



SUPPORTING DOCUMENTATION REPORT

including

DELINEATION OF WATERS OF THE UNITED STATES

and

PERMITTING AND MITIGATION REQUIREMENTS

for the

WASHINGTON GLEN PROPERTY

in

WASHINGTON TOWNSHIP, MONTGOMERY COUNTY, OHIO

OCTOBER 2014

PREPARED FOR:

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TABLE OF CONTENTS			
SECTION	SECTION TITLE		PAGE
1		INTRODUCTION AND OVERVIEW	1
	1.1	Introduction	1
	1.2	Delineation Summary	1
	1.3	Summary of Proposed Impacts	2
	1.4	Summary of Permitting and Mitigation Requirements	3
2		SITE BACKGROUND INFORMATION	4
	2.1	Site Development Information	4
	2.1.1	Size	4
	2.1.2	Location and Directions	4
	2.1.3	Ownership	4
	2.1.4	Civil Engineer	4
	2.1.5	Environmental Consultant	5
	2.2	Land Use	5
	2.2.1	Current On-Site Land Usage	5
	2.2.2	Former On-Site Land Usage	5
	2.2.3	Surrounding Land Use	5
	2.3	Topographic Setting	6
	2.3.1	U.S.G.S. Topographic Quadrangle	6
	2.3.2	Latitude and Longitude	6
	2.3.3	Topography	6
	2.4	Watersheds and Drainage Patterns	6
	2.4.1	Regional Watershed and HUC Category	6
	2.4.2	Local Watershed and On-Site Drainage Pattern	7
	2.4.3	FEMA Floodzone	7
	2.5	Special Use Waters and Antidegradation Classification	7
	2.6	On-Site Soils	7
	2.7	On-Site Geology	8
	2.8	On-Site Vegetation Systems	8
	2.9	Threatened and Endangered Species	9
	2.9.1	Indiana Bat	9
	2.9.2	Running Buffalo Clover	9
	2.10	Cultural Resources	10
3		DELINEATION OF WATERS OF THE UNITED STATES	11
	3.1	Summary of Delineation	11

TABLE OF CONTENTS				
SECTION		SECTION TITLE		PAGE
	3.1.1	Ponds and Lakes		11
	3.1.2	Wetlands		11
	3.1.3	Perennial Streams		11
	3.1.4	Intermittent Streams		11
	3.1.5	Ephemeral Streams		12
	3.1.6	Swales Along Fence Lines		12
	3.1.7	Erosional Gullies and Swales in Soybean Fields		12
	3.1.8	Isolated Drainages in Woodlot		12
	3.2	Delineation Methods		12
	3.3	Wetland A		12
	3.4	Wetland B		13
	3.5	Wetland C		13
	3.6	Wetland D		13
	3.7	Wetland E		14
	3.8	Wetland F		14
	3.9	Wetland G		15
	3.10	Wetland H		15
	3.11	Intermittent Stream 1		15
	3.12	Swales 1, 2, and 3		16
	3.13	Temporary Erosional Gullies and Swales in Soybean Fields		16
	3.14	Isolated Drainages in Woodlot		17
4		PROPOSED IMPACTS		18
	4.1	Proposed Impacts		18
	4.2	Avoidance and Minimization		18
	4.3	Estimated Fill Volumes		18
5		PERMITTING AND MITIGATION REQUIREMENTS		20
	5.1	Corps of Engineers Permit		20
	5.2	Ohio EPA Water Quality Certification		20
	5.3	Mitigation Requirements		20
LIST OF TABLES (Follows Text)				
1	Hydrological Features Located on the Washington Glen Property			
2	Detailed Descriptions of the Wetlands Located on the Washington Glen Property			
LIST OF FIGURES (Follows Tables)				
1	Highway map showing the location of the Washington Glen Property			

TABLE OF CONTENTS		
SECTION	SECTION TITLE	PAGE
2	Enlarged highway map showing the location of the Washington Glen Property	
3	U.S.G.S. Springboro, Ohio, 7.5 minute topographic quadrangle map showing the area in and around the Washington Glen Property	
4	Enlarged section of U.S.G.S. Springboro, Ohio, 7.5 minute topographic quadrangle map showing the Washington Glen Property	
5	2013 aerial photograph of the area around the Washington Glen Property	
6	Enlarged 2013 aerial photograph of the Washington Glen Property	
7	Soil map for the Washington Glen Property	
8	U.S. Fish and Wildlife Service National Wetlands Inventory Map for the Washington Glen Property	
9	Existing conditions topographic map showing the hydrological features on the Washington Glen Property	
10	Existing conditions aerial photograph showing the hydrological features on the Washington Glen Property	
11	Enlarged existing conditions topographic map showing Wetlands A, B, and C on the Washington Glen Property	
12	Enlarged existing conditions aerial photograph showing Wetland A on the Washington Glen Property	
13	Enlarged existing conditions aerial photograph showing Wetlands B and C on the Washington Glen Property	
14	Enlarged existing conditions topographic map showing Wetland D on the Washington Glen Property	
15	Enlarged existing conditions aerial photograph showing Wetland D on the Washington Glen Property	
16	Enlarged existing conditions topographic map showing Wetland E on the Washington Glen Property	
17	Enlarged existing conditions aerial photograph showing Wetland E on the Washington Glen Property	
18	Enlarged existing conditions topographic map showing Wetland F on the Washington Glen Property	
19	Enlarged existing conditions aerial photograph showing Wetland F on the Washington Glen Property	
20	Enlarged existing conditions topographic map showing Wetland G on the Washington Glen Property	
21	Enlarged existing conditions aerial photograph showing Wetland G on the Washington Glen Property	
22	Enlarged existing conditions topographic map showing Wetland H on the Washington Glen Property	
23	Enlarged existing conditions aerial photograph showing Wetland H on the Washington Glen Property	
24	Existing conditions winter aerial photograph showing the gully and swale systems on the Washington Glen Property	
25	Existing conditions summer aerial photograph showing the gully systems on the Washington Glen Property	
26	Development plan for the Washington Glen Property, showing the locations of the on-site wetlands, streams, and swales	
27	Enlarged development plan for the Washington Glen Property, showing the locations of the on-site wetlands, streams, and swales in the southwest portion of the property	
28	Enlarged development plan for the Washington Glen Property, showing the locations of the on-site wetlands, streams, and swales in the northwest portion of the property	
29	Enlarged development plan for the Washington Glen Property, showing the locations of the on-site wetlands, streams, and swales in the eastern portion of the property	

TABLE OF CONTENTS		
SECTION	SECTION TITLE	PAGE
LIST OF ATTACHMENTS (Follows Figures)		
A	Representative photographs of the streams and wetlands on the Property	
B	Ohio EPA Alternative Analysis	
C	Wetland Delineation Forms	
D	Ohio Rapid Assessment Method for Wetlands Forms	

SECTION 1

INTRODUCTION AND OVERVIEW

This Supporting Documentation Report presents information about an 84-acre property that is located in Washington Township, Montgomery County, Ohio, and that is under contract to be purchased by the Centerville Development Group LLC, of New Bremen, Ohio.

1.1 INTRODUCTION

The Centerville Development Group proposes to purchase approximately 84 acres of undeveloped property on which the proposed residential development will be located. The development project, to be called the Washington Glen Residential Development (herein called the Washington Glen Property), will include 261 single-family residences, with associated roadways, stormwater management systems, and greenspace (Figure 26).

Several wetlands and one intermittent stream are located on the Washington Glen Property (Figures 9-23). Due to the nature of the proposed development plan and the property's terrain, some amount of grading work is necessary to prepare the property for development. This activity may result in the impact to all of the onsite wetlands; hence, the purpose of this delineation and the need for a Section 404 permit from the U.S. Army Corps of Engineers and a Section 401 Water Quality Certification from the Ohio Environmental Protection Agency. A delineation of these features is presented in this Supporting Documentation Report.

1.2 DELINEATION SUMMARY

Otte Enterprises, on behalf of the Centerville Development Group, conducted a delineation of the Waters of the United States located on the Washington Glen Property. A summary of the results of this delineation follows.

The entire Washington Glen Property is located within the Holes Creek watershed. Holes Creek is a tributary of the Great Miami River (HUC No. 05080002), which is a tributary of the Ohio River (HUC No. 05100205).

Perennial Streams: No perennial streams are located on the Washington Glen Property

Intermittent Streams: One intermittent stream (Stream 1) is located on the Washington Glen Property. Stream 1 flows from northward along the western property line, north of Wetland D.

Ephemeral Streams: No ephemeral streams are located on the Washington Glen Property.

Ponds and Lakes: Two small ponds are located on the Washington Glen Property; one in Wetland D and one in Wetland C.

Wetlands: Eight wetland areas, totaling 4.46 acres, are present on the Washington Glen Property.

- Wetland Area A is an area of herbaceous vegetation located in a low spot in a power line right-of-way in the southwestern portion of the property.

- Wetland Area B is an area of mixed wooded and open herbaceous vegetation located in a low spot in the northeastern corner of the recently logged area in the southwestern portion of the property.
- Wetland Area C is an area of herbaceous vegetation located in a low spot in the northwestern corner of the recently logged area in the southwestern portion of the property.
- Wetland D has several different vegetation communities and is located in an uncultivated area in the western portion of the property where water collects from the surrounding soybean fields.
- Wetland E has several different vegetation communities and is located in an uncultivated area in the northeastern portion of the property where water collects from the surrounding soybean fields.
- Wetland F is an area of herbaceous vegetation growing in a series of ditches that have been cut into the bottom of a stormwater detention basin in the easternmost portion of the property.
- Wetland G is an area of herbaceous vegetation growing in a low area along a fence line in the eastern portion of the property where water collects from surrounding soybean fields.
- Wetland H is an area of herbaceous vegetation growing in a low area in the soybean field in the northeast portion of the property.

Swales: Several swales are located along the fence lines on the Washington Glen Property. These swales flow to and from several of the wetlands in the western portion of the property. These swales do not have continuously defined channels or continuous ordinary high water marks.

Erosional Gullies: Multiple series of erosional gullies are present throughout the soybean fields on the Washington Glen Property. These gullies form in the wetter months of the year and dry up and are filled in over the course of the growing and harvest season. These gullies do not maintain continuously defined channels or ordinary high water marks between other hydrological features.

Isolated Drainageways: Several isolated drainageways are present in the recently logged area in the southwestern portion of the property. These drainages do not have defined channels or ordinary high water marks that connect to any other hydrological features.

Total combined acreage of these wetland areas is 4.46 acres.

1.3 SUMMARY OF PROPOSED IMPACTS

The development of the Washington Glen Property will result in the removal of all of Wetlands A, B, C, D, E, F, G, and H. Total combined impact to all wetlands amounts to 4.46 acres.

1.4 SUMMARY OF PERMITTING AND MITIGATION REQUIREMENTS

The Centerville Development Group understands that the impacts to the wetlands will require a Section 404 permit from the Corps of Engineers.

The Centerville Development Group understands that the development of the Washington Glen Property will require an Individual Permit from the Corps of Engineers, as the 4.46 acres of wetland to be impacted exceeds the 0.5-acre limit to quality for a Nationwide Permit.

The Centerville Development Group also understands that it will be required to apply for an Ohio Water Quality Certification, as it is impacting greater than 0.5 acre of Category 1 and 2 wetlands during the development of the Washington Glen Property. The on-site to-be-impacted wetlands are Category 1 and 2 wetlands.

The permitting requirements are further discussed in Section Five of this report.

The Centerville Development Group also understands that a pre-construction notification must be submitted to the Corps of Engineers district engineer and to the Ohio EPA prior to commencing any such residential development activity. This notification accompanies this Supporting Documentation Report.

The Centerville Development Group also understands that any such Corps of Engineers permit triggers the need to address other potential issues that may be associated with this property; namely cultural resources and threatened and endangered species. These potential issues will be addressed accordingly, as part of the Section 404 permitting process (Section Two of this Report).

The Centerville Development Group understands that it will be required to mitigate for the loss of the waters of the United States that will be impacted for this project.

Centerville Development Group proposes to pay into The Nature Conservancy's in-lieu fee mitigation program for the loss of the 4.46 acres of wetlands.

The mitigation requirements for this project are addressed accordingly, as part of the Section 404 permitting process (Section 5.3 of this Report).

SECTION 2

SITE BACKGROUND INFORMATION

This section of this Supporting Documentation Report presents a summary of the logistical, physical, ecological, and hydrological features of the 84-acre Washington Glen Property in Washington Township, Montgomery County, Ohio.

2.1 SITE DEVELOPMENT INFORMATION

The following logistical information applies to the Washington Glen Property.

2.1.1 Size (acreage)

The Washington Glen Property covers approximately 84 acres and is irregular in shape (Figures 1 through 6), being up to about 2,700 feet long from east to west and up to about 2,200 feet wide from north to south.

2.1.2 Location and Directions

The Washington Glen Property is located on the west side of Yankee Street, just south of Austin Boulevard, in Washington Township, Montgomery County, Ohio (Figures 1 through 6).

Directions to the Washington Glen Property, from either I-75 South or I-75 North, are as follows.

1. Drive north or south on I-75 to Exit 41 for Austin Boulevard.
2. Exit from I-75 onto Exit 41 and turn left (from I-75 South), or right (from I-75 North) onto eastbound Austin Boulevard.
3. Drive east on Austin Boulevard for approximately 2 miles to the Yankee Street junction. Turn right (south) onto Yankee Street.
4. Continue south on Yankee Street for approximately 0.3 mile to the small office complex located on the right side of Yankee Road. A car can be parked in this parking lot.
5. The Washington Glen Property is located to the west of this section of Yankee Street.

2.1.3 Ownership

The Centerville Development Group LLC proposes to purchase the 84-acre Property. The Centerville Development Group's mailing address is as follows:

Centerville Development Group LLC
7196 Country Road 66A
New Bremen, Ohio 45869

2.1.4 Civil Engineer

The civil engineering and surveying services on this project are being provided by the following organization:

Thomas Winemiller & Associates, Inc.
34 East National Road
Vandalia, Ohio 45377

937-898-5862

2.1.5 Environmental Consultant

The environmental consulting services on this project are being provided by the following organization:

Otte Enterprises
505 Stevenson Road
Erlanger, Kentucky 41018-2437
859-342-8777

2.2 LAND USE

The following land-use information applies to the Washington Glen Property.

2.2.1 Current On-Site Land Usage

The Washington Glen Property currently supports the following land uses:

- The majority of the Washington Glen Property consists of active agricultural fields (soybeans).
- The remainder of the Washington Glen Property consists of uncultivated areas between soybean fields (fence lines and Wetlands D, E, and G), and a large undeveloped and uncultivated area in the southwestern portion of the property which includes a power line right-of-way and a recently logged (2009-2010) area that consists mostly of overgrown herbaceous and shrubby vegetation and some still-standing trees. This area also includes Wetland A, B, and C
- No buildings are located on the Washington Glen Property
- A stormwater detention basin is present in the easternmost portion of the Washington Glen Property that services an office complex and a childcare center located adjacent to the Washington Glen Property. This stormwater basin includes Wetland F.

2.2.2 Former On-Site Land Usage

The majority of the Washington Glen Property has primarily been used for row crops since at least the mid-1950s (earliest aerial photograph available – 1956). The areas that contain Wetlands D and E have been uncultivated since the late 1960s. The wooded area in the southwest portion of the Washington Glen Property has been wooded since the 1950s; the majority of this area was logged in 2009-2010.

2.2.3 Surrounding Land Use

The Property is located in southern Montgomery County, Ohio, where the majority of the land is a mixture of residential, rural residential, and agricultural uses (Figures 5 and 6). The Washington Glen Property is located within the limits of Washington Township. The land surrounding the Washington Glen Property has the following uses:

- East – An office complex and childcare center along Yankee Street are immediately adjacent to the Washington Glen Property. Residential subdivisions are located immediately east of Yankee Street.
- West – Residential subdivisions, active agricultural fields, and the Dayton-Wright Brothers Airport.
- North – Active agricultural fields and industrial and commercial properties along Success Lane.
- South – Active agricultural fields and residential subdivisions.

2.3 TOPOGRAPHIC SETTING

The Washington Glen Property has the following topographic features:

2.3.1 U.S.G.S Topographic Quadrangle

The Washington Glen Property is located on the Springboro, Ohio, 7.5 Minute U.S.G.S Topographic Quadrangle Map. See Figures 3 and 4 of this Report for the section of this quadrangle map that includes this property.

2.3.2 Latitude and Longitude

The location of the approximate center of the Washington Glen Property is at the following coordinates:

- Latitude = 39.59032° N Longitude = 84.20604° W

2.3.3 Topography

The topography on the Washington Glen Property is relatively subtle, with the land gently sloping to low spots in the soybean fields, and then moving as either sheet flow or via the shallow perched water tables to the wetland areas on the property. The entire Washington Glen Property eventually drains northward to Holes Creek.

High Elevation on the Property: On-site high elevation is about 999 feet above mean sea level (MSL), in the southwest corner of the property.

Low Elevation on the Property: On-site low elevation is about 952 ft above MSL, where Stream 1 exits the northwest corner of the property.

Maximum Elevation Change on the Property: The maximum elevation change on the Washington Glen Property is about 47 feet, as measured over a distance of about 2,500 linear feet, for an average grade of about 1.8%.

2.4 WATERSHEDS AND DRAINAGE PATTERNS

2.4.1 Regional Watershed and HUC Category

The Washington Glen Property is located in the following watersheds:

- Ohio River Watershed
- Lower Great Miami River Watershed: HUC No. 05080002
- Holes Creek
- Unnamed dashed blue-line tributaries of Holes Creek

2.4.2 Local Watershed and On-site Drainage Pattern

The Washington Glen Property drains to two separate intermittent tributaries of Holes Creek, which both flow northward and join with Holes Creek approximately 1.3 miles north of the property (Figures 2, 3, and 9).

2.4.3 FEMA FLOODZONE

The Washington Glen Property is located on FEMA Flood Insurance Rate Map 39113C0375E. This panel is not in print, as no FEMA flood zones exist in the area covered by the panel; therefore, no portion of the Washington Glen Property is in a FEMA floodzone.

2.5 SPECIAL USE WATERS AND ANTIDEGRADATION CLASSIFICATION

Holes Creek is listed in OAC 3745-1-21 with the following water use designations:

- WWH: Warm Water Habitat
- AWS: Agricultural Water Supply
- IWS: Industrial Water Supply
- PCR: Primary Contact Recreation

2.6 ON-SITE SOILS

Four soil series are mapped as being on the Washington Glen Property. The Washington Glen Property is located on Sheet 81 of the Montgomery County Soil Survey, published by the U.S. Department of Agriculture. See Figure 7 for the soil map of the property and the surrounding area.

The Washington Glen Property is underlain with a mosaic of the Brookston, Dana, Fincastle, and Xenia soil series. All four of these soils have seasonal water tables that range from 0.5-2 ft below ground surface.

The Brookston Soil Series is a listed hydric soil with the U.S. Department of Agriculture.

Brookston Soil Series (Bp): This soil consists of dark, very poorly drained soils that formed in calcareous loam glacial till. Depth to bedrock typically is greater than 5 feet. Brookston Soils have a well-developed structure and have moderate permeability within the uppermost 24 to 36 inches. Permeability in the underlying glacial till is moderately slow. Brookston Soils have a perched water table on top of the glacial till. The seasonal high water table is from one-half foot above ground surface to 1 foot below ground surface from December through May.

Dana Silt Loam (DaB): This soil consists of dark, moderately-drained soils that formed in glacial loess and underlying calcareous loam and glacial till. Dana soils have a high moisture capacity and moderately slow permeability. Bedrock is greater than 5 ft below ground surface. Dana soils have a seasonal water table from 1.5-3 ft below ground surface.

Fincastle Silt Loam (FcA): This soil consists of somewhat poorly drained soil that formed in glacial loess, overlying glacial till. This soil does not flood, but does have a shallow perched water table. Water table is typically between 1 and 3 feet below ground surface during January through April. Bedrock typically is between 4 and 6 feet below ground surface.

Xenia Silt Loam (XeB): This soil formed in a thin layer of glacial loess that overlies a thin layer of glacial till, resting on bedrock. This soil does not flood and has a shallow water table that is between 2 and 6 feet below ground surface, usually in March and April. Bedrock typically is at least 5 feet below ground surface.

2.7 ON-SITE GEOLOGY

The Washington Glen Property is underlain with Ordovician-aged limestone and shale bedrock. This bedrock is overlain with varying thicknesses of glacial-based sediments, consisting mostly of glacial tills overlain with glacial loess. The top of the bedrock is often the pathway for shallow groundwater, as well as the perched water tables in the overlying glacial-based soils.

2.8 ON-SITE VEGETATION SYSTEMS

The following vegetation systems are on the Washington Glen Property (Figures 5-6, 10, 12, 13, 15, 17, 19, 21, 23).

- **Active Agricultural Fields:** The majority of the Washington Glen Property, about 50 acres, is used for row crop agriculture. This past year (2014) all of the fields were planted in soybeans.
- **Vegetated Fence Rows:** Several fence rows on the Washington Glen Property run along the property lines and between the soybean fields. These fence rows support a growth of trees that form a band up to about 50 ft wide. Total combined length of the fence rows is about 7,850 linear ft. Total combined area of trees along these fence rows is about 9 acres. These fence rows consist of mid-sized tree and shrubs, including honey locust (*Gleditsia triacanthos*), black locust (*Robinia pseudoacacia*), shagbark hickory (*Carya ovata*), black walnut (*Juglans nigra*), several oak species (*Quercus spp.*), and Amur honeysuckle (*Lonicera maackii*).
- **Recently Logged Area:** A recently logged area is present in the southwest portion of the Washington Glen Property. This area is about 17 acres in size. This area had been wooded since at least the mid-1950s, and was logged in 2009-2010. This area now consists mostly of overgrown “weedy” and shrubby species, including goldenrod (*Solidago spp.*), teasel (*Dipsacus fullonum*), Queen Anne’s Lace (*Daucus carota*), multiflora rose (*Rosa multiflora*), blackberry (*Rubus alumnus*), Bradford pear (*Pyrus calleryana*), Amur honeysuckle (*Lonicera maackii*), and other pioneer species.
- **Wetland Areas:** A total of about 4.46 acres of eight different wetlands are located on the Washington Glen Property. The smaller wetlands (A, C, F, G, H) have fairly homogenous vegetation communities dominated by herbaceous species. The larger wetlands (B, D, E) each have several different vegetation communities, including wooded portions. These wetlands are discussed in detail in Section 3 of this Report, with photographs in Attachment A, wetland delineation forms in Attachment C, and ORAM scoring forms in Attachment D.

- **Farm Ponds:** Two small excavated farm ponds, totaling approximately 0.25 acre in area, are located within the area of Wetlands D and E.

2.9 THREATENED AND ENDANGERED SPECIES

Otte Enterprises evaluated the Washington Glen Property for the potential presence of habitat suitable for the two federally endangered land-based species and one proposed federally endangered species that are typically assessed for a permit from the Corps of Engineers in Montgomery County, Ohio: the Indiana bat (*Myotis sodalis*), the northern long-eared bat (*Myotis septentrionalis*), and running buffalo clover (*Trifolium stoloniferum*).

2.9.1 Indiana Bat and Northern Long-Eared Bat

Otte Enterprises walked the Washington Glen Property to evaluate the areas for the presence of potential Indiana bat and northern long-eared bat habitat. The wooded areas on the Washington Glen Property consist of wooded fence lines throughout the property, the 17-acre partially logged area in the southwestern portion of the property (including Wetland B), and the wooded portions of Wetlands D and E. These areas do contain some amount of larger trees, some of which are dead/dying with peeling bark. Some number of shagbark hickory trees are also present on the Washington Glen Property, both along the fence lines between the soybean fields and in the recently logged area in the southwest portion of the property which still contains some standing trees.

The wooded areas along the fence lines, in the wooded portions of Wetlands D and E, and in the recently logged area in the southwest portion of the property, will be considered at least roosting habitat and potential maternity habitat for the Indiana bat and the northern long-eared bat.

Centerville Development Group has submitted a letter to the Ohio Field Office of the U.S. Fish and Wildlife Service (USFWS), asking that this field office conduct an evaluation of the Washington Glen Property, relative to the potential presence of Indiana bat and northern long-eared bat habitat on the Property. Correspondence also has been sent to the Ohio Department of Natural Resources (ODNR) to determine if this office has any records of state- or federal-listed species being present on or near this property. Any correspondence from the USFWS and the ODNR regarding this matter will be forwarded to the Corps of Engineers.

2.9.2 Running Buffalo Clover

The following statements summarize our understanding of where running buffalo clover would be expected to be found in Montgomery County, Ohio.

- Running buffalo clover habitat includes localized disturbed sites along stream banks, bars, and terraces, old footpaths, old dirt roads, and grazed bottomlands; with mesic soils and filtered light.
- Running buffalo clover is found in older woodlots where grazing keeps the herbaceous growth down, but not where overgrazing removes everything and the ground is trampled by livestock.
- Running buffalo clover is found where an open forest floor has minimal ground cover.

- Running buffalo clover is found in wooded areas with a good leaf litter cover, where tree throws, mole hills, and other localized disturbances expose the topsoil.
- Running buffalo clover is found in wooded areas with filtered light, where such items as fallen trees or old logging roads have opened the canopy.

The majority of the Washington Glen Property consists of active agricultural fields. These areas are not considered good potential habitat for running buffalo clover. The forested areas on the Washington Glen Property are either too wet or have a dense undergrowth of *Lonicera spp.*, and would not be considered as potential habitat for running buffalo clover.

2.10 CULTURAL RESOURCES

A cultural resources literature review for the Washington Glen Property has been prepared by J&V Cultural Resources Management, LLC, of Union, Kentucky. The report summarizing this review is being submitted to the Corps of Engineers as part of this Section 404 permit application.

SECTION 3

DELINEATION OF WATERS OF THE UNITED STATES

A delineation of the Waters of the United States on the Washington Glen Property was conducted during the month of June 2014. The delineation was performed by Lee Otte, a biologist and geologist with Otte Enterprises.

3.1 SUMMARY OF DELINEATION

The development of the Washington Glen Property, as currently planned, will cover essentially the entire property (see Figure 26). The delineation was conducted for all of the hydrological features on the entire Washington Glen Property. This delineation was conducted by Otte Enterprises in June 2014. This delineation included streams that either originate on or flow into and/or through the Washington Glen Property. The delineation also included any ponds, lakes, or wetlands found on the property.

The following Waters of the United States are present on the Washington Glen Property (Figures 8-25). A detailed summary of information about these features is presented in Table 1. Wetland delineation forms are presented in Attachment C. ORAM scoring forms are presented in Attachment D.

The size, shape, and locations of the wetlands on the Washington Glen Property, as discussed herein, are based on the perimeters of these features being marked/flagged by Otte Enterprises and then surveyed by a licensed surveyor. These surveyed data were transferred to the topographic map prepared for the property, as depicted in Figures 9-23.

3.1.1: Ponds and Lakes

Two ponds are located on the Washington Glen Property; one within Wetland D and one within Wetland E. The areas of these ponds are included in the areas presented for Wetlands D and E.

3.1.2: Wetlands

Eight Wetland Areas are present on the Washington Glen Property (Wetlands A, B, C, D, E, F, G, and H). Total combined acreage of these wetlands is approximately 4.46 acre. Detailed descriptions of these wetlands can be found in Sections 3.3-3.10 of this report, in the wetland delineation forms in Attachment C, and in the ORAM scoring forms in Attachment D.

3.1.3: Perennial Streams

No perennial streams are present on the Washington Glen Property.

3.1.4: Intermittent Streams

One intermittent stream (Stream 1) is located on the Washington Glen Property. This stream is discussed in Section 3.11 of this report.

3.1.5: Ephemeral Streams

No ephemeral streams are present on the Washington Glen Property.

3.1.6: Swales Along Fence Lines

Several swales (Swales 1, 2, and 3) are present along the fence lines in the western portion of the Washington Glen Property. These swales eventually collect enough water to form intermittent Stream 1. These swales are discussed in Section 3.12 of this report.

3.1.7: Erosional Gullies and Swales in Soybean Fields

Several erosional gullies and swales are present throughout the soybean fields on the Washington Glen Property (Gully Systems 1, 2, 3, and 4). These gullies and swales are seasonal temporary features which flow across the fields and into several of the on-site wetlands during the late winter and spring. These features come and go with changes in seasonal and annual variation in precipitation. These features are discussed in further detail in Section 3.13 of this report.

3.1.8: Isolated Drainages in Woodlot

Several small drainages are present in the recently logged woodlot in the southwestern portion of the Washington Glen Property. These drainages are defined for short distances, but do not maintain sufficient continuously defined channels or ordinary high water marks to provide a connection to any other hydrological features on the property. These drainages are discussed in Section 3.14 of this report.

3.2 DELINEATION METHODS

The 7.5 Minute USGS Springboro, Ohio, Topographic Quadrangle Map (Figures 3 and 4) was used as a base map, to conduct an initial assessment of any streams or other Waters of the United States that may be present on the Washington Glen Property. A 1 inch = 200 feet topographic base map and aerial photographs were used to conduct the field assessment of the Property (Figure 9-10).

The Washington Glen Property was walked and evaluated as to the types of streams (ephemeral, intermittent, or perennial), ponds, lakes, or wetlands that may be present, and as to the quality of any such features (poor, average, or excellent). Each identified feature was evaluated as to its natural setting and the presence and extent of any prior human modifications to the feature. The results of this evaluation are presented below. Representative photographs of the Washington Glen Property can be found in Attachment A of this Report. Wetland delineation forms can be found in Attachment C, and the Ohio Rapid Assessment Method for Wetlands forms can be found in Attachment D.

3.3 WETLAND A

Wetland A is a small area of herbaceous vegetation located along the power line right-of-way in the southwestern portion of the Washington Glen Property. Wetland A is about 0.092 acre in size and consists of herbaceous species and small seedlings including *Carex spp.*, *Juncus tenuis*, *Scirpus pendulus*, *Eupatorium perfoliatum*, and *Fraxinus pennsylvanica*. The upland

area around Wetland A includes various old-field-type species including *Cirsium arvense*, *Dipsacus fullonum*, and *Solidago canadensis*.

Water flows north through this portion of the property; however, Wetland A does not have a defined hydrological connection to other waters on the Washington Glen Property.

Wetland A is a Category 1 Wetland, with an ORAM score of 24. Information about vegetation, soils, and hydrology in Wetland A can be found in the wetland delineation forms in Attachment C.

3.4 WETLAND B

Wetland B is located in the northeast corner of the recently logged area in the southwest portion of the Washington Glen Property. Wetland B is about 0.14 acre in size and is partially herbaceous emergent and partially wooded. Species present in Wetland B include *Carex spp.*, *Impatiens capensis*, *Scirpus atrovirens*, *Pilea pumila*, and *Salix nigra*. The upland area surrounding Wetland B consists of *Juglans nigra*, *Carya ovata*, *Lonicera maackii*, *Solidago canadensis*, and *Dipsacus fullonum*.

Water moves northward through Wetland B and concentrates along its northern edge and flows northward across the soybean field to the upper end of Wetland D. In the wetter months of the year, this surface flow forms temporary erosional gullies and swales in the unplanted soybean fields, which then dry up and fill in during the growing season. These drainageways are discussed in Section 3.13.

Wetland B is a Category 2 wetland, with an ORAM score of 42. Information about vegetation, soils, and hydrology in Wetland B can be found in the wetland delineation forms in Attachment C.

3.5 WETLAND C

Wetland C is located in the northwest corner of the recently logged area in the southwest portion of the Washington Glen Property. Wetland C is about 0.23 acre in size and consists of herbaceous species and small seedlings including *Carex spp.*, *Scirpus spp.*, *Juncus spp.*, *Impatiens capensis*, *Salix nigra*, and *Eupatorium perfoliatum*. The upland area surrounding Wetland C consists of herbaceous and woody saplings that have colonized since the logging activities in 2009-2010, and include *Solidago canadensis*, *Dipsacus fullonum*, *Daucus carota*, *Juglans nigra*, *Pyrus calleryana*, *Rosa multiflora*, and *Toxicodendron radicans*.

Water moves northward through Wetland C and flows into a pipe at its northwest corner, which flows under the farm road that runs along the western property line, and then combines with Swale 1. This swale is described in Section 3.12 of this report.

Wetland C is a Category 2 Wetland, with an ORAM score of 35. Information about vegetation, soils, and hydrology in Wetland C can be found in the wetland delineation forms in Attachment C.

3.6 WETLAND D

Wetland D is located in the western portion of the Washington Glen Property, in an uncultivated area between two soybean fields. Wetland D is about 2.177 acres in size and has several

different vegetation communities, including forested, a shallow pond, and mixed herbaceous areas.

Species present in Wetland D include *Carex spp.*, *Juncus spp.*, *Scirpus spp.*, *Phalaris arundinacea*, *Impatiens capensis*, *Alisma subcordata*, *Ludwigia peploides*, *Salix nigra*, *Acer saccharinum*, *Populus deltoides*, and *Echinochloa crus-galli*. The upland area surrounding Wetland D includes *Solidago canadensis*, *Dipsacus fullonum*, *Daucus carota*, *Toxicodendron radicans*, *Rosa multiflora*, and *Lonicera maackii*.

Water moves westward through Wetland D. Several small drainage pathways are present, but are vegetated and do not maintain a continuously defined channel or ordinary high water mark throughout the wetland. A shallow slough is located in the wooded portion of Wetland D, but does not have a defined ordinary high water mark. Water flowing through this slough and the lower portion of Wetland D enters an underground pipe under the farm road along the western edge of the wetland. This pipe discharges on the opposite side of the roadway and joins with Swale 1, forming intermittent Stream 1.

Wetland D is a Category 2 Wetland, with an ORAM score of 51. Information about vegetation, soils, and hydrology in Wetland D can be found in the wetland delineation forms in Attachment C.

3.7 WETLAND E

Wetland E is located in an uncultivated area in the northeastern portion of the Washington Glen Property. Wetland E is about 1.649 acre in size and has several different vegetation communities, including groves of young saplings, a shallow pond, and mixed herbaceous.

Species present in Wetland E include *Juncus spp.*, *Carex spp.*, *Scirpus spp.*, *Typha latifolia*, *Eupatorium perfoliatum*, *Salix nigra*, *Populus deltoides*, *Alisma subcordatum*, and *Ludwigia peploides*. The upland area surrounding Wetland E includes *Dipsacus fullonum*, *Solidago Canadensis*, *Daucus carota*, and *Lonicera maackii*.

Water moves northward through Wetland E, although no defined drainages are present within the wetland. Water moves into Wetland E from the southern portions of the Washington Glen Property, particularly Wetland G to the south, via small temporary drainageways that form in the soybean fields in the wetter months of the year. These drainageways are described in Section 3.13 of this report.

Wetland E is a Category 2 Wetland, with an ORAM score of 35. Information about vegetation, soils, and hydrology in Wetland E can be found in the wetland delineation forms in Attachment C.

3.8 WETLAND F

Wetland F is located within several ditches that have been cut into the bottom of a stormwater basin in the eastern portion of the Washington Glen Property. Wetland F is about 0.057 acre in size and consist of herbaceous emergent vegetation growing in sediment and shallow standing water that collects in the drainage ditches in the stormwater basin.

Wetland F receives stormwater runoff from the parking lots associated with the office complex to the north of the basin and the childcare facility to the south, as well as Yankee Street to the

east. Wetland F is not hydrologically connected to any other waters on the Washington Glen Property

Species present in Wetland F include *Typha spp.*, *Schoenoplectus tabernaemontani*, *Echinochloa crus-galli*, and *Salix nigra*. The remainder of the bottom of the stormwater basin consists of upland vegetation, including *Lespedeza cuneata*, *Cichorium intybus*, *Trifolium spp.*, and *Daucus carota*.

Wetland F is a Category 1 Wetland, with an ORAM score of 17. Information about vegetation, soils, and hydrology in Wetland F can be found in the wetland delineation forms in Attachment C.

3.9 WETLAND G

Wetland G is a small area of herbaceous vegetation located along the fence line between the soybean fields in the eastern portion of the Washington Glen Property. Wetland G is about 0.061 acre in size and receives drainage from the surrounding soybean fields.

Several erosional gullies flow northward from Wetland G towards Wetland E. These gullies form in the wetter months of the year and then dry up and are filled in during the growing season. These drainageways are discussed in Section 3.13 of this report.

Species present in Wetland G include *Typha latifolia*, *Carex spp.*, *Juncus scirpoides*, *Asclepias incarnate*, *Echinochloa crus-galli*, and *Salix nigra*. The surrounding upland area consists of *Lonicera maackii*, *Dipsacus fullonum*, *Daucus carota*, *Solidago canadensis*, and *Vernonia gigantea*.

Wetland G is a Category 1 Wetland, with an ORAM score of 16. Information about vegetation, soils, and hydrology in Wetland G can be found in the wetland delineation forms in Attachment C.

3.10 WETLAND H

Wetland H is a low area about 0.053 acre in size, located in the soybean field in the northwestern portion of the Washington Glen Property. This area is too wet for soybeans to grow and consists almost exclusively of *Echinochloa crus-galli*. This area is transient, such that it is either present or absent depending on the amount of precipitation of the given year. Aerial photographs show that this area supported a cover of soybeans as recently as 2012.

It is Otte Enterprises' opinion that this area should not be considered a jurisdictional Water of the United States, due to its transient nature and the dominance of the invasive species *Echinochloa crus-galli*.

3.11 INTERMITTENT STREAM 1

Intermittent Stream 1 flows for approximately 460 linear ft along the western property line, north of Wetland D. Stream 1 forms as Swale 1 to the south combines with drainage from Wetland D and maintains enough flow to develop a continuously defined channel and ordinary high water mark.

Intermittent Stream 1 flows from south to north, exits from the northwest corner of the

Washington Glen Property, and then flows northward to Holes Creek.

Intermittent Stream 1 has a stream bed of mostly soil and a channel width of about 3 ft.

3.12 SWALES 1, 2, AND 3

Several manmade swales are located along the fence lines around the edges of the soybean fields in the western portion of the Washington Glen Property. These swales hold water in the wetter months, particularly late winter and spring, but do not receive enough flow to maintain defined channels or ordinary high water marks.

- Swale 1: Swale 1 flows from south to north along the western property line for approximately 850 linear ft, just north of Wetland C and south of Wetland D. Swale 1 forms as runoff from Wetland C concentrates at its northwest corner and flows as a swale until it meets the downstream end of Wetland D. Swale 1 transitions to Stream 1 after its confluence with the water draining from Wetland D.
- Swale 2: Swale 2 flows from east to west along the northern edge of the recently logged woodlot in the southwestern portion of the property for approximately 450 linear ft. This swale collects water flowing from the woodlot to the south, and carries it westward, through a pipe under the roadway that runs north to south along the western property line, and into Swale 1.
- Swale 3: Swale 3 flows for a short distance, 600 linear ft, along the fence line just east/upgradient of Wetland D. Swale 3 flows westward and disperses into the upper end of Wetland D.

It is Otte Enterprises' opinion that these manmade swales should not be considered jurisdictional Waters of the United States or Waters of the State, as they do not have defined channels or ordinary high water marks.

3.13 TEMPORARY EROSIONAL GULLIES AND SWALES IN SOYBEAN FIELDS

Four systems of small erosional gullies are located throughout the soybean fields on the Washington Glen Property, which carry surface water to and from the wetland areas on the property. These gullies appear in the wetter months of the year, when soybeans are not present in the fields, but dry up and fill in with soils eroded from the fields during the crop growing season.

- Gully System 1: This series of gullies and swales is located in the soybean field in the westernmost portion of the Washington Glen Property. Water moves northward through this system, originating just north of Wetland C and flowing into the southern portion of Wetland D
- Gully System 2: This series of gullies and swales is located in the soybean field in the western portion of the Washington Glen Property. These gullies originate in either the northern part of Wetland B, or from a stormwater pipe which drains the detention basin at the north end of Newburg Court. Water moves northward through this system and into the east/upgradient end of Wetland D

- Gully System 3: Gully System 3 is the most well-defined of these features and is visible in multiple past aerial photographs. These gullies originate at the downgradient end of Wetland G, and flow northward to Wetland E.
- Gully System 4: Gully System 4 is located in the small soybean field in the southeastern portion of the Washington Glen Property. These gullies originate at a pipe which discharges stormwater from the off-site industrial buildings just south of this portion of the Washington Glen Property. Water moves northward through this system towards Wetland G.

These systems of gullies carry water across the Washington Glen Property and are periodically visible on aerial photographs and topographic maps. These gully systems provide hydrological connections between the wetlands on the property; however, none of these gullies maintain a defined channel or ordinary high water mark continuously between wetland areas. These gully systems also are periodically removed when the farmer who manages the soybean crop disks the fields in the fall after the crops have been harvested.

It is Otte Enterprises' opinion that these gullies they do provide hydrological connections between the jurisdictional wetlands on the Washington Glen Property, but are not jurisdictional in and of themselves, and should not be considered Waters of the United States or Waters of the State.

See Figures 24 and 25 for aerial photographs of these features, and Attachment A for representative ground photographs.

3.14 ISOLATED DRAINAGES IN WOODLOT

Several drainageways are present in the recently logged woodlot in the southwestern portion of the Washington Glen Property. These drainages are defined for short distances, but do not maintain a defined channel or ordinary high water mark to provide a connection to any other hydrological features on the Washington Glen Property.

SECTION FOUR

PROPOSED IMPACTS

This section describes the impacts to Waters of the United States during the development of the Washington Glen Property.

4.1 PROPOSED IMPACTS

The development plan for the Washington Glen Property calls for the cutting and filling and grading of essentially the entire property, including the following (Figure 26).

- All of Wetlands A, B, C, D, E, F, G, and H, totaling about 4.46 acres

4.2 AVOIDANCE AND MINIMIZATION

The Centerville Development Group has made a deliberate effort to design the layout of the new residential development to gain maximum benefit from the "lay-of-the-land" on this property and, at the same time, minimize impacts to onsite jurisdictional Waters of the United States.

Unfortunately due to the location of the on-site wetlands, and the requirements for the development (number of lots, stormwater detention/retention), some amount of cutting, filling, and grading work is necessary to create the level areas needed for the residential buildings and associated features (parking lots, roadways, retention basins, etc.), and it is not possible to avoid impacts to all of the on-site hydrological features.

The Centerville Development Group has decided that the most cost-effective option for the design of the residential development will involve impacts to all of Wetlands A, B, C, D, E, F, G, and H. Details pertaining to avoiding impacts to waters on the Washington Glen Property can be found in the Ohio EPA Alternatives Analysis in Attachment B of this report.

The Centerville Development Group has avoided impacts to all 460 linear ft of intermittent Stream 1. Stream 1 flows along the western property line, within a wooded fence line and parallel to an existing sewer line that also runs parallel to the fence line.

4.3 ESTIMATED FILL VOLUMES

The Washington Glen Property is relatively flat, such that minimal elevational change will be required when grading takes place to prepare the site for development, resulting in minimal fill placed above the area of the on-site wetlands. The amount of fill material that will be placed within the area of the wetlands on the Washington Glen Property has been estimated, as follows.

AMOUNT OF FILL MATERIAL TO BE PLACED IN THE STREAMS FOR ALTERNATIVE A (PREFERRED DESIGN) FOR WASHINGTON GLEN			
WETLAND	IMPACT AREA (square feet)	AVERAGE. DEPTH OF FILL (feet)	VOLUME OF FILL ABOVE OHWM (cubic yds)

A	4,000	1	148
B	6,100	1	226
C	10,000	2	741
D	94,800	1	3511
E	71,800	1	266
F	2,500	1	93
G	2,700	1	100
H	2,300	2	85
TOTAL	199,200 (4.46 acre)	---	5,170 cubic yards

A total fill of 5,170 cubic yards of fill material will be placed above the area of Wetlands A, B, C, D, E, F, G and H. The natural materials used to fill these wetlands will consist of clean soils and subsoils derived from the initial on-site grading process.

SECTION FIVE

PERMITTING AND MITIGATION REQUIREMENTS

The Centerville Development Group believes that the following federal and state permitting requirements apply to this project.

5.1 CORPS OF ENGINEERS PERMIT

The Centerville Development Group understands that the impacts to the wetlands on the Washington Glen Property will require a Section 404 permit from the Corps of Engineers

The Centerville Development Group understands that the development of the Washington Glen Property will require an Individual Permit from the Corps of Engineers, as the 4.46 acres of wetlands to be impacted exceeds the 0.5-acre limit needed to qualify for a Nationwide Permit.

The Centerville Development Group also understands that a pre-construction notification must be submitted to the district engineer prior to commencing any such residential development activity. This notification accompanies this Supporting Documentation Report.

5.2 OHIO EPA WATER QUALITY CERTIFICATION

The Centerville Development Group understands that it will be required to apply for an individual Ohio State Water Quality Certification as it is impacting greater than 0.5 acre of Category 1 and 2 wetlands during the development of the Washington Glen Property. The on-site to-be-impacted wetlands are Category 1 and 2 wetlands.

5.3 MITIGATION REQUIREMENTS

The Centerville Development Group understands that it will be required to mitigate for the loss of the waters of the United States that will be impacted for this project.

Centerville Development Group proposes to pay into The Nature Conservancy's in-lieu fee mitigation program for the loss of the 4.46 acres of wetlands.

TABLE 1: HYDROLOGICAL FEATURES ON THE WASHINGTON GLEN PROPERTY, CITY OF CENTERVILLE, MONTGOMERY COUNTY, OHIO

WETLAND	AREA (acres)	WETLAND TYPE
A	0.092	Mixed herbaceous
B	0.14	Forested and mixed herbaceous
C	0.23	Mixed herbaceous
D	2.177	Forested, mixed herbaceous, open water / aquatic bed
E	1.649	Forested, mixed herbaceous, open water / aquatic bed
F	0.057	Mixed herbaceous
G	0.061	Mixed herbaceous
H	0.053	Mixed herbaceous
TOTAL	4.46	

STREAM	LENGTH (feet)	AVERAGE WIDTH (feet)	AREA (square feet)	AREA (acres)
1	460	3	1,380	0.0317

TABLE 2: DETAILED DESCRIPTIONS OF THE WETLANDS LOCATED ON THE WASHINGTON GLEN PROPERTY, CITY OF CENTERVILLE, MONTGOMERY COUNTY, OHIO

Wetland	Type	Size (acres)	Soils		Dominant Vegetation	ORAM Category	Notes
			Series	Dominant Color			
A	Herbaceous emergent	0.092	Xenia	2.5Y 3/1, 3/2 very dark gray, very dark grayish brown	<i>Juncus tenuis, Impatiens capensis, Dipsacus fullonum, Solidago canadensis</i>	1	Wetland A is a low spot in the power line right-of-way in the southwestern portion of the property. This wetland supports a mixed growth of hydrophytic and non-hydrophytic vegetation
B – wooded	Wooded and herbaceous emergent	0.14	Xenia	10YR 3/2 very dark grayish brown	<i>Salix nigra, Fraxinus pennsylvanica, carex scoparia</i>	2	Wetland B is located in the northeast corner of the recently logged area in the southwest portion of the property. Wetland B has both wooded and open herbaceous areas.
B – mixed herbaceous	Herbaceous emergent		Xenia	2.5Y 3/2 very dark grayish brown	<i>Salix nigra, Impatiens capensis, Scirpus atrovirens</i>		
C	Herbaceous emergent	0.23	Brookston, Fincastle	2.5Y 3/1 very dark gray	<i>Juncus tenuis, Scirpus pendulus, Impatiens capensis, Carex vulpinoidea</i>	2	Wetland C is located in the northwestern corner of the recently logged area in the southwestern portion of the property. Wetland C is mostly herbaceous but does have some small shrubs and saplings
D – wooded	Wooded and herbaceous emergent	2.177	Brookston	10YR 3/1, 3/2 very dark gray, very dark grayish brown	<i>Populus deltoides, Fraxinus pennsylvanica, Impatiens capensis, Carex scoparia</i>	2	Wetland D is the largest and most diverse wetland on the property. It is located in an uncultivated area between two soybean fields in the western portion of the property. Wetland D has a wooded portion, a small pond, and several areas of mixed herbaceous vegetation.
D – mixed herbaceous	Herbaceous emergent		Brookston	10YR 3/2, 2.5Y 3/2 very dark grayish brown	<i>Phalaris arundinacea, Echinochloa crus-galli, Solidago canadensis</i>		
D – pond	Open water and aquatic bed		Brookston	10YR 4/1, 3/1 dark gray, very dark gray	<i>Salix nigra, Alisma subcordatum, Ludwigia peploides</i>		
E – wooded	Wooded / sapling and herbaceous emergent	1.649	Brookston	2.5Y 3/2 very dark grayish brown	<i>Populus deltoides Salix nigra, Impatiens capensis</i>	2	Wetland E is located within a large uncultivated area in the northernmost portion of the property. Wetland E is diverse, with a wooded area, a small pond, a young sapling area, and a mixed herbaceous area.
E – mixed herbaceous	Herbaceous emergent		Brookston	2.5Y 3/1 very dark gray	<i>Salix nigra, Juncus spp., Carex spp.</i>		
E – pond	Open water and aquatic bed		Brookston	10YR, 2.5Y 3/2 very dark grayish brown	<i>Salix nigra, Ludwigia peploides, Alisma subcordatum</i>		
F	Herbaceous emergent	0.057	Dana, Xenia	2.5Y 3/1, 5/1, 5/6 very dark gray, gray, light olive brown	<i>Typha spp., Schoenoplectus tabernaemontani</i>	1	Wetland F is located in several drainage ditches which have been excavated into the bottom of a stormwater detention basin in the easternmost portion of the property. Wetland F consists of herbaceous vegetation growing in these ditches

TABLE 2: DETAILED DESCRIPTIONS OF THE WETLANDS LOCATED ON THE WASHINGTON GLEN PROPERTY, CITY OF CENTERVILLE, MONTGOMERY COUNTY, OHIO							
Wetland	Type	Size (acres)	Soils		Dominant Vegetation	ORAM Category	Notes
			Series	Dominant Color			
G	Herbaceous emergent	0.061	Dana, Xenia	2.5Y 3/1 very dark gray	<i>Salix nigra</i> , <i>Cyperus strigosus</i> , <i>Solidago canadensis</i>	1	Wetland G is located in a low spot along the edge of a soybean field in the eastern portion of the property. Wetland G consists of herbaceous vegetation and small saplings
H	Herbaceous emergent	0.053	Brookston, Fincastle	2.5Y 5/4, 3/2, 4/4 light olive brown, very dark grayish brown, olive brown	<i>Echinochloa crus-galli</i> , <i>Typha latifolia</i>	1	Wetland H is located in a low spot in a soybean field in the western portion of the property. Wetland H consists almost entirely of <i>Echinochloa crus-galli</i>

LIST OF FIGURES

1	Highway Map showing the location of the Washington Glen Property
2	Enlarged Highway Map showing the location of the Washington Glen Property
3	U.S.G.S. Springboro, Ohio, 7.5 Minute Topographic Quadrangle Map showing the area in and around the Washington Glen Property
4	Enlarged section of U.S.G.S. Springboro, Ohio, 7.5 Minute Topographic Quadrangle Map showing the Washington Glen Property
5	2013 aerial photograph of the Area Around the Washington Glen Property
6	Enlarged 2013 aerial photograph of the Washington Glen Property
7	Soil Map for the Property
8	U.S. Fish and Wildlife Service National Wetlands Inventory Map of the Washington Glen Property
9	Existing conditions topographic map, showing the hydrological features on the Washington Glen Property
10	Existing conditions aerial photograph showing the hydrological features on the Washington Glen Property
11	Enlarged existing conditions topographic map showing Wetlands A, B, and C on the Washington Glen Property
12	Enlarged existing conditions aerial photograph showing Wetland A on the Washington Glen Property
13	Enlarged existing conditions aerial photograph showing Wetlands B and C on the Washington Glen Property
14	Enlarged existing conditions topographic map showing Wetland D on the Washington Glen Property
15	Enlarged existing conditions aerial photograph showing Wetland D on the Washington Glen Property
16	Enlarged existing conditions topographic map showing Wetland E on the Washington Glen Property
17	Enlarged existing conditions aerial photograph showing Wetland E on the Washington Glen Property
18	Enlarged existing conditions topographic map showing Wetland F on the Washington Glen Property
19	Enlarged existing conditions aerial photograph showing Wetland F on the Washington Glen Property
20	Enlarged existing conditions topographic map showing Wetland G on the Washington Glen Property
21	Enlarged existing conditions aerial photograph showing Wetland G on the Washington Glen Property
22	Enlarged existing conditions topographic map showing Wetland H on the Washington Glen Property
23	Enlarged existing conditions aerial photograph showing Wetland H on the Washington Glen Property
24	Existing conditions winter aerial photograph showing the gully systems on the Washington Glen Property
25	Existing conditions summer aerial photograph showing the gully systems on the Washington Glen Property

ATTACHMENT A

REPRESENTATIVE

GROUND PHOTOGRAPHS

ATTACHMENT B

OHIO EPA

ALTERNATIVES ANALYSIS

ATTACHMENT C

WETLAND DELINEATION FORMS

ATTACHMENT D

OHIO RAPID ASSESSMENT METHOD

FOR

WETLANDS