WETLAND AND WATERCOURSE DELINEATION REPORT

for the

NORTON PLACE, PHASE II
CITY OF AVON, LORAIN COUNTY, OHIO

Prepared for

Perpetual Development
39093 Case Road
Avon, Ohio 44011

December 2015
Revised March 2016
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## APPENDICES

A. Project Maps  
B. Wetland Determination Map  
C. Photographic Log  
D. USACE Wetland Determination Data Forms
1.0 INTRODUCTION

Atwell, LLC (Atwell) was retained by Perpetual Development to perform a wetland delineation and watercourse assessment for an approximately 48-acre project area (Site) located northeast of the intersection of Jaycox Road and Detroit Road in the City of Avon, Lorain County, Ohio (refer to Appendix A: Figure 1 - Site Location Map).

Activities that may impact federal or state regulated or protected wetlands, watercourses, floodplains, or open water areas must be authorized by the appropriate regulatory agencies prior to project activities taking place. Wetlands that are hydrologically connected or adjacent to traditional navigable waters of the United States are regulated by the U.S. Army Corps of Engineers (USACE). Wetlands that are considered hydrologically isolated are regulated by the Ohio Environmental Protection Agency (OEPA). This report summarizes the surface water features identified within the Site.

2.0 SITE DESCRIPTION

The Site is located at 41.454491°, -81.998125° and predominantly consists of new field and scrub/shrub areas with small woodlots along the northern and eastern boundaries of the Site. The Site is located within the Black-Rocky Watershed (HUC 04110001) and within the USACE’s Buffalo District. Land adjacent to the Site consists of developed residential properties, agricultural land, and undeveloped woodlots.

3.0 METHODS

Atwell conducted a desktop review of existing information and imagery including aerial photographs, United States Geological Service (USGS) topographic maps, county soil survey maps, National Wetland Inventory (NWI) maps, and Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs). The results of this desktop review were used to focus field efforts on regulated surface waters that are likely to be found within the Site.

In order to ascertain the presence of regulated surface waters, an on-site evaluation of the Site was conducted, which included the identification and delineation of wetlands, watercourses and open water areas.

3.1 Aerial Photograph Review

Atwell utilized aerial imagery from 2012 and National Agriculture Imagery Program (NAIP) aerial imagery from 2013 to guide field efforts and outline land cover characteristics within the Site.

3.2 USGS Topographic Map Review

The 1994 USGS 7.5 Topographic North Olmsted, Ohio, Quadrangle was reviewed for overall topography, natural features, and additional characteristics within the Site. Refer to the Site Location Map in Appendix A: Figure 1.
3.3 County Soil Survey Map
The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil data for Lorain County was reviewed to determine if hydric soils may be present within the Site. Refer to the County Soil Survey Map in Appendix A: Figure 2.

3.4 Wetland and Stream Inventory Map Review
A review of NWI mapping was conducted to determine the presence, location, size, and type of mapped wetlands within the Site. The USFWS produces NWI maps through aerial photograph interpretation. In addition, United States Geological Service (USGS) National Hydrography Dataset (NHD) stream locations were reviewed for the Site. Refer to the NWI and NHD Map in Appendix A: Figure 3.

3.5 Floodplain Map Review
FIRMs (Flood Insurance Rate Maps) are maps that show floodplain areas along rivers and their tributaries. The maps record the following data: 100-year floodplains (1% chance of annual flooding) and 500-year floodplains (0.2% annual chance of flooding), the height of the base flood elevation, and the risk to premium areas developed across a floodplain. A review of the FEMA FIRMs for Lorain County and Atwell’s database of previously acquired Digital FIRMs (DFIRMs) was conducted to determine the existence, location, and zone of any 100-year floodplain that may be located within the Site. The FEMA FIRM Map is included in Appendix A: Figure 4.

3.6 On-Site Wetland Delineation
The on-site wetland delineation was performed in accordance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (USACE 2012). The determination of wetland presence depends on three basic, inter-related parameters: 1) presence of hydrophytic (i.e., wetland) vegetation, 2) presence of hydric soils, and 3) presence of wetland hydrology. Wetland boundary points were flagged and recorded using a sub-meter GeoXH™ Trimble® GeoExplorer® 7000 series GPS unit, which provides a spatial error of less than one meter. Wetland data points were mapped with the GPS unit within each wetland area identified, along with corresponding upland data points outside the wetland boundary. USACE wetland determination data forms were completed for each wetland and upland data point. Wetland boundaries and data points are depicted on the Wetland Determination Map included in Appendix B.

3.7 On-Site Watercourse and Open Water Assessment
Potentially regulated watercourses were identified and recorded based on the presence of stream morphological characteristics such as a defined bed, banks, and evidence of continued flow or occurrence of water. Any open water features were also documented and their boundaries mapped using a GPS unit or aerial photography. Any potentially regulated watercourses and open water areas identified within the Site are depicted on the Wetland Determination Map included in Appendix B.
4.0 RESULTS, FINDINGS, AND DISCUSSION

4.1 Overall Topography and Landscape
The 1994 USGS 7.5 Topographic North Olmsted, Ohio, Quadrangle indicates that the Site is gently sloping in a northerly direction from approximately 660 to 645 feet above mean sea level (USGS 1994). Refer to the Site Location Map in Appendix A: Figure 1.

The NRCS soil data for Lorain County indicate that ten (10) soil types underlie the Site, eight of which are considered hydric soils. Hydric soils are conducive to the growth and regeneration of hydrophytic (i.e., wetland) vegetation because of their tendency to remain saturated for extended periods of time (NRCS 2011). Refer to the County Soil Survey Map in Appendix A: Figure 2 for the location of various soil types within the Site.

NWI mapping identified two (2) PFO1C (Freshwater Forested/Shrub Wetland) wetlands within the northern portion of the Site (USFWS 2014). NHD mapping did not identify watercourses within the Site (U.S. Geological Survey [USGS] 2014). Refer to the NWI and NHD Map in Appendix A: Figure 3.

Atwell’s review of the 2008 FEMA FIRM Panel 39093C0153D for Lorain County revealed that the Site lies within Zone X (unshaded) indicating that the Site is located outside of areas designated as 100-year and 500-year floodplains (FEMA 2014). Refer to the FEMA FIRM Map in Appendix A: Figure 4.

4.2 Wetland Delineation Results
Atwell conducted on-site assessments of the Site on September 23, 2015, and November 24, 2015. During the site assessments, Atwell identified three (3) wetlands and one (1) stream within the Site. Photographs depicting identified features and site conditions are provided in Appendix C. Refer to USACE Wetland Determination Data Forms in Appendix D for detailed information on each identified wetland and adjacent upland area. Wetlands and streams identified during the site investigations are depicted on the Wetland Determination Map provided in Appendix B and listed in Table 1 and Table 2, below.

<table>
<thead>
<tr>
<th>Wetland Designation</th>
<th>Vegetation Type</th>
<th>On-Site Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>PEM</td>
<td>0.14*</td>
</tr>
<tr>
<td>E</td>
<td>PEM</td>
<td>14.80</td>
</tr>
<tr>
<td>F</td>
<td>PEM</td>
<td>15.27*</td>
</tr>
<tr>
<td>F</td>
<td>PSS</td>
<td>5.38</td>
</tr>
</tbody>
</table>

Total: 35.59 acres

*This feature extends off site.
Table 2. Stream Inventory Table

<table>
<thead>
<tr>
<th>Stream Designation</th>
<th>Flow Regime</th>
<th>On-Site Linear Footage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Perennial</td>
<td>473*</td>
</tr>
</tbody>
</table>

*This feature extends off site.

5.0 CONCLUSIONS

Atwell identified three (3) wetlands and one (1) stream within the Site. The USACE determines the jurisdictional status of wetlands and streams within the State of Ohio and should be contacted to perform a jurisdictional determination.

Should you have any questions regarding this report, please feel free to contact our office at (440) 349-2000.

ATWELL, LLC

Heather Tyson
Environmental Consultant
Natural Resources Group

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Project Manager
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CITATIONS


COMMON WETLAND DEFINITIONS

**Atypical wetland:** This term refers to areas in which one or more parameters (vegetation, soil and/or hydrology) have been sufficiently altered by human activities or natural events to preclude the presence of wetland indicators of the parameter.

**Emergent Wetland:** Vegetative classification of a wetland system based on the dominant vegetation consisting of rooted herbaceous plant species that have parts extending above a water surface.

**100-year Flood:** A flood with a magnitude that has a 1% chance of occurring or being exceeded in any given year.

**Floodplain:** The area of land adjoining a river or stream that will be inundated by a 100-year flood.

**Floodway:** The channel of a river or stream and the portions of the floodplain adjoining the channel, which are reasonably required to carry and discharge a 100-year flood.

**Hydric Soil:** Soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (1991 National Technical Committee on Hydric Soils definition).

**Hydrophytes:** Plant species that grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats.

**Scrub-Shrub Wetland:** Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants less than three inches in diameter but greater than three feet in height.

**Typical Situation:** That, which normally, usually, or commonly occurs.

**Vernal Pool:** Shallow, seasonally flooded, forested wetland, generally dry for most of the summer and fall.

**Wooded (Forested) Wetland:** Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants three inches in diameter or greater regardless of height.

**Wetland:** “…land characterized by the presence of water at a frequency and duration sufficient to support and that under normal circumstances does support, wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh…” as defined by Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451.

**Wetland Hydrology:** Hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season.
COMMON UPLAND DEFINITIONS

*Old Growth Forest:* A forest that has attained great age without significant disturbance and thereby exhibits unique ecological features.

*Secondary Growth Forest:* A forest or woodland area which has re-grown after a major disturbance such as fire, insect infestation, timber harvest or wind throw, until a long enough period has passed so that the effects of the disturbance are no longer evident.

*Shrub Thicket:* A very dense stand of small trees or tall shrubs, often dominated by only one or a few species, to the exclusion of all others.

*Upland Old Field:* An upland ecosystem that develops on abandoned farmland

WETLAND INDICATOR STATUS:

OBL: Obligate wetland plant that under natural conditions occurs in wetlands 99% of the time. These plants rarely occur in non-wetland areas.

FACW: Facultative wetland plant that occurs in wetlands 67% to 99% of the time and in non-wetlands 1% to 33% of the time.

FAC: Facultative plant that is equally likely to occur in wetland and non-wetland areas. These plants occur in both wetlands and non-wetlands 33% to 67% of the time.

FACU: Plant that sometimes occurs in wetlands (1% to 33% of the time). These plants occur in non-wetlands 67% to 99% of the time.

UPL: Plant that occurs in uplands 99% of the time. This plant rarely occurs in wetland areas.