Natural Resource Inventory Report

Wapakoneta Roadway Improvements

Prepared for:
MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
Bruce Johnston, Chief
100 Edison Park Drive, 4th Fl
Gaithersburg, Maryland 20878

Prepared by:
GPI
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GPI Project Number: 2008037.00 task 121
April 2013

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I. INTRODUCTION

This forest stand delineation report has been prepared as part of the permitting, engineering, surveying, and environmental studies associated with the improvements to Wapakoneta Roadway between Namakagan Road and Walhonding Road in Bethesda, Montgomery County, Maryland. The site, zoned residential (R-Z), is described as a residential neighborhood of quarter acre plots. It is located on Montgomery County Tax Map Number GM63. The work in being done within the road right of way (ROW) and on the following properties: 5328 and 5332 Wapakoneta Road, 5409, 5413, and 5404 Wehawken Road. The nearest intersection to the project is Massachusetts Avenue and Western Avenue (Figure 1).

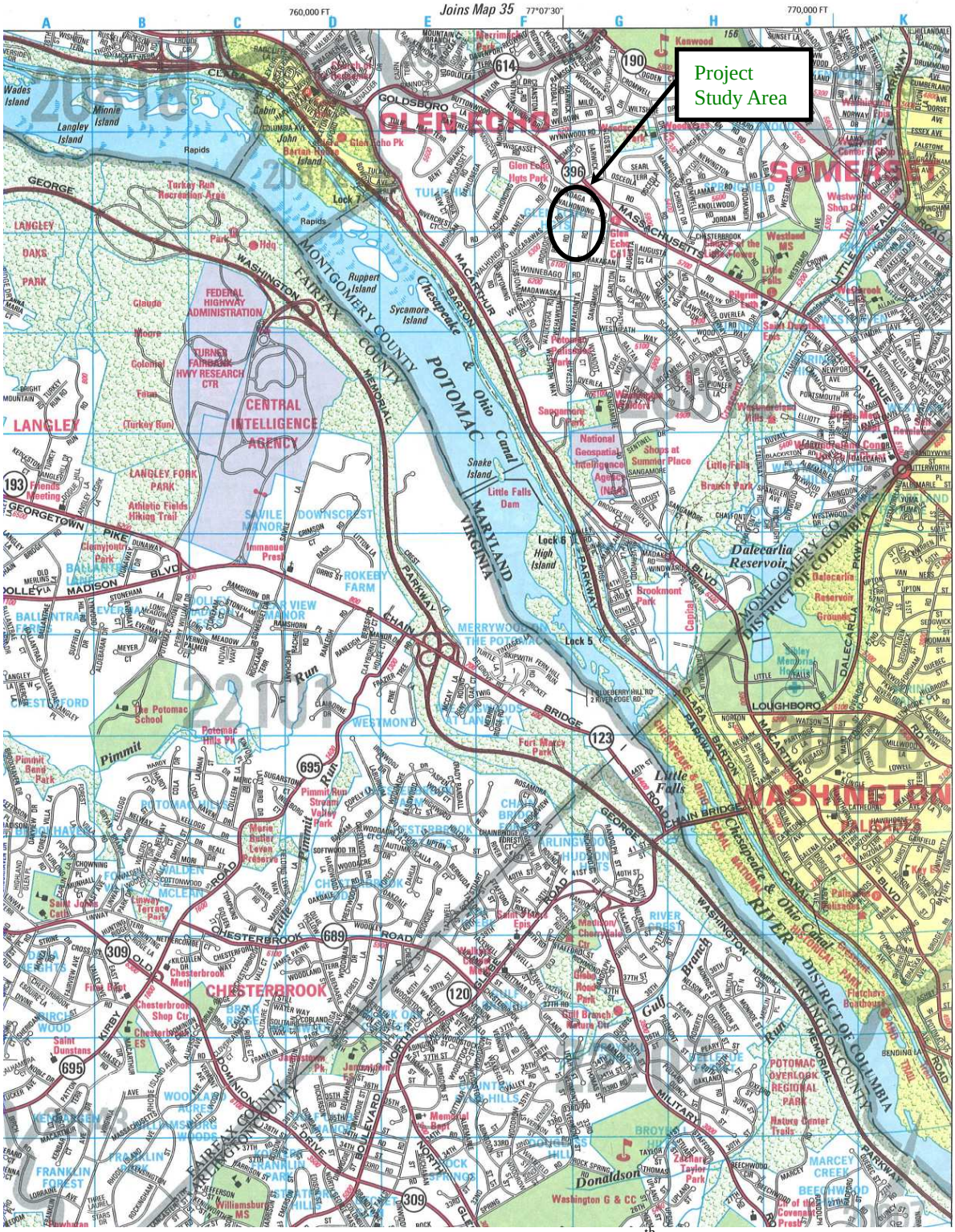
The project study area extends 100 feet outside the proposed limits of disturbance (LOD). The LOD is 0.46 acres and the project study area is 7.64 acres. Topography within the project study area is hilly with slopes from 10-12%. .

The purpose of this natural resource inventory report is to document current forested habitats, wetlands, and streams located within the project boundaries and extending 100 feet outside the project boundaries that are subject to the *Montgomery County Environmental Management Manual* (revised January 2000) and *Trees Approved Technical Manual* (approved September 1992) pursuant to the State Forest Conservation Act.

METHODOLOGY

The forest stand review in the field was performed in accordance with the methodology described in the *Trees Approved Technical Manual* as approved September, 1992 and *Guidelines for Environmental Management of Development in Montgomery County,* January 2000. The biotope analysis included the delineation of mapped soil types, hydrologic resources, upland and bottomland areas, and slope aspects. Our initial office investigation was performed using the Maryland-National Capital Park and Planning Maps, and the Soil Survey of Montgomery County, Maryland. The on-site forest stand investigation involved the verification of the field mapping and, upon field investigation, the determination that no forest stands exist within the study boundary.

Figure 1: Vicinity Map



Source: ADC Map of Greater Washington DC, Montgomery County, 8th Edition, Map 41, F-3 & G-3.

The forest stand review in the field was performed in accordance with the methodology described in the *Trees Approved Technical Manual* as approved September, 1992 and *Guidelines for Environmental Management of Development in Montgomery County*, January 2000. The biotope analysis included the delineation of mapped soil types, hydrologic resources, upland and bottomland areas, and slope aspects. Our initial office investigation was performed using the Maryland-National Capital Park and Planning Maps, and the *Soil Survey of Montgomery County, Maryland*. Preliminary sampling points were identified in random locations for use during the on-site investigation. The on-site forest stand investigation involved the verification of the field mapping and, upon field investigation, the determination that no forest stands exist within the study boundary.

Significant and specimen tree candidates were selected by size. The trunk diameter should be at least 24 inches at breast height or 75 percent of the diameter at breast height of a County, State, or National Champion Tree. A list of all significant and specimen tree candidates observed on site is included as Appendix A. The specimen tree candidates are evaluated on three (3) criteria established by foresters with Greenman-Pedersen, Inc. These criteria are described below.

1. The tree should be in very good health. To determine if a tree is in very good health, it is examined for conditions that would contribute to mechanical failure or mortality. Indicators of conditions that would contribute to mechanical failure of a tree, such as limb breakage and blow-down, are as follows:

    - A lean greater than 10 degrees;
    - The wind firmness of the tree (this includes consideration of the species and its typical rooting pattern, the crown shape and size, the location of the tree on the slope, the direction of prevailing winds, and the relationship between the trunk and crown diameter); and
    - Evidence of disease (this includes indicators such as conks and other obvious signs of decay that would not necessarily cause death, but would predispose the tree or a limb to breakage).

    Indicators of conditions that would contribute to the mortality of the tree are:

    - Evidence of disease, such as conks, butt swelling, weeping, disconfiguration, carpenter ants, and holes;

- Signs of insect infestation, including observation of insects or woodpecker activity; and
- Crown vigor - evaluation based on the percentage of dieback as follows.

Rating	Percentage of Dieback
Excellent	less than 15
Good	16-25
Fair	26-35
Unacceptable	greater than 35

2. The tree should have a wide and reasonably balanced crown. Dominant trees with crowns less than 30 feet in diameter were not considered in the Specimen Tree Determination. Trees with smaller crown diameters most likely will not be able to withstand the addition sunlight and wind loading that they would be subjected to after the removal of adjacent trees. In addition, trees with crowns containing Y-branching were rejected, due to their instability. The angles of the branches in the crown were also considered. Branching at a 60-90 degree angle from the trunk results in a more unstable crown than branching at less than a 60-degree angle; therefore, trees with branching at higher angles are rejected.
3. The species of the tree is considered. Some tree species are more suitable to be left standing through and after development because they are relatively less sensitive to construction damage and site changes.

To be selected as a specimen tree, further evaluation is conducted on each tree, and consideration given to (1) the probability of the tree surviving at least 20 years and the risk of damage; (2) injury from the tree relative to the proposed use of the property and adjacent property, and the tree's present and expected post-construction condition; (3) the contribution of the tree to overall property values; (4) the area required to preserve the tree; and (5) costs of preservation and maintenance over the expected life of the tree compared to replacement/additional trees.

III. FOREST STAND DETERMINATION

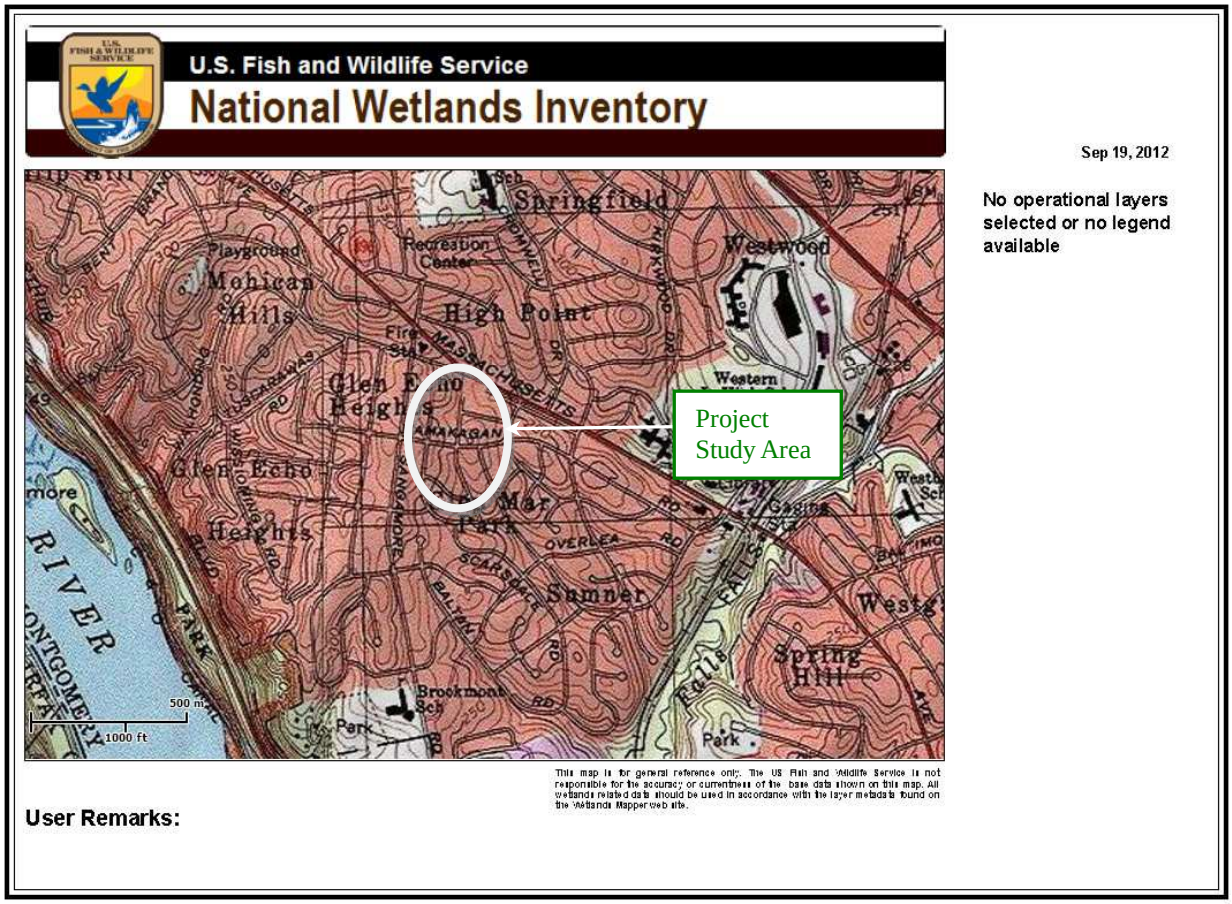
III.A. Off-Site Investigation

III.A.1. Hydrology

An off-site wetland and waterways investigation was performed using the United States

Geological Survey (USGS) Washington West Topographic Map (Figure 2), United States Department of Agriculture, Natural Resource Conservation Service, Montgomery County, Maryland, (Figure 3) the list of Hydric Soils of Montgomery County, aerial photography, FEMA mapping, and National Wetland Inventory Mapping. The results of the off-site investigation did not identify the presence of any wetland or waterway mapped within the study area.

Figure 2: USGS and NWI Mapping



Source: United States Fish and Wildlife Service, National Wetlands Inventory, Wetland Mapper (accessed 09/19/12).

III.A.2. Soil Characteristics

A review of the United States Department of Agriculture Web Soil Survey (USDA WSS) of Montgomery County (accessed 09/19/2012) revealed the presence of Glenelg silt loam within the project study area. Table 1 identifies the soils and their characteristics.

TABLE 1: SOIL CHARACTERISTICS*

Soil Name	Highly Erodible	Prime Agricultural	Hydric
Glenelg-Urban land complex, 0 to 8 percent slopes (2UB)	No	No	No
Glenelg-Urban land complex, 8 to 15 percent slopes (2UC)	No	No	No

* Soil information has been obtained from the Soil Survey of Montgomery County, and the List of Hydric Soils of Montgomery County.

III.A.3. Vegetation

The Maryland-National Capital Park and Planning Commission Topographic Maps (227NW06) and the USDA WSS of Montgomery County (accessed on 09/19/2012) both identify primarily suburban neighborhoods with lawn grass, trees and shrubs but no forest stands. On-site analysis will verify the presence of any forest stands.

III.A.4. Rare Threatened and Endangered Species

The U.S. Fish and Wildlife Service website was consulted as part of the off-site natural resource inventory. The purpose of this was to see if any rare, threatened, or endangered species have been preciously located within the 7.5 minute Washington West USGS quad within which our Project Study Area is located. The website (http://www.fws.gov/chesapeakebay/-EndSppWeb/elements/listreq.html) lists USGS quads that do not contain any listed federally rare, threatened, or endangered species. The USGS quad for this project was not on this list; so a letter requesting a review of the endangered species and critical habitats in the project area was sent to U.S. Fish and Wildlife Service. A reply has not yet been received. According to the Maryland Department of Natural Resources, Wildlife Heritage Division (Appendix B) no rare, threatened, or endangered species or critical habitats are within the boundaries of our project study area.

III.A.5. Summary

The results of the off-site investigation determined that the project area did not contain waters of the U.S., wetlands or floodplains and consists primarily of suburban plantings.

Figure 3: Soils Map

Source: United States Department of Agriculture Web Soil Survey (Last Accessed 04/04/13).

III.B. On-Site Investigation

An on-site Forest Stand Delineation was performed on October 18, 2012, to determine the presence of forest stands, wetlands, and waters of the U.S. within the project study area. The wooded area within the project study area consists of isolated trees and shrubs with maintained lawn grasses as ground cover. No forest stands were found based on the composition of tree species, understory layer, and herbaceous layer. Thirty three (33) significant and specimen tree candidates were identified within the project study area.

Photograph #1 View of Wapakoneta Road

III.B.1. Waters of the United States

A routine on-site wetland and waterways investigation was performed to verify the existing secondary data information. The entire project area has been disturbed in the past by residential development. No wetlands were identified during the on-site investigation. Although no waterways were identified during the off-site investigation, one waterway was identified during the on-site investigation. This waterway consisted of a shallow defined channel edged with landscape stone. Sediments consisted of sand and gravel; vegetation was also present with

portions of the stream channel. The stream originates from a groundwater seep in the backyard of 6022 Walhonding Road and continues through the backyards of 5332 Wapakoneta Drive, 5413 Wehawken Road, 5409 Wehawking Road, passes through a culvert under Wekawken Road and daylights across the street at 5409 Wehawken Road. The ordinary high water mark was delineated and surveyed as “Waters of the US” and confirmed with the Maryland Department of Environment on January 23, 2013.

Photograph #2 View of the stream at 5409 Wekawken Avenue

APPENDIX A – SIGNIFICANT AND SPECIMEN TREE CANDIDATE TABLE

Tree number	Size DBH (in)	Common name	*Scientific name*	Condition	Comments
1	25	White oak	*Quercus alba*	Good	
2	27	White oak	*Quercus alba*	Good	
3	39	White oak	*Quercus alba*	Good	
4	32	White oak	*Quercus alba*	Good	
5	27	Pignut hickory	*Carya glabra*	Excellent	
6	38	Red oak	*Quercus rubra*	Good	
7	31	Scarlet oak	*Quercus coccinea*	Fair	dead branches in crown
8	35	Tulip poplar	*Liriodendron tulipifera*	Good	
9	34	Tulip poplar	*Liriodendron tulipifera*	Good	
10	33	Tulip poplar	*Liriodendron tulipifera*	Good	
11	31	Tulip poplar	*Liriodendron tulipifera*	Good	
12	25	Green ash	*Fraxinus pennsylvanica*	Good	
13	35	White oak	*Quercus alba*	Excellent	
14	36	White oak	*Quercus alba*	Good	
15	31	Honey locust	*Gleditsia triacanthos*	Fair	large burl on trunk; leaning toward road; dead branches in crown
16	29	White oak	*Quercus alba*	Good	
17	24	Red maple	*Acer rubrum*	Fair	broken branches in crown; uneven crown; leaning from growing under adjacent trees
18	28	Red oak	*Quercus rubra*	Fair	uneven crown; dead branches in crown; 5 degree lean
19	33	White oak	*Quercus alba*	Excellent	
20	29	Red maple	*Acer rubrum*	Good	
21	26	Red maple	*Acer rubrum*	Fair	dead branches in crown; uneven
22	35	Red maple	*Acer rubrum*	Good	
23	35	White oak	*Quercus alba*	Excellent	
24	32	American beech	*Fagus grandifolia*	Excellent	
25	28	White oak	*Quercus alba*	Good	uneven crown due to neighboring tree
26	24/25	Tulip poplar	*Liriodendron tulipifera*	Good	
27	34	White oak	*Quercus alba*	Excellent	
28	39	White oak	*Quercus alba*	Good	
29	33	Scarlet oak	*Quercus coccinea*	Good	
30	32	Southern red oak	*Quercus falcata*	Fair	dead branches in crown
31	35	Scarlet oak	*Quercus coccinea*	Fair	dead branches in crown
32	24	Black walnut	*Juglans nigra*	Good	
33	40	White oak	*Quercus alba*	Excellent	

APPENDIX B - DNR RARE, THREATENED AND ENDANGERED SPECIES LETTER

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Joseph P. Gill, Deputy Secretary

March 20, 2013

David Merkey
Greenman-Pedersen, Inc.
10977 Guilford Rd.
Annapolis Junction, MD 20701

RE: Environmental Review for Wapakoneta Rd., preliminary plans to reconstruct full-depth pavement and stormdrain improvements along Wapakoneta Rd. from Namakagan Rd. to Wahlhonding Rd., outfall at Wehawken Rd., Montgomery County, MD.

Dear Mr. Merkey:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in fact present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2013.0342.mo

United States Department of the Interior
U.S. Fish & Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573 4575

Endangered Species List Review

Today's date	3/4/2013
Name	David Merkey
Company	Greenman-Pedersen, Inc.
street address	10977 Guilford Road
city, state, zip	Annapolis Junction, MD 20701
email	dmerkey@gpinet.com

My project is *not* located on one of the quad maps on the Chesapeake Bay Field Office web site.

Please send the endangered species and critical habitats list review to me at either the address above, or email a response. If additional information is required, please call me.

Project Location:

Street name	Wapakoneta Road
City, state, zip	Bethesda, MD 20816
County	Montgomery
Lat & Long	38.962°N 77.1241°W

Proposed Construction/ Refurbishment Activity:
(Example: The proposed project is to build 100 rental units to replace apartments that were razed. This is Phase I of a larger residential development.)

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To provide reconstruction of full-depth pavement and construction of
stormdrain improvements along Wapakoneta Road from Namakagan Road to
Walhonding Road. This section of Wapakoneta Road is approximately 962
linear feet in length. The specific improvements will include
reconstruction and resurfacing of the roadway, curb and gutter within a 24-
foot wide roadway section, stormdrain system and stormwater management.
The proposed stormdrain system will improve the drainage in the area by
collecting runoff from Wapakoneta Road and conveying stormwater between
the adjacent residential structures and discharge at the outfall of the
existing culvert at Wehawken Road.
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Enclosed are photographs (optional), either a location map or current topographic map, or a site map of the subject property.

APPENDIX C – WATERS OF THE U.S. LETTER

GREENMAN-PEDERSEN, INC.
Engineers, Architects, Planners, Construction Engineers & Inspectors
GPI

April 11, 2013

Jon Hutchings
Department of Transportation
100 Edison Park Drive, 4th Floor
Gaithersburg, MD 20878

Re: Wapakoneta Road Improvements
Wetland and Waterways Investigation
Bethesda, Maryland

This letter is to document the wetland and waterways investigation performed on October 18, 2012 for the project described below. The investigation was conducted to identify and document nontidal wetland habitats and waterways located within the property boundaries that are subject to the jurisdiction of the United States Army Corps of Engineers (USACOE) pursuant to Section 404 of the Clean Water Act and subject to the jurisdiction of the Maryland Department of Environment (MDE) pursuant to Maryland's Nontidal Wetlands Protection Act. The wetland investigation was performed in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual, 1987 (Technical Report Y-87-1) and the Regional Supplement for the Eastern Mountain and Piedmont Region, v. 2.

Greenman-Pedersen, Inc., in conjunction with Gannett Flemming, Inc., has been retained by the Montgomery County Department of Transportation to provide concept development and preliminary plans for the reconstruction of full-depth pavement and construction of stormdrain improvements along Wapakoneta Road from Namakagan Road to Walhonding Road. This section of Wapakoneta Road is approximately 962 linear feet in length. The specific improvements will include reconstruction and resurfacing of the roadway, curb and gutter within a 24-foot wide roadway section, stormdrain system and stormwater management. The proposed stormdrain system will improve the drainage in the area by collecting runoff from Wapakoneta Road and conveying stormwater between the adjacent residential structures and discharge at the outfall of the existing culvert at Wehawken Road. Minor roadway improvements along Wehawken Road will be necessary to transition the proposed project into the residential neighborhood properties. The proposed roadway improvements along Wehawken Road will be approximately 100 linear feet in length. We anticipate stormwater management will be required for the project. Because of the limited county right-of-way to implement traditional stormwater management, we will attempt to implement Low Impact Development (LID) stormwater management retrofits in order to satisfy the stormwater management requirements to provide treatment to the maximum extent practical.

An off-site wetland and waterways investigation was performed using the United States Geological Survey (USGS) Topographic Map (Figure 2), United States Department of Agriculture, Natural Resource Conservation Service, Montgomery County, Maryland, (Figure 3)

the list of Hydric Soils of Montgomery County, aerial photography, FEMA mapping, and National Wetland Inventory Mapping. The results of the off-site investigation did not identify the presence of any wetland or waterway mapped within the study area.

A routine on-site wetland and waterways investigation was performed to verify the existing secondary data information. The entire project area has been disturbed in the past by residential development. No wetlands were identified during the on-site investigation. Although no waterways were identified during the off-site investigation, one waterway was identified during the on-site investigation. This waterway consisted of a shallow defined channel edged with landscape stone. Sediments consisted of sand and gravel; vegetation was also present with portions of the stream channel. The stream originates from a groundwater seep in the backyard of 6022 Walhonding Road and continues through the backyards of 5332 Wapakoneta Drive, 5413 Wehawken Road, 5409 Wehawking Road, passes through a culvert under Wekawken Road and daylights across the street at 5409 Wehawken Road. The ordinary high water mark was delineated and surveyed as "Waters of the US" and confirmed with the Maryland Department of Environment on January 23, 2013. The location of the delineated stream is shown in Figure 4. Photographs 1 and 2 illustrate the character of the stream in the upstream and downstream portions of the project.

If there are any questions concerning the wetland and waterways investigation, please contact me at our office.

Sincerely,
GREENMAN-PEDERSEN, INC.

David H. Merkey, PhD.
Sr. Environmental Specialist

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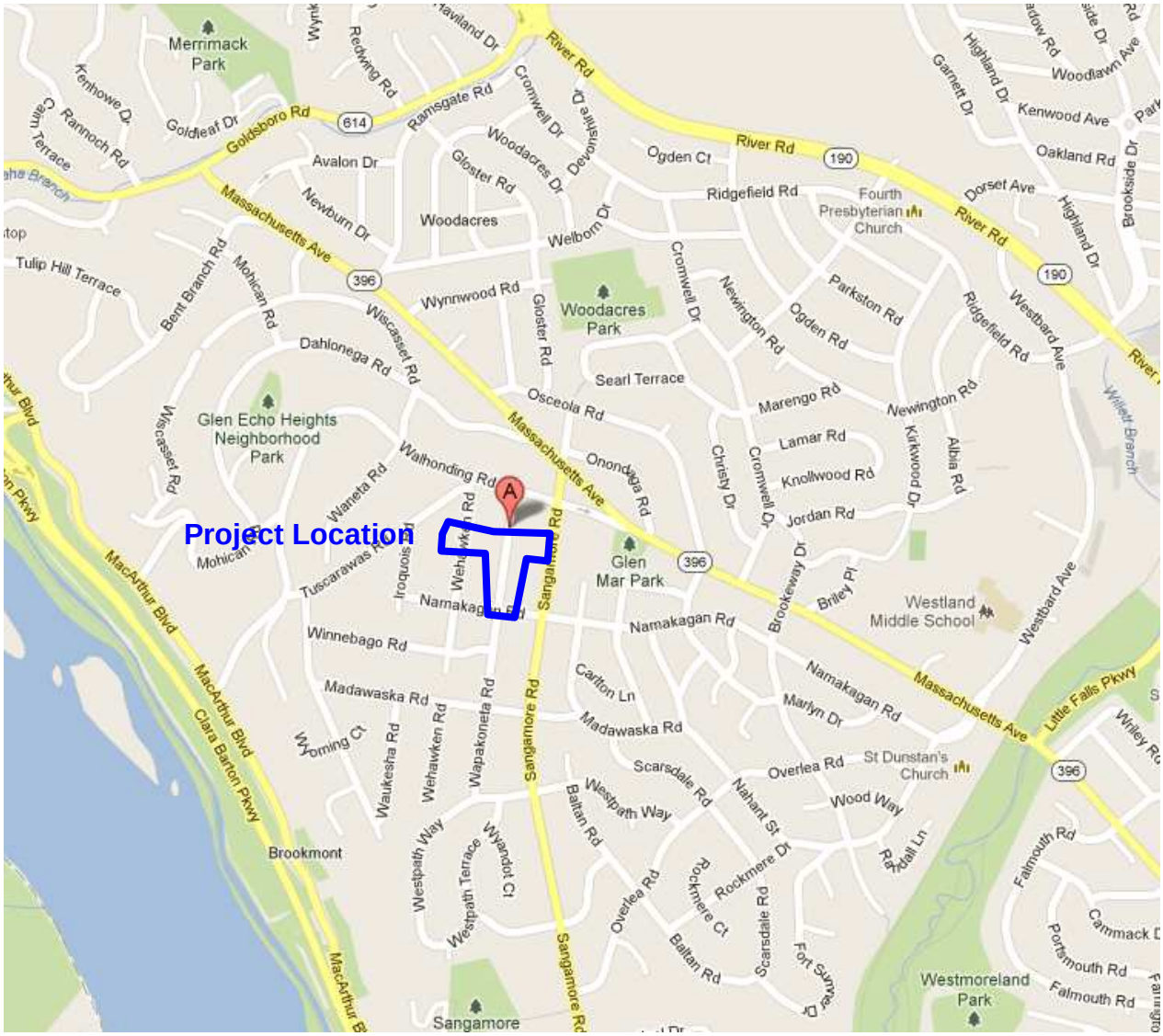


Figure 1: Google Location Map, location corresponds to ADC Map 8 G/3 Washington DC, 7th Edition.

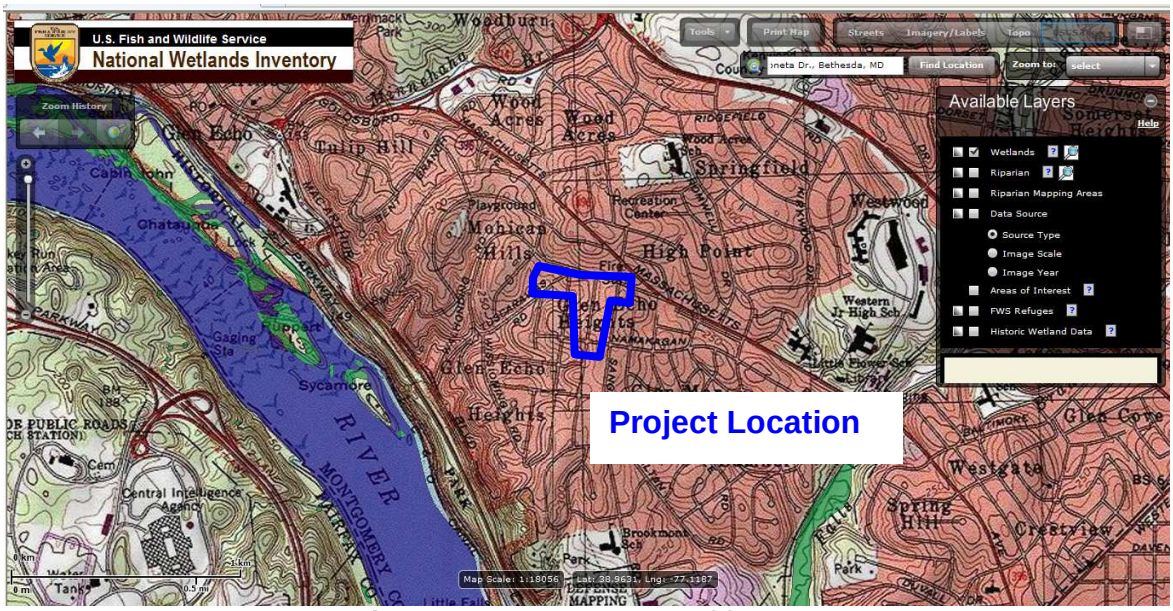


Figure 2: USGS Topographic Map

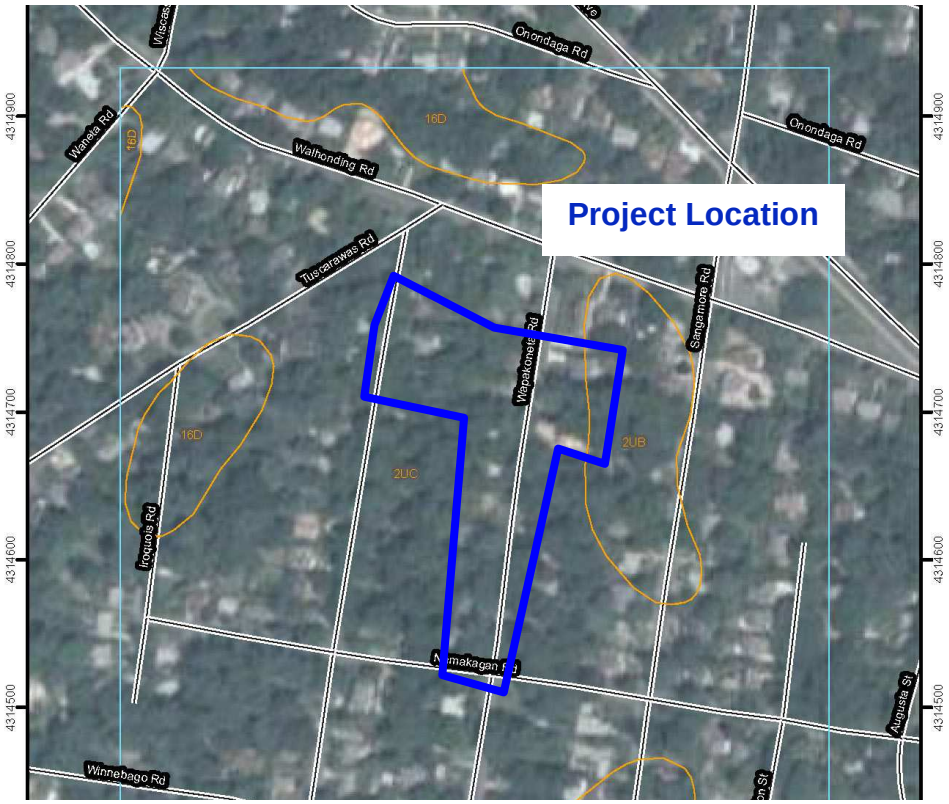


Figure 3: Soils Map

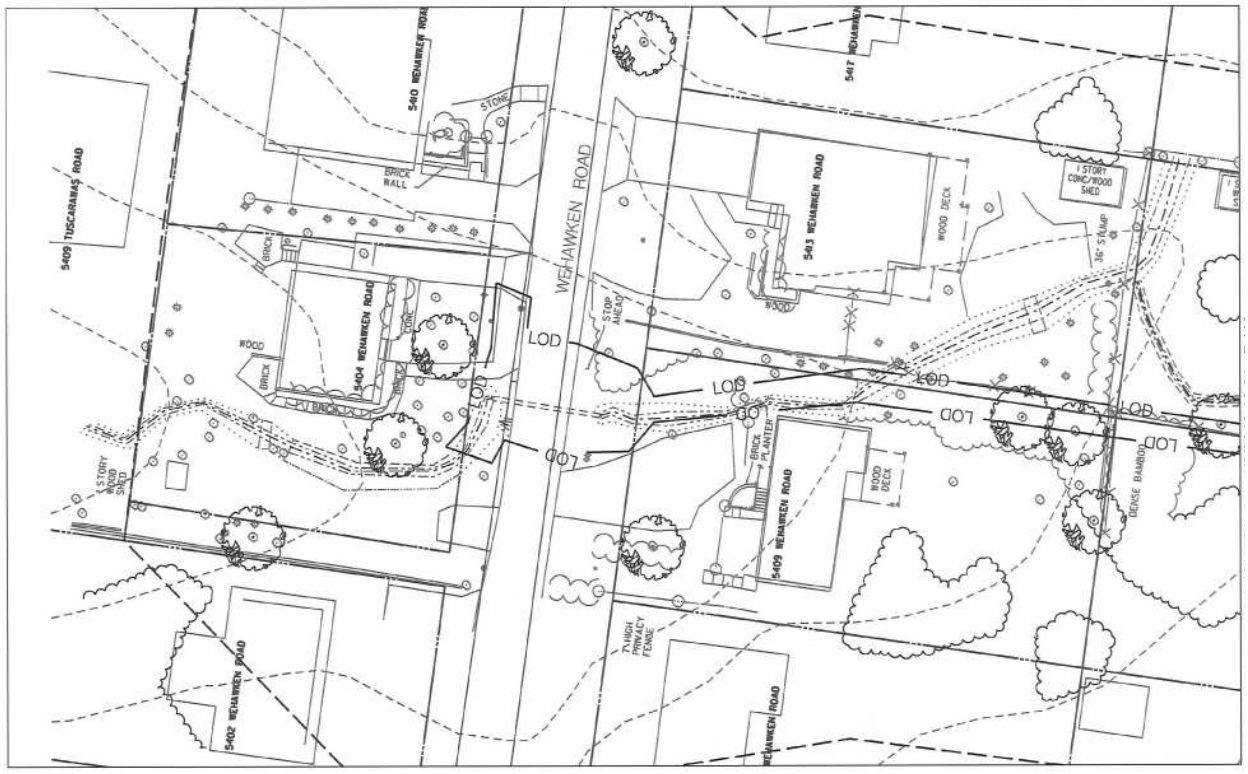
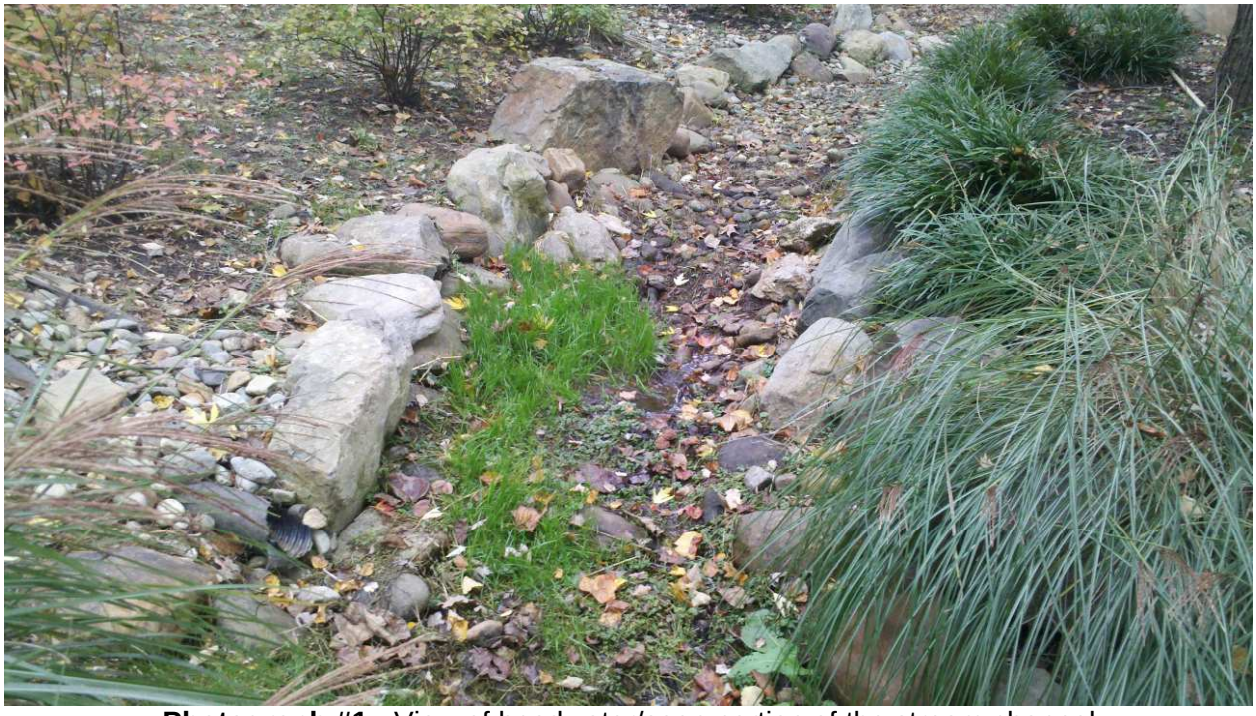


Figure 4: Surveyed boundary of Stream Channel



Photograph #1: View of headwater/seep portion of the stream channel

Photograph #2: View of the stream at 5409 Wekawken Avenue.