																								
2. <u>Impatiens capensis</u>	<u>5</u>	Yes	FACW																																									
3. <u>Lonicera japonica</u>	<u>1</u>	No	FACU																																									
4. <u>Symplocarpus foetidus</u>	<u>5</u>	Yes	OBL																																									
5. <u>Pilea pumila</u>	<u>5</u>	Yes	FACW																																									
6. _____																																												
7. _____																																												
8. _____																																												
9. _____																																												
10. _____																																												
11. _____																																												
	<u>26</u> =Total Cover																																											
	50% of total cover: <u>13</u>	20% of total cover: <u>6</u>																																										
<b>Woody Vine Stratum</b> (Plot size: <u>15</u> )																																												
1. <u>Smilax rotundifolia</u>	<u>5</u>	Yes	FAC	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.																																								
2. <u>Parthenocissus quinquefolia</u>	<u>1</u>	No	FACU																																									
3. <u>Toxicodendron radicans</u>	<u>2</u>	No	FAC																																									
4. <u>Vitis labrusca</u>	<u>5</u>	Yes	FACU																																									
5. _____																																												
	<u>13</u> =Total Cover																																											
	50% of total cover: <u>7</u>	20% of total cover: <u>3</u>																																										
Remarks: (Include photo numbers here or on a separate sheet.)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																																								

**SOIL**

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	2.5YR 3/1	100						
14-20	10YR 3/1	60	10YR 4/6	40	C	M	Loamy/Clayey	

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

<sup>2</sup>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)
- 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 Mucky Mineral (F1) (**MLRA 136**)
- 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 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Project/Site: Grove Run Dog Park City/County: Abington Township Sampling Date: 8-9-19  
 Applicant/Owner: Abington Township State: PA Sampling Point: 3  
 Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.129079 Long: -75.12587 Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ 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 <input checked="" type="checkbox"/>	No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks:			

**HYDROLOGY**

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

Remarks:

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

Sampling Point: 3

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer saccharinum</u>	<u>50</u>	Yes	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)																
2. <u>Acer rubrum</u>	<u>20</u>	Yes	FAC																	
3. <u>Acer negundo</u>	<u>10</u>	No	FAC																	
4. <u>malus sylvestris</u>	<u>5</u>	No	UPL																	
5. _____																				
6. _____																				
7. _____																				
	<u>85</u> =Total Cover			<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:right;">Total % Cover of:</td> <td style="width:50%; text-align:left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>53</u></td> <td>x 2 = <u>106</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>20</u></td> <td>x 4 = <u>80</u></td> </tr> <tr> <td>UPL species <u>5</u></td> <td>x 5 = <u>25</u></td> </tr> <tr> <td>Column Totals: <u>138</u> (A)</td> <td><u>391</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.83</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>53</u>	x 2 = <u>106</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>20</u>	x 4 = <u>80</u>	UPL species <u>5</u>	x 5 = <u>25</u>	Column Totals: <u>138</u> (A)	<u>391</u> (B)	Prevalence Index = B/A = <u>2.83</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>53</u>	x 2 = <u>106</u>																			
FAC species <u>60</u>	x 3 = <u>180</u>																			
FACU species <u>20</u>	x 4 = <u>80</u>																			
UPL species <u>5</u>	x 5 = <u>25</u>																			
Column Totals: <u>138</u> (A)	<u>391</u> (B)																			
Prevalence Index = B/A = <u>2.83</u>																				
50% of total cover: <u>43</u>	20% of total cover: <u>17</u>																			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
1. <u>rosa multiflora</u>	<u>20</u>	Yes	FACU																	
2. <u>Lindera benzoin</u>	<u>15</u>	Yes	FAC																	
3. <u>Fraxinus pennsylvanica</u>	<u>3</u>	No	FACW																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
	<u>38</u> =Total Cover			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
50% of total cover: <u>19</u>	20% of total cover: <u>8</u>																			
<u>Herb Stratum</u> (Plot size: <u>5</u> )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.																
1. <u>Polygonum</u>	<u>5</u>	Yes																		
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
	<u>5</u> =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
50% of total cover: <u>3</u>	20% of total cover: <u>1</u>																			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )																				
1. <u>Toxicodendron radicans</u>	<u>15</u>	Yes	FAC																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
	<u>15</u> =Total Cover																			
50% of total cover: <u>8</u>	20% of total cover: <u>3</u>																			

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



**SOIL**

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 3/2	100					Loamy/Clayey	
7-12	10YR 5/6	60	10YR 6/1	40	C	M	Loamy/Clayey	

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

<sup>2</sup>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)
- 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 Mucky Mineral (F1) (**MLRA 136**)
- 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 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Project/Site: Grove Run Dog Park City/County: Abington Township Sampling Date: 8-9-19  
 Applicant/Owner: Abington Township State: PA Sampling Point: 4  
 Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.128454 Long: -75.126639 Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) _____ <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>12</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>9</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: 4

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Acer negundo</i></u>	<u>20</u>	No	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</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>75.0%</u> (A/B)																
2. <u><i>Acer saccharinum</i></u>	<u>80</u>	Yes	FACW																	
3. <u><i>Platanus occidentalis</i></u>	<u>10</u>	No	FACW																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:right;">Total % Cover of:</td> <td style="width:50%; text-align:left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>95</u></td> <td>x 2 = <u>190</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>41</u></td> <td>x 4 = <u>164</u></td> </tr> <tr> <td>UPL species <u>2</u></td> <td>x 5 = <u>10</u></td> </tr> <tr> <td>Column Totals: <u>198</u> (A)</td> <td><u>544</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.75</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>95</u>	x 2 = <u>190</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>41</u>	x 4 = <u>164</u>	UPL species <u>2</u>	x 5 = <u>10</u>	Column Totals: <u>198</u> (A)	<u>544</u> (B)	Prevalence Index = B/A = <u>2.75</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>95</u>	x 2 = <u>190</u>																			
FAC species <u>60</u>	x 3 = <u>180</u>																			
FACU species <u>41</u>	x 4 = <u>164</u>																			
UPL species <u>2</u>	x 5 = <u>10</u>																			
Column Totals: <u>198</u> (A)	<u>544</u> (B)																			
Prevalence Index = B/A = <u>2.75</u>																				
<u>110</u> =Total Cover																				
50% of total cover: <u>55</u>		20% of total cover: <u>22</u>																		
<b><u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u> )</b>																				
1. <u><i>Rosa multiflora</i></u>	<u>40</u>	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Quercus palustris</i></u>	<u>5</u>	No	FACW																	
3. <u><i>Ligustrum obtusifolium</i></u>	<u>2</u>	No	UPL																	
4. <u><i>Viburnum dentatum</i></u>	<u>20</u>	Yes	FAC																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: <u>34</u>		20% of total cover: <u>14</u>																		
<b><u>Herb Stratum</u> (Plot size: <u>5</u> )</b>																				
1. <u><i>Parthenocissus quinquefolia</i></u>	<u>1</u>	No	FACU	<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: <u>1</u>		20% of total cover: <u>1</u>																		
<b><u>Woody Vine Stratum</u> (Plot size: <u>30</u> )</b>																				
1. <u><i>Toxicodendron radicans</i></u>	<u>20</u>	Yes	FAC	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: <u>10</u>		20% of total cover: <u>4</u>																		

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		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-6	10YR 3/2	90	10YR 3/6	10	C	M	Prominent redox concentrations
6-12	10YR 4/2	80	10YR 5/8	20	C	M	

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

<sup>2</sup>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)
- 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 Mucky Mineral (F1) (**MLRA 136**)
- 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 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Project/Site: Grove Run Dog Park City/County: Abington Township Sampling Date: 8-9-19  
 Applicant/Owner: Abington Township State: PA Sampling Point: 5  
 Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ 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 <u>x</u> No _____ Hydric Soil Present? Yes <u>x</u> No _____ Wetland Hydrology Present? Yes <u>x</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) _____ <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes <u>x</u> No _____ Depth (inches): <u>12</u> Saturation Present? Yes <u>x</u> No _____ Depth (inches): <u>9</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: 5

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer negundo</u>	<u>20</u>	<u>No</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</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>75.0%</u> (A/B)																
2. <u>Acer saccharinum</u>	<u>80</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Platanus occidentalis</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>110</u> =Total Cover				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Total % Cover of:</th> <th style="width:50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>95</u></td> <td>x 2 = <u>190</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>41</u></td> <td>x 4 = <u>164</u></td> </tr> <tr> <td>UPL species <u>2</u></td> <td>x 5 = <u>10</u></td> </tr> <tr> <td>Column Totals: <u>198</u> (A)</td> <td><u>544</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.75</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>95</u>	x 2 = <u>190</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>41</u>	x 4 = <u>164</u>	UPL species <u>2</u>	x 5 = <u>10</u>	Column Totals: <u>198</u> (A)	<u>544</u> (B)	Prevalence Index = B/A = <u>2.75</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>95</u>	x 2 = <u>190</u>																			
FAC species <u>60</u>	x 3 = <u>180</u>																			
FACU species <u>41</u>	x 4 = <u>164</u>																			
UPL species <u>2</u>	x 5 = <u>10</u>																			
Column Totals: <u>198</u> (A)	<u>544</u> (B)																			
Prevalence Index = B/A = <u>2.75</u>																				
50% of total cover: <u>55</u>		20% of total cover: <u>22</u>																		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
1. <u>Rosa multiflora</u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>																	
2. <u>Quercus palustris</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
3. <u>Ligustrum obtusifolium</u>	<u>2</u>	<u>No</u>	<u>UPL</u>																	
4. <u>Viburnum dentatum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
<u>67</u> =Total Cover																				
50% of total cover: <u>34</u>		20% of total cover: <u>14</u>																		
<u>Herb Stratum</u> (Plot size: <u>5</u> )				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.																
1. <u>Parthenocissus quinquefolia</u>	<u>1</u>	<u>No</u>	<u>FACU</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
<u>1</u> =Total Cover																				
50% of total cover: <u>1</u>		20% of total cover: <u>1</u>																		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
1. <u>Toxicodendron radicans</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>20</u> =Total Cover																				
50% of total cover: <u>10</u>		20% of total cover: <u>4</u>																		

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		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-6	10YR 3/2	90	10YR 3/6	10	C	M	Prominent redox concentrations
6-12	10YR 4/2	80	10YR 5/8	20	C	M	

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

<sup>2</sup>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)
- 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 Mucky Mineral (F1) (**MLRA 136**)
- 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 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Project/Site: Grove Run Dog Park City/County: Abington Township Sampling Date: 8-9-19  
 Applicant/Owner: Abington Township State: PA Sampling Point: 6  
 Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input checked="" type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>20</u> Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 RAIN LAST NIGHT



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

Sampling Point: 6

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer saccharinum</u>	<u>50</u>	Yes	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>62.5%</u> (A/B)																
2. <u>Ulmus americana</u>	<u>20</u>	Yes	FACW																	
3. <u>Fraxinus pennsylvanica</u>	<u>5</u>	No	FACW																	
4. <u>Prunus avium</u>	<u>1</u>	No	UPL																	
5. _____																				
6. _____																				
7. _____																				
	<u>76</u> =Total Cover			<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="text-align:center;">Total % Cover of:</td> <td style="text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>80</u></td> <td>x 2 = <u>160</u></td> </tr> <tr> <td>FAC species <u>50</u></td> <td>x 3 = <u>150</u></td> </tr> <tr> <td>FACU species <u>115</u></td> <td>x 4 = <u>460</u></td> </tr> <tr> <td>UPL species <u>6</u></td> <td>x 5 = <u>30</u></td> </tr> <tr> <td>Column Totals: <u>251</u> (A)</td> <td><u>800</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.19</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>80</u>	x 2 = <u>160</u>	FAC species <u>50</u>	x 3 = <u>150</u>	FACU species <u>115</u>	x 4 = <u>460</u>	UPL species <u>6</u>	x 5 = <u>30</u>	Column Totals: <u>251</u> (A)	<u>800</u> (B)	Prevalence Index = B/A = <u>3.19</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>80</u>	x 2 = <u>160</u>																			
FAC species <u>50</u>	x 3 = <u>150</u>																			
FACU species <u>115</u>	x 4 = <u>460</u>																			
UPL species <u>6</u>	x 5 = <u>30</u>																			
Column Totals: <u>251</u> (A)	<u>800</u> (B)																			
Prevalence Index = B/A = <u>3.19</u>																				
50% of total cover: <u>38</u>		20% of total cover: <u>16</u>																		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Viburnum plicatum</u>	<u>15</u>	Yes	FACU																	
2. <u>Lindera benzoin</u>	<u>15</u>	Yes	FAC																	
3. <u>Rosa multiflora</u>	<u>50</u>	Yes	FACU																	
4. <u>Ligustrum vulgare</u>	<u>5</u>	No	FACU																	
5. <u>Cornus florida</u>	<u>10</u>	No	FACU																	
6. <u>Ulmus americana</u>	<u>5</u>	No	FACW																	
7. _____																				
8. _____																				
9. _____																				
	<u>100</u> =Total Cover																			
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>																		
<u>Herb Stratum</u> (Plot size: <u>5</u> )				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.																
1. <u>Parthenocissus quinquefolia</u>	<u>50</u>	Yes	FACU																	
2. <u>Brassica rapa</u>	<u>5</u>	No	UPL																	
3. <u>Toxicodendron radicans</u>	<u>25</u>	Yes	FAC																	
4. _____			FACU																	
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
	<u>80</u> =Total Cover																			
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>																		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
1. <u>Toxicodendron radicans</u>	<u>10</u>	Yes	FAC																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
	<u>10</u> =Total Cover																			
50% of total cover: <u>5</u>		20% of total cover: <u>2</u>																		

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

**SOIL**

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 3/2	100					Loamy/Clayey	
2-18	10YR 4/1	60	2.5YR 4/6	40	C	M	Loamy/Clayey	
18-20	10YR 6/1	85	7.5YR 5/8	15	C	M	Loamy/Clayey	Prominent redox concentrations

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

<sup>2</sup>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)
- 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 Mucky Mineral (F1) (MLRA 136)
- 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 122, 136)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147, 148)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Red Parent Material (F21) (outside MLRA 127, 147, 148)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Project/Site: Grove Run Dog Park City/County: Abington Township Sampling Date: 8-9-19  
 Applicant/Owner: Abington Township State: PA Sampling Point: 7  
 Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.12841 Long: -75.126279 Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ 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 <u>x</u> Hydric Soil Present? Yes _____ No <u>x</u> Wetland Hydrology Present? Yes _____ No <u>x</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>x</u>
Remarks:	

**HYDROLOGY**

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

Remarks:

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

Sampling Point: 7

<u>Tree Stratum</u> (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer platanoides</u>	<u>25</u>	Yes	UPL	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>14.3%</u> (A/B)																
2. <u>Acer rubrum</u>	<u>35</u>	Yes	FAC																	
3. <u>Cornus florida</u>	<u>10</u>	No	FACU																	
4. <u>Prunus serotina</u>	<u>25</u>	Yes	FACU																	
5. _____																				
6. _____																				
7. _____																				
_____ = Total Cover	<u>95</u>			<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:right;">Total % Cover of:</td> <td style="width:50%; text-align:left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>40</u></td> <td>x 3 = <u>120</u></td> </tr> <tr> <td>FACU species <u>138</u></td> <td>x 4 = <u>552</u></td> </tr> <tr> <td>UPL species <u>25</u></td> <td>x 5 = <u>125</u></td> </tr> <tr> <td>Column Totals: <u>203</u> (A)</td> <td><u>797</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.93</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>40</u>	x 3 = <u>120</u>	FACU species <u>138</u>	x 4 = <u>552</u>	UPL species <u>25</u>	x 5 = <u>125</u>	Column Totals: <u>203</u> (A)	<u>797</u> (B)	Prevalence Index = B/A = <u>3.93</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>40</u>	x 3 = <u>120</u>																			
FACU species <u>138</u>	x 4 = <u>552</u>																			
UPL species <u>25</u>	x 5 = <u>125</u>																			
Column Totals: <u>203</u> (A)	<u>797</u> (B)																			
Prevalence Index = B/A = <u>3.93</u>																				
50% of total cover: <u>48</u>	<u>48</u>	20% of total cover: <u>19</u>																		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u> )				<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
1. <u>Rosa multiflora</u>	<u>80</u>	Yes	FACU																	
2. <u>Lindera benzoin</u>	<u>5</u>	No	FAC																	
3. <u>Lonicera japonica</u>	<u>5</u>	No	FACU																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
_____ = Total Cover	<u>90</u>																			
50% of total cover: <u>45</u>	<u>45</u>	20% of total cover: <u>18</u>																		
<u>Herb Stratum</u> (Plot size: <u>5</u> )				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.																
1. <u>Parthenocissus quinquefolia</u>	<u>5</u>	Yes	FACU																	
2. <u>Lonicera japonica</u>	<u>7</u>	Yes	FACU																	
3. <u>Vitis aestivalis</u>	<u>2</u>	No	FACU																	
4. <u>Rubus</u>	<u>4</u>	Yes	FACU																	
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
_____ = Total Cover	<u>18</u>																			
50% of total cover: <u>9</u>	<u>9</u>	20% of total cover: <u>4</u>																		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>  </u> No <u>  X  </u>																
1. _____																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
_____ = Total Cover																				
50% of total cover: _____		20% of total cover: _____																		

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

**SOIL**

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-4	10YR 3/2	100					
4-12	10YR 5/6	100					

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

<sup>2</sup>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)
- 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 Mucky Mineral (F1) (**MLRA 136**)
- 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 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

Project/Site: Grove Run Dog Park City/County: Abington Township Sampling Date: 8-9-19

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

Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_

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

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_

Soil Map Unit Name: \_\_\_\_\_ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks:	

**HYDROLOGY**

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

Remarks:  
rain last night

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

Sampling Point: 8

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer pensylvanicum</u>	<u>30</u>	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60.0%</u> (A/B)																
2. <u>Acer platanoides</u>	<u>25</u>	Yes	UPL																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
<u>55</u> = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>62</u></td> <td>x 2 = <u>124</u></td> </tr> <tr> <td>FAC species <u>50</u></td> <td>x 3 = <u>150</u></td> </tr> <tr> <td>FACU species <u>33</u></td> <td>x 4 = <u>132</u></td> </tr> <tr> <td>UPL species <u>25</u></td> <td>x 5 = <u>125</u></td> </tr> <tr> <td>Column Totals: <u>170</u> (A)</td> <td><u>531</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.12</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>62</u>	x 2 = <u>124</u>	FAC species <u>50</u>	x 3 = <u>150</u>	FACU species <u>33</u>	x 4 = <u>132</u>	UPL species <u>25</u>	x 5 = <u>125</u>	Column Totals: <u>170</u> (A)	<u>531</u> (B)	Prevalence Index = B/A = <u>3.12</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>62</u>	x 2 = <u>124</u>																			
FAC species <u>50</u>	x 3 = <u>150</u>																			
FACU species <u>33</u>	x 4 = <u>132</u>																			
UPL species <u>25</u>	x 5 = <u>125</u>																			
Column Totals: <u>170</u> (A)	<u>531</u> (B)																			
Prevalence Index = B/A = <u>3.12</u>																				
50% of total cover: <u>28</u>	20% of total cover: <u>11</u>																			
<b>Sapling/Shrub Stratum (Plot size: <u>15</u>)</b>																				
1. _____				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
_____ = Total Cover																				
50% of total cover: _____	20% of total cover: _____																			
<b>Herb Stratum (Plot size: <u>15</u>)</b>																				
1. <u>Impatiens capensis</u>	<u>30</u>	Yes	FACW	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.																
2. <u>Rubus pensilvanicus</u>	<u>50</u>	Yes	FAC																	
3. <u>Epilobium coloratum</u>	<u>25</u>	Yes	FACW																	
4. <u>Lythrum salicaria</u>	<u>3</u>	No	FACU																	
5. <u>Lobelia siphilitica</u>	<u>2</u>	No	FACW																	
6. <u>Carex conjuncta</u>	<u>5</u>	No	FACW																	
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
<u>115</u> = Total Cover																				
50% of total cover: <u>58</u>	20% of total cover: <u>23</u>																			
<b>Woody Vine Stratum (Plot size: <u>30</u>)</b>																				
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
_____ = Total Cover																				
50% of total cover: _____	20% of total cover: _____																			
Remarks: (Include photo numbers here or on a separate sheet.)																				

**SOIL**

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-4	10YR 4/2	100					
4-12	7.5YR 5/2	60	5YR 5/6	40	C	M	

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

<sup>2</sup>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)
- 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 Mucky Mineral (F1) (**MLRA 136**)
- 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 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:



<b>U.S. Army Corps of Engineers</b> <b>WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region</b> See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	<i>OMB Control #: 0710-xxxx, Exp: Pending          Requirement Control Symbol EXEMPT:          (Authority: AR 335-15, paragraph 5-2a)</i>
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Project/Site: Roychester Park City/County: Abington Township Sampling Date: 8-9-19  
 Applicant/Owner: Abington Township State: PA Sampling Point: 1  
 Investigator(s): Genevieve Rybicki, Michael Reilly Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.129 Long: -75.126 Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks:	

**HYDROLOGY**

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

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

Sampling Point: 1

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juglans cinerea</u>	<u>70</u>	<u>Yes</u>	<u>FACU</u>
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
<u>70</u> =Total Cover			
50% of total cover: <u>35</u>		20% of total cover: <u>14</u>	
Sapling/Shrub Stratum (Plot size: <u>15</u> )			
1. <u>Diospyros virginiana</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
<u>20</u> =Total Cover			
50% of total cover: <u>10</u>		20% of total cover: <u>4</u>	
Herb Stratum (Plot size: <u>5</u> )			
1. <u>Quercus palustris</u>	<u>1</u>	<u>No</u>	<u>FACW</u>
2. <u>Vitis aestivalis</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>
3. <u>Diospyros virginiana</u>	<u>2</u>	<u>No</u>	<u>FAC</u>
4. <u>Impatiens capensis</u>	<u>15</u>	<u>No</u>	<u>FACW</u>
5. <u>Microstegium vimineum</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
<u>88</u> =Total Cover			
50% of total cover: <u>44</u>		20% of total cover: <u>18</u>	
Woody Vine Stratum (Plot size: <u>5</u> )			
1. <u>Celastrus orbiculatus</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
2. _____			
3. _____			
4. _____			
5. _____			
<u>10</u> =Total Cover			
50% of total cover: <u>5</u>		20% of total cover: <u>2</u>	

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>16</u>	x 2 = <u>32</u>
FAC species <u>72</u>	x 3 = <u>216</u>
FACU species <u>100</u>	x 4 = <u>400</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>188</u> (A)	<u>648</u> (B)
Prevalence Index = B/A = <u>3.45</u>	

**Hydrophytic Vegetation Indicators:**

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is  $\leq 3.0^1$

4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

   Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Definitions of Four Vegetation Strata:**

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

**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

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

**Hydrophytic Vegetation Present?**    Yes       No X

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

**SOIL**

Sampling Point: 1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 4/3	100						
7-15	10YR 5/3	70	10YR 7/6	30	C	M		Distinct redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>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)
- 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 Mucky Mineral (F1) **(MLRA 136)**
- 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 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

## **Appendix C: Database Results**



## **Database Results**

Part 1 – Information for Planning and Consultation (IPAC), U.S. Fish and Wildlife Service

Part 2 – Pennsylvania Natural Diversity Inventory (PNDI), Pennsylvania Natural Heritage Program

Part 3 – Environmental Site Assessment Viewer, Pennsylvania Department of Environmental Protection



Part 1 – Information for Planning and Consultation (IPAC), U.S. Fish and Wildlife Service





# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Montgomery County, Pennsylvania



## Local office

Pennsylvania Ecological Services Field Office

☎ (814) 234-4090

📅 (814) 234-0748

MAILING ADDRESS

110 Radnor Road Suite 101  
State College, PA 16801-7987

PHYSICAL ADDRESS

110 Radnor Road  
Suite 101

State College, PA 16801-7987

<http://www.fws.gov/northeast/pafo/>

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

## Listed species

<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5949">https://ecos.fws.gov/ecp/species/5949</a>	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be

found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

**Bald Eagle** *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Sep 1 to Jul 31

**Blue-winged Warbler** *Vermivora pinus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds May 1 to Jun 30

**Golden Eagle** *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Breeds elsewhere

**Kentucky Warbler** *Oporornis formosus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Apr 20 to Aug 20

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

**Breeding Season (■)**

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort (|)**

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

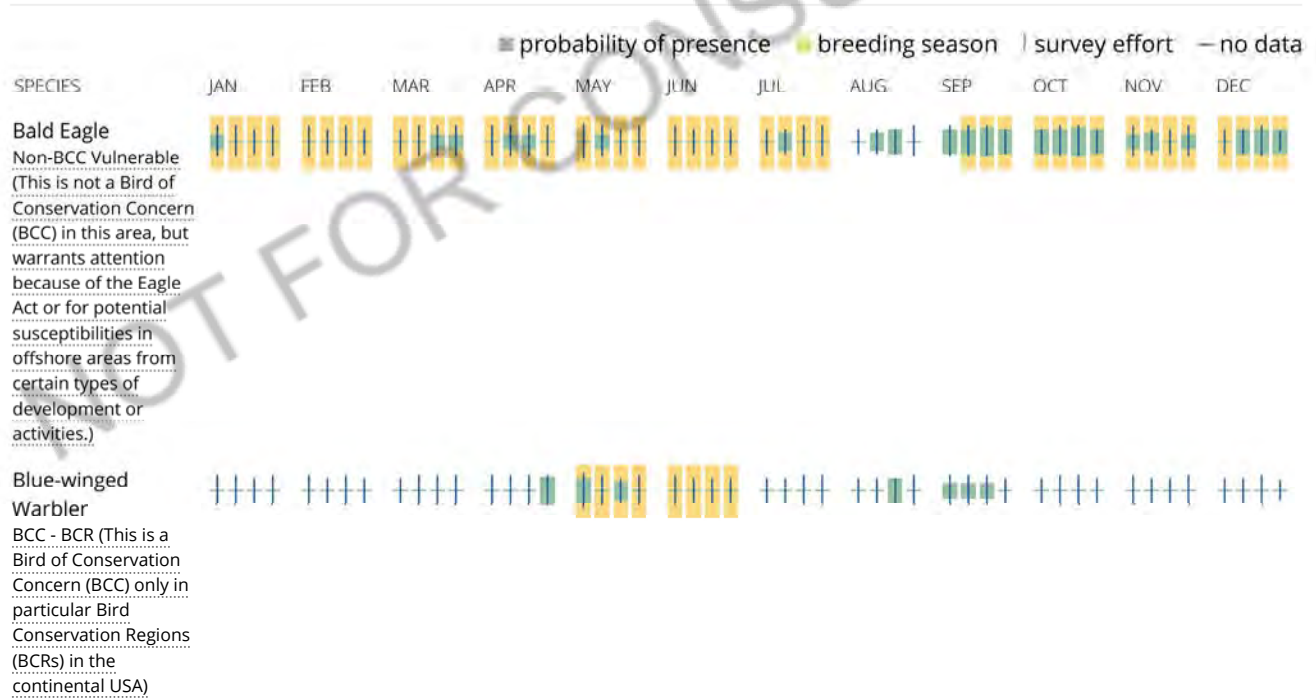
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data (-)**

A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

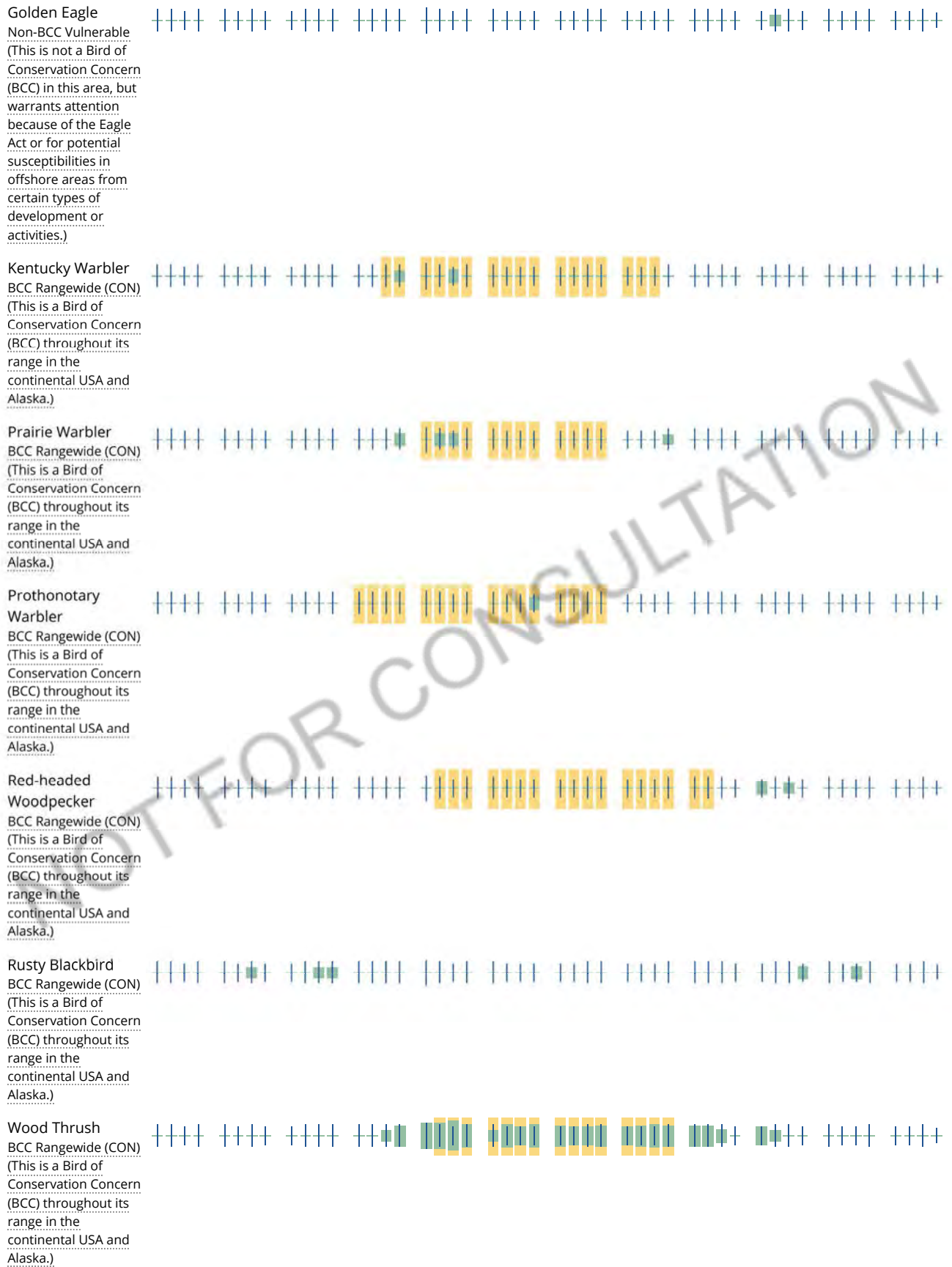
### Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

#### What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

#### What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

#### How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

#### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

#### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

#### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

#### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R4SBC](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

## IPaC for Roychester Park

**IPaC** Information for Planning and Consultation **U.S. Fish & Wildlife Service**

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Montgomery County, Pennsylvania



## Local office

Pennsylvania Ecological Services Field Office

☎ (814) 234-4090

📠 (814) 234-0748

MAILING ADDRESS

110 Radnor Road Suite 101  
State College, PA 16801-7987

PHYSICAL ADDRESS

110 Radnor Road  
Suite 101

State College, PA 16801-7987

<http://www.fws.gov/northeast/pafo/>

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

## Listed species

<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:



## Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5949">https://ecos.fws.gov/ecp/species/5949</a>	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be

found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

**Bald Eagle** *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Sep 1 to Jul 31

**Blue-winged Warbler** *Vermivora pinus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds May 1 to Jun 30

**Prairie Warbler** *Dendroica discolor*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 1 to Jul 31

**Rusty Blackbird** *Euphagus carolinus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

**Wood Thrush** *Hylocichla mustelina*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Aug 31

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

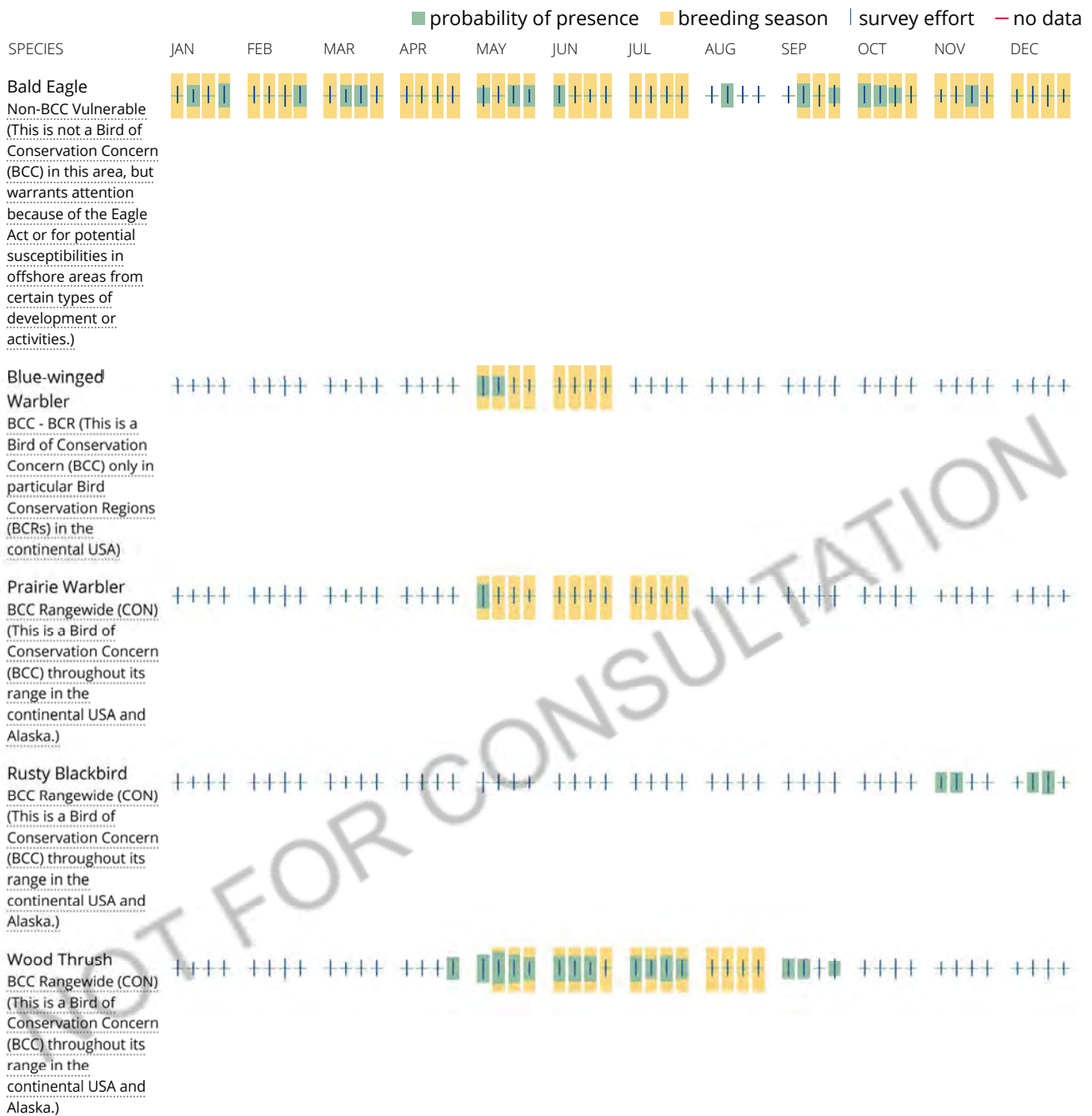
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that

may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

### **What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### **How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### **What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### **Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review.

Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

# Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

## Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

## Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

## Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Part 2 – Pennsylvania Natural Diversity Inventory (PNDI), Pennsylvania Natural Heritage Program





## 1. PROJECT INFORMATION

Project Name: **Sandy Run Stream Naturalization and Enhancement**

Date of Review: **12/18/2020 03:48:56 PM**

Project Category: **Habitat Conservation and Restoration, In-stream habitat restoration (habitat improvement structures)**

Project Area: **7.36 acres**

County(s): **Montgomery**

Township/Municipality(s): **ABINGTON TOWNSHIP**

ZIP Code:

Quadrangle Name(s): **AMBLER**

Watersheds HUC 8: **Schuylkill**

Watersheds HUC 12: **Lower Wissahickon Creek**

Decimal Degrees: **40.128700, -75.126643**

Degrees Minutes Seconds: **40° 7' 43.3214" N, 75° 7' 35.9138" W**

This is a draft receipt for information only. It has not been submitted to jurisdictional agencies for review.

## 2. SEARCH RESULTS

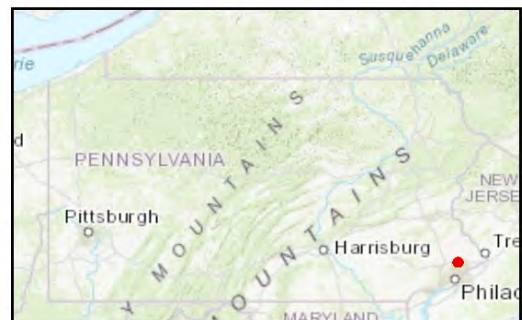
Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

## Sandy Run Stream Naturalization and Enhancement



- Project Boundary
- Buffered Project Boundary



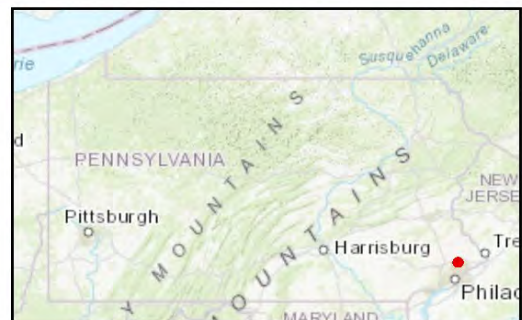
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China

## Sandy Run Stream Naturalization and Enhancement



- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, Garmin, Intemap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



### 3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

#### PA Game Commission

##### RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

#### PA Department of Conservation and Natural Resources

##### RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

#### PA Fish and Boat Commission

##### RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

#### U.S. Fish and Wildlife Service

##### RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

### 4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.

## 5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page ([www.naturalheritage.state.pa.us](http://www.naturalheritage.state.pa.us)). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.



## 1. PROJECT INFORMATION

Project Name: **Sandy Run Stream Regrading, Stabilization, and Floodplain Enhancement**

Date of Review: **12/18/2020 03:54:55 PM**

Project Category: **Habitat Conservation and Restoration, Streambank stabilization (with riprap)**

Project Area: **2.24 acres**

County(s): **Montgomery**

Township/Municipality(s): **ABINGTON TOWNSHIP**

ZIP Code:

Quadrangle Name(s): **HATBORO**

Watersheds HUC 8: **Schuylkill**

Watersheds HUC 12: **Lower Wissahickon Creek**

Decimal Degrees: **40.132736, -75.109393**

Degrees Minutes Seconds: **40° 7' 57.8486" N, 75° 6' 33.8145" W**

This is a draft receipt for information only. It has not been submitted to jurisdictional agencies for review.

## 2. SEARCH RESULTS

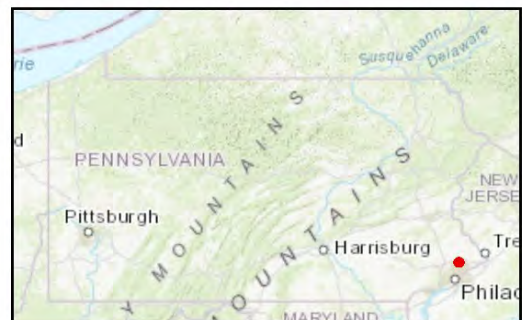
Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

## Sandy Run Stream Regrading, Stabilization, and Floodplain Enhancement



- Project Boundary
- Buffered Project Boundary



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China



# Sandy Run Stream Regrading, Stabilization, and Floodplain Enhancement



- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, Garmin, Intemap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



### 3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

#### PA Game Commission

##### RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

#### PA Department of Conservation and Natural Resources

##### RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

#### PA Fish and Boat Commission

##### RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

#### U.S. Fish and Wildlife Service

##### RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

### 4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.

## 5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page ([www.naturalheritage.state.pa.us](http://www.naturalheritage.state.pa.us)). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.



Part 3 – Environmental Site Assessment Viewer, Pennsylvania Department of Environmental Protection

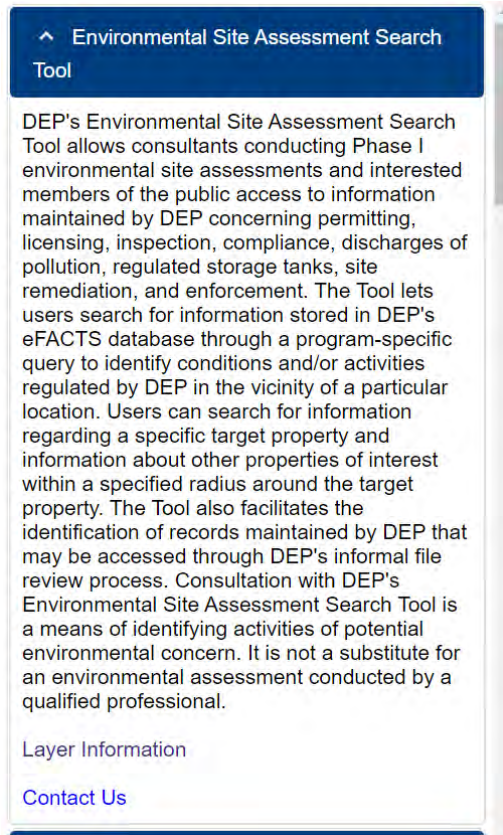


# Pennsylvania Department of Environmental Protection Environmental Site Assessment Search

Roychester and Grove Park, Abington PA

Conducted on 18 March 2021

<https://gis.dep.pa.gov/esaSearch/>



Environmental Site Assessment Search Tool

DEP's Environmental Site Assessment Search Tool allows consultants conducting Phase I environmental site assessments and interested members of the public access to information maintained by DEP concerning permitting, licensing, inspection, compliance, discharges of pollution, regulated storage tanks, site remediation, and enforcement. The Tool lets users search for information stored in DEP's eFACTS database through a program-specific query to identify conditions and/or activities regulated by DEP in the vicinity of a particular location. Users can search for information regarding a specific target property and information about other properties of interest within a specified radius around the target property. The Tool also facilitates the identification of records maintained by DEP that may be accessed through DEP's informal file review process. Consultation with DEP's Environmental Site Assessment Search Tool is a means of identifying activities of potential environmental concern. It is not a substitute for an environmental assessment conducted by a qualified professional.

[Layer Information](#)

[Contact Us](#)

- When you have more than 10 items, only select one layer.
- Erosion and Sedimentation Control Facility
  - GP12 Prep Plant Emissions Operation
  - Industrial Mineral Mining Operation
  - Land Recycling Cleanup Location
  - Mine Drainage Treatment Land Recycling P
  - Municipal Waste Operation
  - Oil and Gas Encroachment Location
  - Oil and Gas Entity
  - Oil and Gas Location
  - Oil and Gas Water Pollution Control Facility
  - Residual Waste Operation
  - Storage Tanks Active
  - Storage Tanks Inactive
  - Water Pollution Control Facility
  - Water Resources

Select All Clear All

Use Search for Location to buffer

Enter the buffer distance:  
0.3 Miles

Create Buffer

Toggle Layers  
Measurement



No Results  
No results found

Create Informal Request Summary Report

**PA.GOV**  
Tom Wolf, Governor

Environmental Site Assessment Search Tool

Legend

Proximity Buffer

**Search for Location:**  
Enter address, place, or latitude and longitude to locate on map.

Nylsor Park, Abington PA

Layer Information

Select at least one layer to buffer:  
If the buffer distance is greater than 10 miles, only select one layer.

- AML Inventory Site
- AML Point Feature
- AML Polygon Feature
- Air Emission Plant
- Beneficial Land Use
- Captive Hazardous Waste Operation
- Coal Mining Operation
- Coal Pillar Mining
- Coal Pillar Oil and Gas
- Commercial Hazardous Waste Operation
- Encroachment Location
- Erosion and Sedimentation Control Facility
- GP12 Prep Plant Emissions Operation
- Industrial Mineral Mining Operation

SEPTA R2- Basemaps

esri

Grove Park phase1...zip

Show all

**PA.GOV**  
Tom Wolf, Governor

Environmental Site Assessment Search Tool

Legend

Proximity Buffer

**Search for Location:**  
Enter address, place, or latitude and longitude to locate on map.

Nylsor Park, Abington PA

Layer Information

Select at least one layer to buffer:  
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- AML Inventory Site
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- Coal Pillar Mining
- Coal Pillar Oil and Gas
- Commercial Hazardous Waste Operation
- Encroachment Location
- Erosion and Sedimentation Control Facility
- GP12 Prep Plant Emissions Operation
- Industrial Mineral Mining Operation

Select All Clear All

Use Search for Location to buffer

Enter the buffer distance:  
0.3 Miles

Create Buffer

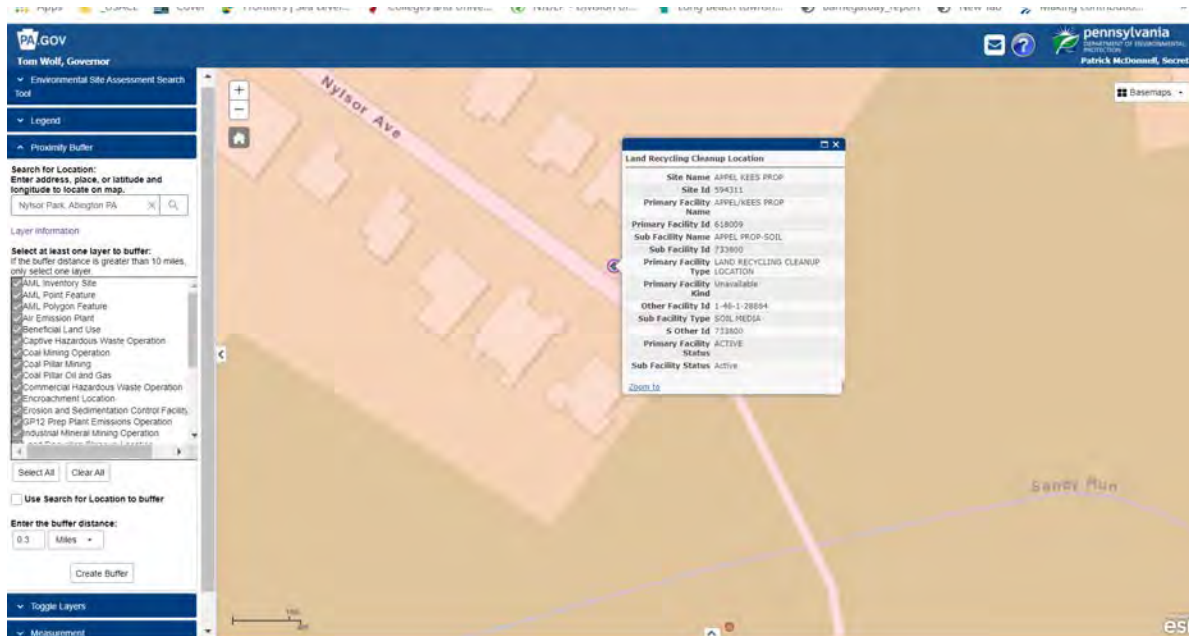
Toggle Layers

Measurement

SEPTA R2- Basemaps

esri





Land Recycling Cleanup Location Land Recycling Cleanup Locations (LRCL) are divided into one or more sub-facilities categorized as media: Air, Contained Release or Abandoned Container, Groundwater, Sediment, Soil, Surface Water, and Waste. Media is the environmental resource that is associated with the cleanup effort. The following primary facility kinds describe the Acts from which cleanup locations are derived: Act2 Land Recycling and Environmental Remediation Standards The first declaration of Section 102 of the policy provides a brief description of the purpose of Act2: The elimination of public health and environmental hazards on existing commercial and industrial land across this Commonwealth is vital to their use and reuse as sources of employment, housing, recreation, and open-space areas. The reuse of industrial land is an important component of a sound land use policy that will help prevent the needless development of prime farmland, open-space areas and natural areas and reduce public costs for installing new water, sewer, and highway infrastructure. CERCLA Comprehensive Environmental Response, Compensation, and Liability Act, also known as the Superfund This act was passed by Congress as a federal law in December of 1980, creating a tax on chemical and petroleum industries to: Identify and respond to sites from which releases of hazardous substances into the environment have occurred or could potentially occur Ensure they are cleaned up by responsible parties or through government funding Evaluate damages to natural resources HSCA Hazardous Sites Cleanup Act [This Act] provides the Department of Environmental Protection (DEP) with the funding and the authority to conduct cleanup actions at sites where hazardous substances have been released. HSCA also provides DEP with enforcement authorities to force the persons who are responsible for releases of hazardous substances to conduct cleanup actions or to repay public funds spent on a DEP funded cleanup action. HSCA funds are also used to pay the state share of costs of cleanup actions at Pennsylvania sites in the Federal Superfund program. Under the provisions of HSCA, most HSCA sites involve bankrupt facility owners, abandoned facilities, and inappropriate disposal of hazardous substances. As a general rule, HSCA sites do not include active facilities with financially viable owners. Other The Other primary facility kind includes a mixture of various different cleanup sites, no further action sites, and potential sites. This is optional data that the regional offices are not required to maintain. STSP Storage Tank Spill and Prevention Act Releases and/or ruptures from improperly installed or faulty storage tanks contaminate

the Commonwealth's land and water resources. This act was passed to prevent such contamination through "improved safeguards on the installation and construction of storage tanks."



## **Appendix D: Clean Air Act Assessment**



**General Conformity Review and Emission Inventory:  
Abington Environmental Infrastructure Improvement Project**

Table 1 provides an emission inventory for the Abington Stormwater Infrastructure Improvement Project based on a list of equipment assumed to be necessary for construction and an estimate of for NO<sub>x</sub>, VOC, and PM<sub>2.5</sub> emissions from the equipment. The estimate of NO<sub>x</sub> and VOC emissions is calculated based on the number of engines, engine size (hp), and duration of operation (EQ Hours [hrs]), a load factor (LF) (based on average percentage of rated horsepower during use during the project). Load factors are based on other General Conformity Reviews and Emission Inventories from similar projects.

Table 1 shows the estimated hp-hr required for each equipment/engine category. Hp-hr was calculated using the following equation:

$$\text{hp-hr} = \# \text{ of engines} * \text{hp} * \text{LF} * \text{hrs/day} * \text{days of operation}$$

The total amount of emissions NO<sub>x</sub>, VOC, PM<sub>2.5</sub> emissions generated from each equipment/engine category is calculated by multiplying the power demand (hp-hr) by an emission factor (g/hp-hr) and converted to tons for each piece of individual equipment/engine category and the combined total. The following equations were used:

$$\text{emissions (g)} = \text{power demand (hp-hr)} * \text{emission factor (g/hp-hr)}$$

$$\text{emissions (tons)} = \text{emissions (g)} * (1 \text{ ton}/907200 \text{ g})$$

# General Conformity Review and Emission Inventory for Abington Infrastructure Improvement Project

## Table 1. Project Emission Sources and Estimated Power

Abington Sec 566 Environmental Infrastructure Improvement

Total Project Emissions

TABLE 1 - PROJECT EMISSION SOURCES AND ESTIMATED POWER

	# of Engines	HP	Load Factor (LF)	EQ Hours	hp-hr	NOx		VOC		PM2.5	
						Emission Factors (g/hp-hr)	Emissions (tons)	Emission Factors (g/hp-hr)	Emissions (tons)	Emission Factors (g/hp-hr)	Emissions (tons)
TRUCK, HIGHWAY, 20,000 LBS (9,000 KG)	1	362	0.570	34.00	7,015.6	8.100	0.063	0.700	0.005	0.400	0.003000
TRUCK, HIGHWAY, 25,000 LB (11,340 KG)	1	320	0.570	17.00	3,100.8	8.160	0.028	0.760	0.003	0.400	0.001000
TRUCK, HIGHWAY, CONVENTIONAL,	1	130	0.570	1.00	74.1	10.330	0.001	0.540	0.000	0.400	0.000000
TRUCK, HIGHWAY, 45,000 LB (20,412 KG)	1	230	0.570	2.00	262.2	10.720	0.003	0.670	0.000	0.400	0.000000
TRUCK, HIGHWAY, 35,000 LB (15,876 KG)	1	265	0.570	5.00	755.3	10.000	0.008	0.800	0.001	0.400	0.000000
DUMP TRUCK, HIGHWAY, 10 - 13 CY (7.6 -	1	250	0.800	2,000.00	400,000.0	9.200	4.057	0.910	0.401	0.400	0.176000
DUMP TRUCK, HIGHWAY, 16 - 20 CY	1	400	0.800	6.00	1,920.0	9.200	0.019	0.910	0.002	0.400	0.001000
(SUBURBAN)	1	135	0.570	1.00	77.0	9.200	0.001	0.910	0.000	0.400	0.000000
AIR COMPRESSOR, 250 CFM ( 7 CMM),	1	74	1.000	23.00	1,702.0	9.500	0.018	0.910	0.002	0.400	0.001000
CRANES, MECHANICAL, LATTICE	1	197	0.590	45.00	5,230.4	9.500	0.055	0.910	0.005	0.400	0.002000
CRANE, MECHANICAL, LATTICE BOOM,	1	285	0.590	24.00	4,035.6	9.500	0.042	0.910	0.004	0.400	0.002000
CRANE, HYDRAULIC, TRUCK	1	130	0.590	41.00	3,144.7	9.500	0.033	0.910	0.003	0.400	0.001000
CRANE, HYDRAULIC, SELF-PROPELLED,	1	80	0.590	152.00	7,174.4	9.500	0.075	0.910	0.007	0.400	0.003000
CRANE, HYDRAULIC, TRUCK	1	245	0.590	254.00	36,715.7	9.500	0.384	0.910	0.037	0.400	0.016000
HYDRAULIC EXCAVATOR, CRAWLER	1	345	0.590	16.00	3,256.8	9.500	0.034	0.910	0.003	0.400	0.001000
HYDRAULIC EXCAVATOR, CRAWLER,	1	110	0.590	7.00	454.3	9.500	0.005	0.910	0.000	0.400	0.000000
HYDRAULIC EXCAVATOR, CRAWLER,	1	93	0.570	40.00	2,115.8	9.500	0.022	0.910	0.002	0.400	0.001000
HYDRAULIC EXCAVATOR, CRAWLER,	1	115	0.590	7.00	475.0	9.500	0.005	0.910	0.000	0.400	0.000000
HYDRAULIC EXCAVATOR, CRAWLER,	1	70	0.590	2.00	82.6	9.500	0.001	0.910	0.000	0.400	0.000000
HYDRAULIC EXCAVATOR, CRAWLER,	1	176	0.590	26.00	2,699.8	9.500	0.028	0.910	0.003	0.400	0.001000
CRANE, HYDRAULIC, TRUCK	1	355	0.590	3.00	628.4	9.500	0.007	0.910	0.001	0.400	0.000000
CRANE, HYDRAULIC, TRUCK	1	130	0.590	8.00	613.6	9.500	0.006	0.910	0.001	0.400	0.000000
CRANE, HYDRAULIC, TRUCK	1	245	0.590	200.00	28,910.0	9.500	0.303	0.910	0.029	0.400	0.013000
LOADER/BACKHOE, WHEEL, 1.10 CY	1	74	0.590	64.00	2,794.2	9.500	0.029	0.910	0.003	0.400	0.001000
LOADER/BACKHOE, WHEEL, 1.40 CY	1	91	0.590	13.00	698.0	9.500	0.007	0.910	0.001	0.400	0.000000
LOADER, FRONT END, WHEEL,	1	74	0.430	5.00	159.1	9.500	0.002	0.910	0.000	0.400	0.000000
LOADER, FRONT END, WHEEL,	1	169	0.430	5.00	363.4	9.500	0.004	0.910	0.000	0.400	0.000000
LOADER, FRONT END, WHEEL, SKID-	1	49	0.590	8.00	231.3	9.500	0.002	0.910	0.000	0.400	0.000000
TRACTOR, CRAWLER (DOZER), 76-100	1	80	0.640	21.00	1,075.2	9.500	0.011	0.910	0.001	0.400	0.000000
TRACTOR, CRAWLER (DOZER), 300-340	1	310	0.640	33.00	6,547.2	9.500	0.069	0.910	0.007	0.400	0.003000
TRACTOR, CRAWLER (DOZER), 181-250	1	240	0.640	1.00	153.6	9.500	0.002	0.910	0.000	0.400	0.000000
CONCRETE PUMP, PUMP & BOOM, 117	1	210	0.740	4.00	621.6	9.200	0.006	0.910	0.001	0.400	0.000000
GRADER, MOTOR, ARTICULATED, 215	1	259	0.610	1.00	158.0	9.200	0.002	0.910	0.000	0.400	0.000000
MAN-LIFT, LINE-TRUCK, W/ 1,000 LB (454	1	270	0.460	11.00	1,366.2	9.200	0.014	0.910	0.001	0.400	0.001000
BRUSH CHIPPER, 12" (305 MM) DIA LOG	1	174	0.730	11.00	1,397.2	9.200	0.014	0.910	0.001	0.400	0.001000
			Total Hours	1,093.00		Subtotals:	5.360				
						NOx Emissions (tons) =	5.4	VOCs Emissions (tons) =	0.5	PM2.5 Emissions (tons) =	0.23

**Appendix E:**  
**Executive Order 11988 Evaluation**





## Executive Order 11988 Evaluation

General procedures required by USACE (ER 1126-2-65) to implement Executive Order (EO) 11988 include an 8-step "decision making process". The following is the EO 11988 evaluation for the Abington Environmental Infrastructure Improvement Project.

a. Determine if the proposed action is in the base flood plain.

*The project is in the base flood plain.*

b. If the action is in the base flood plain, identify and evaluate practicable alternatives to the action or to location of the action in the base flood plain as outlined in paragraph 7 above.

*As a stream and riparian restoration and enhancement project, there are no practicable alternatives to the action that would locate it outside of the base flood plain.*

c. If the action must be in the flood plain, advise the general public in the affected area and obtain their views and comments.

*This project is being completed at the request of Abington Township (the non-federal sponsor for this project) and has the support of the public. The project will not affect flow levels in the area.*

d. Identify beneficial and adverse impacts due to the action and any expected losses of natural and beneficial flood plain values. Where actions proposed to be located outside the base flood plain will affect the base flood plain, impacts resulting from these actions should also be identified.

*Impacts of the action are outlined in the Environmental Effects section of the draft Environmental Assessment (EA). As outlined in the draft EA, the effects of the project will be beneficial to flood plain values.*

e. If the action is likely to induce development in the base flood plain, determine if a practicable non-flood plain alternative for the development exists, as outlined in paragraph 7, above.

*The action is not likely to induce development in the base flood plain.*

f. As part of the planning process under the Principles and Guidelines, determine viable methods to minimize any adverse impacts of the action including any likely induced development for which there is natural and beneficial flood plain values. This should include reevaluation of the "no action" alternative.

*The action will not have adverse impacts and is not likely to induce development.*

g. If the final determination is made that no practicable alternative exists to locating the action in the flood plain, advise the general public in the affected area of the findings.

*There are no practicable alternatives outside of the base flood plain that meet the purpose and need of this project. Abington Township (the non-federal sponsor for this project) has notified the public of this project through public meetings, and USACE has circulated scoping letters as well as a draft EA for public review.*

h. Recommend the plan most responsive to the planning objectives established by the study and consistent with the requirements of the Executive Order stated in paragraph 6 above.

*With the recommended plan, USACE Philadelphia District has designed the project to avoid, to the extent possible, long-and short-term adverse impacts associated with the occupancy and modification of the base flood plain, and has avoided direct and indirect support of development in the base flood plain wherever there is a practicable alternative. The design of the recommended plan does not entail development in the base flood plain and is designed to restore and preserve the natural and beneficial values of the base flood plain. The design will have no effect on the hazard and risk associated with floods, and will have no effect on the impact of floods on human safety, health and welfare.*

**Appendix F:**  
**Clean Water Act Section 404(b)(1) Record of Consideration**



# CLEAN WATER ACT SECTION 404 (b)(1) EVALUATION U.S. ARMY CORPS OF ENGINEERS

Abington Water Resources Infrastructure Project,

January 14, 2021

## PROJECT DESCRIPTION

**Location.** The project area is located in the Sandy Run Creek watershed in Abington, PA.

**General Description.** The project entails improvements to two distinct reaches of Sandy Run Creek in Abington, PA. Improvements will be made by relocating a sewer line, replacement of culverts, grading and planting degraded sections of the stream channel to restore connection to the floodplain, stabilizing eroding areas with stone, removing concrete lining and gabion baskets, and encouraging a meandering thalweg with stone, logs, and root wads. Additionally, a stormwater outlet will be re-located to create a stream, which will entail grading in a forested area for the new stream channel as well as grading to create depressional areas to encourage on-site storage of runoff and stream overflows.

**Purpose.** The purpose of this project is to improve channel stability, floodplain function, and aquatic habitat in Sandy Run Creek at Roychester Park and Grove Park in Abington Township, Pennsylvania.

### 1. Review of Compliance (Section 230.10(a)-(d))

- a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its purpose.

YES

- b. The activity does not appear to:

1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their critical habitat; and 3) violate requirements of any Federally designated marine sanctuary

YES

- c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values

YES

- d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem

YES

2. Technical Evaluation Factors (Subparts C-F).

*Responses are written in italics (Not Significant, Significant, or N/A)*

a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C) (Sec. 230.20-230.25).

- 1) Substrate. *Not Significant*
- 2) Suspended particulates/turbidity. *Not Significant*
- 3) Water. *Not Significant*
- 4) Current patterns and water circulation. *Not Significant*
- 5) Normal water fluctuations. *Not Significant*
- 6) Salinity gradients. *N/A*

b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D) (Sec. 230.30-230.32).

- 1) Threatened and endangered species. *Not Significant*
- 2) Fish, crustaceans, mollusks and other aquatic organisms in the food web. *Not Significant*
- 3) Other wildlife. *Not Significant*

c. Potential Impacts on Special Aquatic Sites (Subpart E) (Sec. 230.40-230.45).

- 1) Sanctuaries and refuges. *N/A*
- 2) Wetlands. *Not Significant*
- 3) Mud flats. *N/A*
- 4) Vegetated shallows. *N/A*
- 5) Coral reefs. *N/A*
- 6) Riffle and pool complexes. *Not Significant*

d. Potential Effects on Human Use Characteristics (Subpart F) (Sec 230.50-230.45)

- 1) Municipal and private water supplies. *N/A*
- 2) Recreational and commercial fisheries. *Not Significant*
- 3) Water-related recreation. *Not Significant*
- 4) Aesthetics. *Not Significant*
- 5) Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves. *Not Significant*

1. Evaluation and Testing (Subpart G) (Sec. 230.60-230.61)

*Responses are written in italics (Yes or No)*

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material.

- 1) Physical characteristics, *Yes*
- 2) Hydro-geography in relation to known or anticipated sources of contaminants, *Yes*
- 3) Results from previous testing of the material or similar material in the vicinity of the project, *Yes*
- 4) Known, significant sources of persistent pesticides from land runoff or percolation, *Yes*
- 5) Spill records for petroleum products or designated hazardous substances (Section 311 of CWA) , *Yes*
- 6) Public records of significant introduction of contaminants from industries, municipalities, or other sources, *Yes*
- 7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities, *Yes*
- 8) Other sources (specify) *N/A*

List appropriate references: *For further information, see HTRW section of EA. No known contaminants exist in the project area. The only fill material to be brought from off-site will be clean stone, with the potential for a small amount of clean dirt for the closing of a storm water outfall in Grove Park.*

Draft Environmental Assessment for

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints. The material meets the testing exclusion criteria.

*YES*

2. Disposal Site Delineation (Section 230.11(f)).

*Responses are written in italics (Yes, No, or N/A)*

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

- 1) Depth of water at disposal site, *Yes*
- 2) Current velocity, direction, and variability at the disposal site, *Yes*
- 3) Degree of turbulence, *Yes*
- 4) Water column stratification, *Yes*



- 5) Discharge vessel speed and direction, *Yes*
- 6) Rate of discharge, *Yes*
- 7) Dredged/fill material characteristics (constituents, amount, and type of material, settling velocities), *Yes*
- 8) Number of discharges per unit of time, *N/A*
- 9) Other factors affecting rates and patterns of mixing (specify) *N/A*

List appropriate references: *The project entails grading of existing soil to reshape or create stream channels, and does not involve dredging or dredge material disposal. Material that could be considered "fill" consists of native soil that is graded into a different shape, clean stone, and re-handled stone within the existing stream channel. Stream flow will be diverted downstream temporarily during construction to prevent and minimize disturbance to the water column.*

- b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable

*YES*

3. Actions to Minimize Adverse Effects (Subpart H) (Sec. 230.70-230.77).

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

*YES*

List actions taken:

- a. A stream channel diversion will be used to avoid and minimize a sediment plume.
- b. A sediment and erosion control plan is in place to minimize migration of sediments into streams and wetlands.
- c. Project plans were designed to improve habitat in streams and riparian zones.

4. Factual Determination (Section 230.11).

*Responses are written in italics (Yes, No, or N/A)*

A review of appropriate information as identified in items 2 - 5 above indicates that there is minimal potential for short or long term environmental effects of the proposed discharge as related to:

- a. Physical substrate (review sections 2a, 3, 4, and 5 above). *Yes*
- b. Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5). *Yes*

- c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5). Yes
- d. Contaminant availability (review sections 2a, 3, and 4). Yes
- e. Aquatic ecosystem structure, function and organisms (review sections 2b and c, 3, and 5) Yes
- f. Proposed disposal site (review sections 2, 4, and 5). Yes
- g. Cumulative effects on the aquatic ecosystem. Yes
- h. Secondary effects on the aquatic ecosystem. Yes

5. Findings of Compliance or non-compliance. (Sec. 230.12)

The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines: YES



**Appendix G:**  
**Monitoring and Adaptive Management Plan**

**Abington Environmental Infrastructure Improvement Project  
Abington Township, Montgomery County, Pennsylvania  
Section 566 of the Water Resources Development Act of 1996  
Monitoring and Adaptive Management Plan**

**PREPARED BY:  
PHILADELPHIA DISTRICT  
U.S. ARMY CORPS OF ENGINEERS  
PHILADELPHIA, PENNSYLVANIA 19107**

**March 2022**

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## **1. Introduction**

The Abington Environmental Infrastructure Improvement Project, Section 566 (project), is a stream and habitat improvement and enhancement project in Abington Township, Pennsylvania adjacent to and along Sandy Run Creek. The project is authorized under Section 566 of the Water Resources Development Act (WRDA) of 1996 (Public Law 104-303), which was amended by Section 552 of WRDA 1999 (Public Law 106-53) to include environmental restoration as an authorized project purpose.

This Monitoring and Adaptive Management Plan (plan) was prepared for the project for 5 years post construction to be accomplished by USACE and the non-Federal Sponsor. Section 2039 of WRDA 2007 directs USACE to develop an adaptive management plan for all ecosystem restoration projects. The adaptive management plan must be appropriately scoped to the scale of the project and shall include a description of the monitoring activities, success criteria, actions to be taken if success criteria are not achieved, monitoring duration, and the estimated cost of the monitoring and adaptive management. The data generated by monitoring will be used by the Philadelphia District (the District) and the non-federal sponsor to guide decisions on operational or structural changes that may be needed to confirm that the project achieves the ecosystem enhancement goals and objectives.

## **2. Purpose of the Plan**

The purpose of this plan is to assess the success or failure of the habitat enhancements associated with the project after initial construction. Information gathered under this monitoring plan will provide insights into the effectiveness of the current habitat enhancement project, indicate where goals are being achieved or if additional management is warranted. Habitat enhancements can take a long time to reach dynamic equilibrium; therefore, a monitoring period of 5 years will be used to assess if the site is on a trajectory toward ecological success.

This plan identifies variables to be evaluated to determine success (i.e., performance targets); measurements to evaluate those variables; recommended frequency and duration of the monitoring; reporting requirements; schedule; and a cost estimate to implement the plan. The plan presents performance targets and potential corrective actions (i.e., adaptive management). Monitoring and adaptive management components will be refined as the project gets closer to completion. This version of the monitoring plan is based on the 95% plans and specifications and the Environmental Assessment for the project.

## **3. Project Background**

### **3.1. Project Area Description**

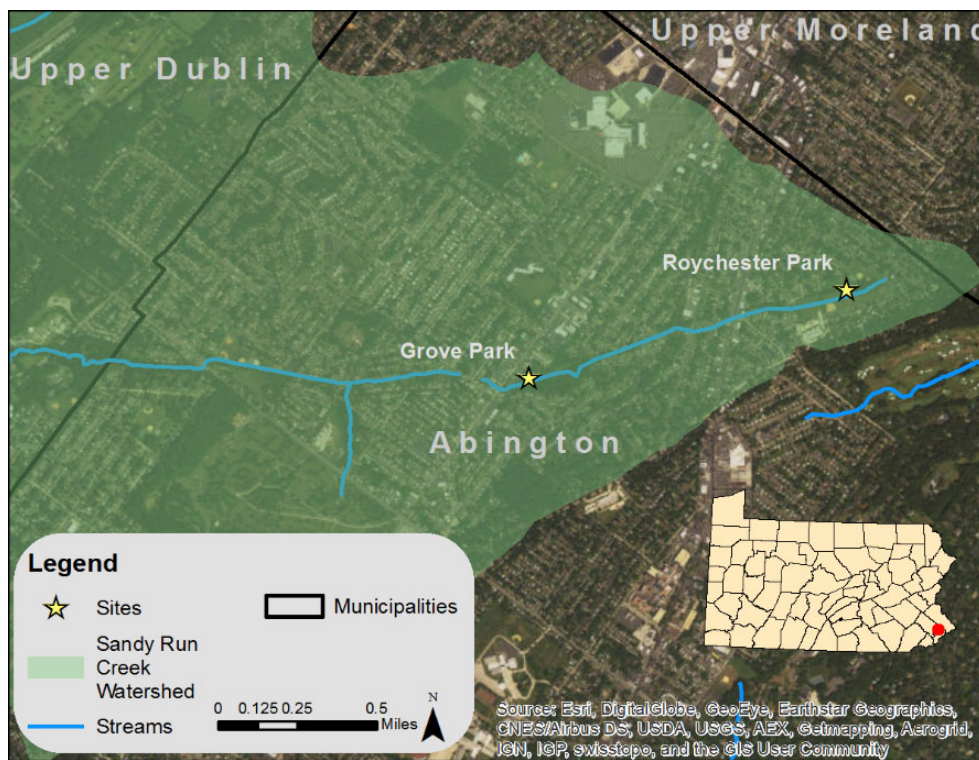
Sandy Run Creek (also referred to as Sandy Run), part of the Wissahickon Creek Watershed (Figure 1), is a stream system that has been adversely affected by development and land use practices over the past century. Due to high levels of impervious surfaces throughout the watershed, the creek responds quickly during rain events, and increases in stream flow with erosive forces occur almost immediately following the onset of storm events. These changes in hydrologic conditions within the watershed have caused severe channel destabilization and riparian habitat degradation within much of the watershed.

The banks of the above ground segments of Sandy Run Creek within Roychester Park are severely eroded. The significant erosion of these banks disconnects the streambed from the surrounding floodplain, provides poor habitat for both aquatic and wetland species, and transports sediment to downstream locations creating further aquatic habitat impairment. The municipality has installed native vegetation plantings in the riparian buffer area of the very upper reaches of the stream in Roychester Park, but the presence of invasive species in the remaining riparian areas

continue to degrade the riparian habitat by preventing the further recruitment and establishment of native species. Native plant species provide vital habitat to wildlife that utilize the riparian buffer areas.

The main stem of Sandy Run Creek in Grove Park has been channelized and lined with concrete and gabions and was relocated to its current location in Grove Park several decades ago. Prior to this, the creek and two small tributaries meandered through the park. The portions of the original channel and at least one tributary still exist but they lack base flow; and only serve as a high flow channels during storm events. The easternmost tributary is significantly silted in. The limited vegetated buffer of this high flow channel has significant invasive species issues, which severely degrades the habitat value of the riparian buffer.

Additional information and photographs of the existing conditions are available in the Environmental Assessment ([https://www.nap.usace.army.mil/Portals/39/docs/Civil/Reports/Abington/Draft-FONSI-and-Draft-EA-Abington-566-April-2021.pdf?ver=ules2yoouZNN\\_TK26IYjXg%3D%3D](https://www.nap.usace.army.mil/Portals/39/docs/Civil/Reports/Abington/Draft-FONSI-and-Draft-EA-Abington-566-April-2021.pdf?ver=ules2yoouZNN_TK26IYjXg%3D%3D)).



**Figure 1: Project Location**

### 3.2. Project Purpose and Objectives

The purpose of the project is to stabilize, naturalize, and improve ecosystem function along Sandy Run Creek at Roychester Park and Grove Park (Figure 1). The specific objectives are to enhance and restore aquatic, wetland, and riparian habitat, improve infiltration of flood waters, stabilize stream banks, control invasive species, and reconnect floodplains along the Sandy Run Creek in Roychester Park and Grove Park in Abington Township, Pennsylvania.



### 3.3. Restoration Scope

At Roychester Park, opportunities exist to stabilize eroding banks, reconnect the floodplains, and restore riparian habitat along the eroded above ground reaches of the creek (approximately 800 linear feet). This would include restoring riparian habitat within Roychester Park where the stream banks are currently extremely eroded. Specific components that would be monitored include the following.

- Bank Stabilization: Regrade, stabilize, and plant stream banks to reduce erosion and sedimentation in this stretch of Sandy Run.
- Riparian Enhancement: Provide 20 to 25 feet of continuous riparian buffers along the creek, to the extent possible.
- Upland Native Planting: Plant a native wildflower meadow near Corinthian Avenue on a hill that has little recreational value.

Components that would not be monitored include:

- Culvert Replacement: Replace two culverts with pre-fabricated steel footbridges.
- Sanitary Sewer Relocation: Replace and relocate approximately 760 feet of sewer line and manholes that have been exposed due to ongoing erosion.

Expected benefits at Roychester include:

- Improvement of 0.6 acres of riparian buffer, 0.15 acres of wildflower meadow, and streambank stabilization would reduce erosion, sedimentation, and nutrients in Sandy Run and improve wildlife habitat.
- Removal of sanitary sewer line from stream bed will prevent potential failure and associated contamination of Sandy Run and future utility work in the stream bed

At Grove Park, opportunities exist to reconnect the floodplains and restore riparian habitat by removing the concrete lining from approximately 400 linear feet of the stream bed, removing the gabion baskets lining approximately 1,300 linear feet of stream bank and using natural stream stabilization methods and native vegetation plantings. The forested floodplain south of Sandy Run contains wetlands and two ephemeral tributaries; parts of these may be remnants of the former main stem of Sandy Run Creek within Grove Park. The forested floodplains are dominated by invasive species (especially multiflora rose [*Rosa polyantha*]). The tributaries are degraded due to sedimentation, disconnection from regular flow, and predominance of invasive plants. The forested floodplain and wetland habitat will be enhanced by relocating a tributary through the forested floodplain to increase storm water storage within the forested floodplain. Specific components that would be monitored include the following.

- Stream Naturalization and Stabilization: Remove existing gabion baskets, regrade banks with stream benches to better connect the main channel with the forested riparian buffer. Remove 370 linear feet of concrete channel bottom and replaced with stream substrate of riprap choked with smaller stone. Provide additional stream stabilization using large woody debris.
- Riparian Enhancement: Plant riparian area from the top of bank to a width of up to approximately 50 feet on both sides of the stream with native tree, shrub, and herbaceous species. Plant upland areas with native trees, shrubs, and herbaceous plants to expand the riparian buffer into open high ground and connect the riparian buffer to the existing adjacent forested floodplain.
- Forested Floodplain Enhancement: Excavate a tributary channel in a low-lying area of the forested floodplain. Fill the stormwater channel at the east end of the park and redirect the storm water outfall into the excavated channel to utilize the filtering and storage capacity of the forested floodplain and wetlands

in the park. Excavate small areas in the forested floodplain to enhance wetland functions. Remove multiflora rose, Japanese knotweed, and other invasive plants from this section of the park.

The expected benefits at Grove Park include:

- Naturalization of stream banks along 980 linear feet of creek will help to reconnect the stream to its floodplain.
- Removal of concrete stream bed in approximately 370 linear feet of creek will provide aquatic habitat.
- Enhancement of approximately 2.3 acres of riparian buffer habitat will reduce erosion and sedimentation, reduce nutrients into Sandy Run, and improve wildlife habitat.
- Re-introduction of 750 linear feet tributary channel to take advantage of the natural water storage and filtration capabilities of the existing forested floodplains and reduce flows and erosion in the main channel.
- Removal of invasive species.
- Enhancement of forested wetlands.

#### **4. Monitoring and Adaptive Management**

Monitoring and performance targets have been developed to confirm the project is achieving the habitat enhancement objectives. These include:

to enhance and restore riparian habitat

- control invasive species
- improve infiltration of flood waters by reconnecting floodplains
- protect and enhance wetland habitat
- stabilize stream banks

Monitoring the success of the vegetation plantings, invasive species removal, stability of the regraded and stabilized banks, and hydrology of the relocated tributary and existing wetlands will measure the success of achieving these objectives.

Post-restoration monitoring will begin the first spring after all construction activities are complete and continue each year for 5 years after restoration. These activities will be conducted by USACE, their contractor, and the local sponsor. See Appendix A for a sample inspection and wetlands data forms.

Adaptive management will be implemented if monitoring indicates that performance targets are not being achieved or restored conditions diverge sufficiently far from the intended conditions. The standards presented in this plan are to be used as guidelines for evaluation.

A yearly monitoring summary report would be drafted by USACE and Abington Township that briefly summarizes data collected and recommendations for adaptive management. Monitoring data, photographs, a brief summary of the collected data, and a discussion of the data will be included in each report. At the conclusion of the 5 years of monitoring, a final monitoring report will be drafted that details the outcome of the constructed habitat enhancement project.

##### **4.1. Vegetation**

**Performance Target.** The construction contractor will provide a warranty for plantings that do not survive after one year. The expected survival rate of planted vegetation is 85%. The planted vegetation should maintain an 85% survival rate throughout the 5-year monitoring period and demonstrate additional growth within the planting zone. This would show progress towards the goal of improved native plant diversity.

**Methods.** Broadscale landscape photographs will be used to document progress towards the goal. Photographs will be taken from fixed points after the first growing season after the plantings and every spring after that, for a total of five years. Photographs will document the success of plantings and establishment of plants. Plant species, plant height, and percent cover will be collected at each point. Additional photographs can be taken based on the monitors observations.

For the contractor's warranty, a visual site inspection will be conducted approximately 10 months after project construction to confirm the success of the plantings.

**Adaptive Management.** If the restored site does not achieve the goal of improved plant native diversity, Abington township would plant additional native vegetation as funding becomes available. The diversity goal is defined as continued 85% survival throughout the five-year monitoring period and additional growth of plantings, as evidenced in the comparison photographs.

#### 4.2. Invasive Species

**Performance Target.** The goal of minimizing invasive species coverage throughout the restored areas. The goal is for less than 30% invasive species coverage in any planting zone at the end of each year.

**Methods.** Invasive species would be documented with photographs after the first growing season after construction and will continue every spring, for a total of five years after construction. The following is a list of invasive species that have been observed at the project site:

Japanese knotweed (*Reynoutria japonica*)  
Multiflora rose (*Rosa multiflora*)  
Japanese honeysuckle (*Lonicera japonica*)  
European crab apple (*Malus sylvestris*)  
Border privet (*Ligustrum obtusifolium*)  
Sweet cherry (*Prunus avium*)  
Japanese snowball (*Viburnum plicatum*)  
Common privet (*Ligustrum vulgare*)  
Norway maple (*Acer platanoides*)  
Purple loosestrife (*Lythrum salicaria*)  
Japanese stiltgrass (*Microstegium vimineum*)  
Oriental bittersweet (*Celastrus orbiculatus*)  
Winged Euonymous (*Euonymous alatus*)

**Adaptive Management.** If the inspections indicate that invasive species are prevalent (i.e., greater than 30%), Abington Township will manage invasive species growing within the planting area by hand and/or spot treatments by herbicides. Herbicide treatment must be applied by a licensed applicator.

#### 4.3. Bank Stability

**Performance Target.** The regraded and stabilized banks would reach a state of dynamic equilibrium and remain stable, consistent with design goals (i.e., general stability, vegetated, and more natural function). As built drawings would be provided prior to monitoring.

**Methods.** The USACE and Abington Township would inspect the streambanks for scouring, erosion, or failure starting one year after construction. Inspections would continue annually for a total of five years after construction. Photographs will document conditions at the inspections.

**Adaptive Management.** Eroding or unstable banks would be stabilized, using the similar techniques as initial construction (e.g., the addition of rocks, woody debris, or plantings). An engineering assessment will determine the best method to address the adaptive management needs based on the problems observed during monitoring.

#### 4.4. Hydrology in the Forested Floodplain

**Performance Target.** It is anticipated that the realigned tributary in the forested floodplains would reach a state of equilibrium and remain stable. By the second year after construction, the tributary should show signs of stabilizing. The banks should show no indication of scouring or erosion. Existing wetlands should not show signs of ponding that negatively impacts wetland vegetation, draining, shrinking, or reduction or loss of wetland indicators (including wetland hydrology, hydrophytic vegetation, and hydric soils).

**Methods.** The USACE and Abington Township would inspect the realigned tributary and existing wetlands for stability, erosion, excessive ponding or periods of wetland inundation, and sufficient presence of wetland indicators (using the NRCS Wetland Determination Data Forms in Appendix A). Inspections would start one year after construction and continue annually for a total of five years after construction. Photographs will document the conditions at the inspections.

**Adaptive Management.** Abington Township can manage hydrology in the forested floodplain with the features included in the design to be adaptable. A channel block will be used to divert water into the new tributary and into the forested floodplain. Rocks and stones can be added to or taken away from the channel block, to add water into or divert water from the forested floodplain, respectively. Woody debris will be used in the forested floodplain to dampen velocity, create storage, and improve habitat diversity. This woody debris can be moved or changed as needed. If necessary, flashboards can be added to the culvert downstream of the wetlands at the walking path to increase water levels in the wetlands. If the culvert downstream of the wetlands is found to be clogged (such as with sediment or vegetation), the pipe can be cleared to restore proper flow.

## 5. Estimated Cost

The Monitoring and Adaptive Management program for the Abington Environmental Infrastructure Improvement Project is scheduled to the first spring after construction and continue annually for 5 years after construction. The District and the non-federal sponsor will operate the program 5 years following construction. It is assumed that monitoring will cost \$25,000 for 4 days of labor per each of the 5 monitoring events for USACE staff. This includes one day for inspections and one day for reporting, each for an engineer and a biologist. It is difficult to predict what type of adaptive management would be required for unforeseen problems and changes. Costs could range over orders of magnitude, depending on the problems. These costs would be based on the engineering assessment and cannot be estimated at this time. Monitoring costs and adaptive management costs that are not related to maintenance would be shared as total project costs (i.e., 75% federal, 25% non-federal) (Table 1). Maintenance would be the responsibility of the non-federal sponsor.

**Table 1. Post-Construction Monitoring Cost Estimate**

	Vegetation and Invasive Species Monitoring and Reporting	Bank and Hydrology Monitoring and Reporting	Non-maintenance Adaptive Management	Grand Total*
Year 1 Post-Construction	\$2,500	\$2,500		\$5,000
Year 2 Post-Construction	\$2,500	\$2,500		\$5,000
Year 3 Post-Construction	\$2,500	\$2,500		\$5,000
Year 4 Post-Construction	\$2,500	\$2,500	TBD	\$5,000
Year 5 Post-Construction	\$2,500	\$2,500		\$5,000
				\$5,000
<b>Total</b>	<b>\$12,500</b>	<b>\$12,500</b>		<b>\$25,000</b>

\*Additional costs

## Appendix A: Example Data Forms

ABINGTON ENVIROMENTAL INFRASTRUCTURE IMPROVEMENT PROJECT  
ANNUAL MONITORING AND OBSERVATIONS

Performed By:		Weather Conditions:
Date:		
Time:		
Location:		
Observation:		Recommendation:
Location:		
Observation:		Recommendation:
Location:		
Observation:		Recommendation:
Location:		

**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region**

Project/Site: \_\_\_\_\_ City/County: \_\_\_\_\_ Sampling Date: \_\_\_\_\_  
 Applicant/Owner: \_\_\_\_\_ State: \_\_\_\_\_ Sampling Point: \_\_\_\_\_  
 Investigator(s): \_\_\_\_\_ Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ 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 _____ Hydric Soil Present?                    Yes _____ No _____ Wetland Hydrology Present?        Yes _____ No _____	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No _____
Remarks:	

**HYDROLOGY**

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

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
<b>Sapling Stratum</b> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
<b>Shrub Stratum</b> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
<b>Herb Stratum</b> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
<b>Woody Vine Stratum</b> (Plot size: _____)				
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: \_\_\_\_\_ (A)

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

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

---

**Prevalence Index worksheet:**

Total % Cover of: \_\_\_\_\_ Multiply by:

OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_

FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

---

**Hydrophytic Vegetation Indicators:**

\_\_\_ 1 - Rapid Test for Hydrophytic Vegetation

\_\_\_ 2 - Dominance Test is >50%

\_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>

\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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 \_\_\_\_\_



## **Appendix B: As-built Landscaping**

**Appendix C: Typical As-Built Sections (to be populated after construction)**