

# APPENDIX B

## Wetland Delineation

# ***WETLAND DELINEATION***

Seven Hills Sanitary Sewer Project Area  
Located Between Broadview Road and Laura Lee Lane  
in the City of Seven Hills, Cuyahoga County, Ohio

*June 2011*

Prepared for:

CT Consultants, Inc.  
8150 Sterling Court  
Mentor, OH 44060

Prepared by:



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Appendices  
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# WETLAND DELINEATION

Seven Hills Sanitary Sewer Project Area  
Located Between Broadview Road and Laura Lee Lane  
in the City of Seven Hills, Cuyahoga County, Ohio (H11010)

## 1.0 INTRODUCTION

On April 28, 2011, HzW Environmental Consultants, LLC (HzW) conducted a wetland delineation of the Seven Hills Sanitary Sewer Project Area located between Broadview Road and Laura Lee Lane in the City of Seven Hills, Cuyahoga County, Ohio (herein referred to as the "Project Area"). This study was conducted in accordance with HzW's letter agreement with CT Consultants, Inc., (herein referred to as "the Client") dated September 7, 2010, and accepted January 5, 2011.

### 1.1 Purpose

The primary purpose of this wetland delineation was to identify areas within the boundaries of the Project Area that meet the three (3) criteria of a wetland: hydrophytic vegetation, hydric soils and wetland hydrology and any other areas (streams, ponds, etc.) that are considered "waters of the United States" and "waters of the State of Ohio."

### 1.2 Methods of Investigation

All investigative methods and field procedures were performed in accordance with the guidelines established in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (ERDC/EL TR-09-19; October 2009) and the 1987 Army Corps of Engineers (Corps) Manual, Technical Report Y-87-1, Field Guide for Wetland Delineation (1987 Manual). As required by the 1987 Manual, available reference materials were reviewed for the Project Area. These references included the 1977 Cleveland South/1977 Broadview Heights, Ohio National Wetlands Inventory (NWI) map published by the United States Fish and Wildlife Service; the 1994 Cleveland South/1963 (Photorevised 1984) Broadview Heights, Ohio USGS 7.5 Minute Topographic Quadrangle Map; the Soil Survey of Cuyahoga County, Ohio (Soil Survey) issued in 1980 by the United States Department of Agriculture (USDA); and a list of hydric soils published by the Natural Resource Conservation Service (NRCS) for Cuyahoga County.

The site investigation methods followed the "Areas Greater than 5 Acres in Size," as described in Section D - Subsection 2 of the 1987 Manual. As a new plant community or change in hydrology was observed, a data point was established (designated "DP1" – "DP4"). At each data point, field conditions were evaluated and recorded to determine the presence or absence of hydrophytic vegetation, hydric soil conditions, and wetland hydrology. In addition, a photographic log was prepared for the Project Area during the site investigation activities. At any data point exhibiting all three (3) wetland criteria, the wetland area was assigned a letter designation (e.g., Wetland A) and the delineated boundary of the wetland area was flagged with consecutively numbered, pink and black striped field flagging. The location of each flag was mapped using a Trimble® GeoXH Global Positioning System (GPS) unit. A discussion of the three (3) evaluation criteria of a wetland is presented below.

### Hydrophytic Vegetation

Hydrophytic vegetation is the community of macrophytes that occur in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present. Hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during the growing season. Hydrophytic vegetation is determined by the wetland indicator status (Reed, 1998, or current approved list) of species that make up the plant community. Species in the facultative categories (FACW, FAC, and FACU) are recognized as occurring in both wetlands and non-wetlands to varying degrees. In general, wetlands are dominated mainly by species rated OBL, FACW, and FAC.

The dominant vegetation, representing the major landscape or vegetation units, was determined for each of the four strata (tree, sapling/shrub, herbaceous, and vine) within one or more sampling plots established in representative locations within each unit. Plot size is determined by the type of vegetation present in accordance with the following table.

Trees	30-foot radius
Saplings/shrubs	15-foot radius
Herb	5-foot radius
Woody Vines	30-foot radius

In general, percent cover for all species was estimated to determine abundance (dominance). For species determined to be dominant, the appropriate indicator status was assigned. If all dominant species across all strata were listed as OBL and/or FACW, the plot was determined to exhibit hydrophytic vegetation and a detailed comparison of all dominant species was not necessary to make this determination. If the plot is not dominated solely by OBL and FACW species across all strata, dominant species within all strata were then added to determine the percentage of wetland vegetation for each sample point. The hydrophytic vegetation criterion was determined to be met if greater than 50 percent of the dominant vegetation across all strata was indicative of hydrophytic vegetation.

### Hydric Soils

Hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. To determine the extent of hydric soils in the Project Area, soil samples were obtained at each data point or at a point proximal to a data point that best represents the estimated boundary of hydric/non-hydric soils based on other field observations. A standard Munsell soil color chart was used to determine the hue, value, and chroma of each soil sample. Soil samples were taken at a sufficient depth such that soil conditions immediately below the A horizon or at a depth of ten (10) inches, whichever is shallowest, can be observed. Criteria established by the National Technical Committee for Hydric Soils (1991 and 2006) were used to determine hydric soils. Hydric soil indicators including redox depletions (gley), low chroma colors with redox concentrations (mottles), histosols (organic matter accumulation - muck/peat), histic epipedons (organic soil over low chroma mineral soils), sulfidic odor, listing on a local hydric soils list, and listing on a national hydric soil list, are used to determine the presence of hydric soils.

### Wetland Hydrology

Wetland hydrology indicators are used in combination with indicators of hydrophytic vegetation and hydric soils to determine whether an area is a wetland. Typically, vegetation and soils provide strong evidence that wetland hydrology is also present. Hydrology indicators provide evidence that the site has a *continuing* wetland hydrologic regime and confirm that an episode of inundation or soil saturation occurred recently. Hydrology indicators may provide little additional information about the timing, duration, or frequency of such events. Each data point was examined for the presence of primary and secondary hydrological indicators that indicate surface water or soil saturation, evidence of recent inundation, evidence of current or recent soil saturation, and other on-site conditions or data.

## 2.0 SITE DESCRIPTION

On April 28, 2011, Traci Snode, Environmental Biologist of HzW, conducted a field investigation of the Project Area. The Project Area is located between Broadview Road and Laura Lee Lane in the City of Seven Hills, Cuyahoga County, Ohio. Presently, the Project Area consists of residential and commercial properties, associated driveways, roadways, lawns, ditches, and culverted waterways. The Project Area is bordered to the north, east, and west by residential properties, and to the south by Hillside Junior High School. A site map depicting the location of the Project Area is included as **Appendix A - Figure 1**.

The Project Area is located in the Lake Erie watershed within the Cuyahoga River and West Creek sub-watersheds and is situated on the Lake Plain ecoregion within the glaciated Allegheny plateaus region of Ohio.

### 3.0 FINDINGS

The findings of the background resources reviewed and field investigation conducted as part of the delineation activities are discussed separately.

#### 3.1 Background Research

##### 3.1.1 *1977 Cleveland South, Ohio/1977 Broadview Heights, Ohio National Wetlands Inventory (NWI) maps*

No wetlands or streams are indicated within the boundaries of the Project Area on the NWI map. The portion of the 1977 Cleveland South, Ohio/1977 Broadview Heights, Ohio NWI map showing the Project Area is presented as **Appendix A - Figure 2**.

##### 3.1.2 *1994 Cleveland South, Ohio/1963 (Photorevised 1984) Broadview Heights, Ohio USGS 7.5 Minute Topographic Quadrangle Map*

The topographic quadrangle indicates that the topography of the Project Area slopes steeply in the eastern portion of the Project Area with an average elevation of 1140 feet above National Geodetic Vertical Datum (NGVD) in the southwest portion of the Project Area to an average elevation of 1050 NGVD in the eastern portion of the Project Area. No wetlands and one (1) stream is indicated within the Project Area which is inconsistent with the NWI map. The portion of the Cleveland South/Broadview Heights topographic quadrangle depicting the Project Area is presented as **Appendix A - Figure 3**.

##### 3.1.3 *1980 Soil Survey of Cuyahoga County*

The Soil Survey, sheet numbers 39 and 48, indicates that the Project Area is underlain by the following six (6) soil types:

- BrF Brecksville silt loam, 25 to 70 percent slopes.** This is a moderately deep, steep and very steep well drained soil found along drainageways on uplands. Included with this soil in mapping are small areas of deep Glenford and Ellsworth soils found on the upper parts of slopes. Permeability is slow. Runoff is very rapid.
- EID Ellsworth silt loam, 12 to 18 percent slopes, eroded.** This is a deep, moderately steep and moderately well drained soil found on convex ridgetops and along well defined drainageways. Included with this soil in mapping are small areas of Brecksville soils. A perched seasonal high water table is at a depth of 24 to 36 inches in winter and spring. Permeability is slow or very slow. Runoff is very rapid.
- HsC Hornell-Urban land complex, rolling.** This soil is moderately deep and somewhat poorly drained rolling Hornell soil and Urban land. Included with this soil in mapping are small areas of poorly drained Allis soils found on toe slopes and flat areas.
- MgA Mahoning Silt Loam, 0 to 2 percent slopes.** This deep soil is nearly level and somewhat poorly drained. This soil is in broad areas on till plains and higher parts of lake plains. Included with this soil in mapping are small areas of the poorly drained Condit soils in depressions. Also included are small areas of the Haskins soils that formed in glacial outwash over glacial till or lakebed sediments

and the Mitiwanga soils which have sandstone bedrock at a depth of 20 to 40 inches. This soil has a perched seasonal high water table at a depth of 12 to 30 inches in winter, in spring, and during extended wet periods. Permeability is slow or very slow. Runoff is slow.

**MgB Mahoning Silt Loam, 2 to 6 percent slopes.** This deep soil is gently sloping and somewhat poorly drained. This soil is in broad areas on till plains. Included with this soil in mapping are small areas of the moderately well drained Ellsworth soils on slight rises. Also included are small areas of the Haskins soils. Permeability is slow or very slow. Runoff is medium.

**MmB Mahoning Urban land complex, undulating.** This map unit consists of a deep, somewhat poorly drained Mahoning soil and Urban land in broad, undulating areas on till plains and on the higher parts of lake plains. Slopes range from 0 to 6 percent. Included with this soil in mapping are small areas of the poorly drained Condit soils along drainageways and in depressions and the moderately well drained Ellsworth soils on rises. Most areas are artificially drained by sewer systems, gutters, subsurface drains, and, to a lesser extent, surface ditches. Areas of the Mahoning soil that are not drained have a perched water table at a depth of 12 to 30 inches. Permeability is slow or very slow. Runoff is slow and medium.

The Cuyahoga County Soil Survey indicates three (3) streams in the eastern portion of the Project Area, which is inconsistent with the findings of the topographic map and NWI map. A copy of the Soil Survey map is presented as **Appendix A - Figure 4**.

### 3.1.4 *Hydric Soils List for Cuyahoga County*

According to the list of hydric soils for Cuyahoga County, BrF, HsC, MgA, and MmB are classified as non-hydric soils with hydric components. The remaining soils, EID and MgB, are classified as non-hydric soils.

## 3.2 **Field Investigation**

### 3.2.1 *On-Site Ecology*

The Project Area is comprised of non-wetland habitats and wetland habitats. The wetland habitat areas are associated with low lying areas and drainage areas throughout the Project Area and are described in the *Wetland Areas Delineated* section of this report.

The findings of the field investigation indicate that the Project Area is underlain by both hydric and non-hydric soils, which is consistent with the Soil Survey.

### 3.2.2 *Wetland Areas Delineated*

Field investigation data gathered on April 28, 2011, identified two (2) areas that are classified as wetland based on the presence of the three (3) wetland criteria (wetland hydrology, hydric soils, and hydrophytic vegetation). These areas are designated by HzW as "Wetland A" and "Wetland B". The location of the wetlands and the data points (designated "DP1" through "DP4") established during delineation activities are indicated on the wetland location map presented as **Appendix A -**

**Figure 5A and 5B.** The base map used for Figure 5, including topographic contours and the Project Area boundaries, was created using mapping provided by the Client. Descriptions of the wetland areas identified within the boundaries of the Project Area are provided in **Table 1**, below. The photographic log prepared for the Project Area during the field investigation activities is included as **Appendix B**. The data sheets prepared for the Project Area are included as **Appendix C**.

**Table 1 Summary of On-Site Wetlands**

<u>Wetland</u>	<u>Type</u>	<u>Data Point</u>	<u>Photograph</u>	<u>Acres</u>
A	Woodland/Scrub/Shrub	DP1	1	0.15
B	Woodland/Scrub/Shrub	DP3	4	0.07
<b>TOTAL</b>				<b>0.22</b>

3.2.3 *Streams*

Three (3) streams were observed within the Project Area: one (1) perennial stream, one (1) intermittent stream, and one (1) ephemeral stream. A description of the streams identified within the boundaries of the Project Area is provided in **Table 2**, below.

**Table 2: Summary of On-Site Streams**

<u>Type</u>	<u>Photograph</u>	<u>Linear Feet</u>	<u>Acres</u>
Ephemeral Stream	22	236	0.010
Intermittent Stream	23, 24	1,415*	0.097*
Perennial Stream	7-21	2,132*	0.196*
<b>TOTAL</b>		<b>3,783*</b>	<b>0.303*</b>

\*Represents on-site acreage and linear feet

3.2.4 *Non-Wetland Areas*

The data collected at the remaining data points, DP2 and DP4, did not meet all of the criteria of a wetland; therefore, these areas are considered non-wetland. Refer to the data sheets included as **Appendix C** for more detailed information regarding the hydrology, soils, and vegetation found at the non-wetland data point.

#### 4.0 CONCLUSIONS

In summary, two (2) areas within the Project Area were identified as containing hydrophytic vegetation, hydric soil, and wetland hydrology, which satisfy the criteria of a wetland. Upon completion of the delineation, the location and configuration of the wetland areas located within the Project Area were mapped using a Trimble® GeoXH GPS unit, which has an accuracy of less than one (1) meter.

In addition, one (1) ephemeral stream, one (1) perennial stream, and one (1) intermittent stream were identified within the Project Area. No additional aquatic resources were identified within the Project Area.

The Corps will make the final determination regarding jurisdiction of the wetlands during the affirmation process.

## 5.0 DISCUSSION

Based on the United States Supreme Court ruling (No. 99-1178), issued on January 9, 2001, it is HzW's understanding that those wetlands that are non-navigable, isolated, and intrastate may no longer be included in the Corps' jurisdiction. In order to inform the Client of all available scenarios pertaining to the development of the Project Area, discussions presented in this report are based on the wetland delineation activities being conducted in accordance with the 1987 Manual and the 2009 Interim Regional Supplement, which evaluate wetland characteristics irrespective of whether the wetland area is considered to be non-isolated (federally-regulated) or isolated (state-regulated). Currently, the Corps is making jurisdictional determinations.

For most Nationwide Permits (NWP), if the impacts associated with the activity/development do not exceed 300 linear feet of stream channel and 0.50 of an acre of non-isolated wetlands, coverage under an NWP is appropriate. (Note: all stream impacts must be converted to an acreage and added to the non-isolated wetland impacts; the total impact to all "waters of the U.S." must be under 0.50 of an acre to qualify for this coverage.) In addition, should total impacts to perennial and intermittent streams be greater than 200 linear feet, although these impacts may be authorized under the NWP program, a Section 401 Water Quality Certification will be required by the Ohio Environmental Protection Agency (EPA) before the Corps will authorize NWP coverage. A pre-construction notification (NWP application) is required for coverage under most NWPs and compensatory mitigation is generally required.

If future development would impact greater than 0.50 of an acre of waters of the United States and/or exceed the 300 linear foot threshold for stream impacts, a Section 404 Individual Permit from the Corps and a Section 401 Water Quality Certification from the Ohio EPA would be required prior to initiating construction activities. The Corps and Ohio EPA will likely require mitigation for all wetland and stream impacts.

For those wetlands that are only within the jurisdiction of the Ohio EPA, regulations have been developed as House Bill 231. Currently, if less than 0.50 of an acre of isolated wetland impacts are proposed, a General Isolated Wetland Permit (Level 1 Review) will be required prior to impacting those wetlands. Isolated wetland impacts over 0.50 of an acre will require a more detailed permitting process with the Ohio EPA. Compensatory mitigation will be required for any amount of isolated wetland impact.

## 6.0 RECOMMENDATIONS

Based on the findings presented above, HzW presents the following recommendations for consideration at the Project Area:

1. Submit one (1) copy of this wetland delineation report to the Corps for affirmation of the boundaries of the wetlands and streams and a jurisdictional determination of the wetlands and streams located within the Project Area. Presently, the Corps is the agency responsible for conducting wetland affirmations and is providing written jurisdictional determinations.
2. Should impacts be anticipated to the wetland or stream areas identified on site, following a jurisdictional determination, obtain the appropriate permit from the Corps and/or Ohio EPA prior to impacting the wetland and stream areas.

**Note:** *Should the Corps desire to conduct a field affirmation, additional regulated waters may be identified within the boundaries of the Project Area based on differing field conditions than present during the time this delineation study was conducted.*

## 7.0 REFERENCES

A bibliography of references reviewed as part of this delineation is presented subsections below.

### 7.1 Bibliography

1. *Soil Survey of Cuyahoga County, Ohio*, United States Department of Agriculture, 1980.
2. *National Wetlands Inventory Map*, Cleveland South, Ohio/Broadview Heights, Ohio, published by the United States Fish and Wildlife Service, 1977.
3. *Topographic Map*, United States Geological Survey; 1994 Cleveland South, Ohio/1963 (Photorevised 1984) Broadview Heights, Ohio USGS 7.5 Minute Topographic Quadrangle
4. *Field Guide for Wetland Delineation*, United States Army Corps of Engineers, Technical Report Y-87-1, 1987.
5. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, United States Army Corps of Engineers, ERDC/EL TR-09-19, 2009.
6. *List of Hydric Soils for Cuyahoga County*, Natural Resource Conservation Service.
7. *National List of Plant Species That Occur in Wetlands: Ohio*, Reed, Porter B., Jr., United States Fish and Wildlife Service, Saint Petersburg, 1988.
8. *Hydric Soils of the United States*, National Technical Committee for Hydric Soils, United States Department of Agriculture, Soil Conservation Service, Washington, 1991.

## 8.0 QUALIFICATIONS

This wetland delineation was conducted by certified wetland delineator, Traci Snode, Environmental Biologist of HzW, on April 28, 2011. Data collection and report writing was completed by Ms. Snode. The signature of the environmental professional responsible for the preparation of this report is provided below.

A handwritten signature in black ink, appearing to read "Traci Snode", written over a horizontal line.

Traci Snode  
Environmental Biologist

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**APPENDIX A**

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**FIGURES 1-5**

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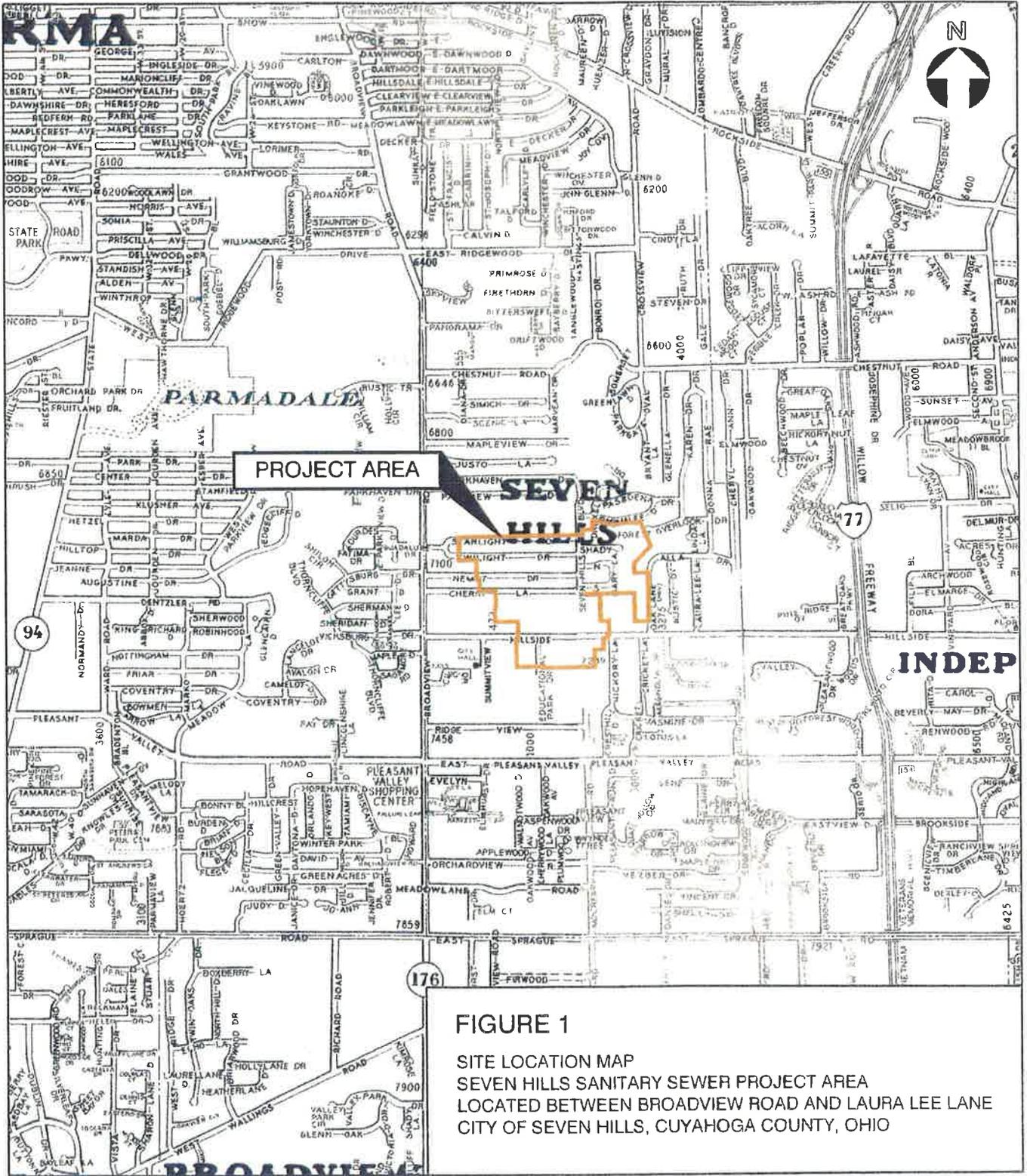
**Figure 1 – Site Location Map**

**Figure 2 – NWI Map**

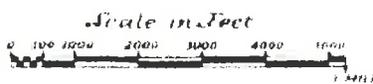
**Figure 3 – Topographic Map**

**Figure 4 – Soils Map**

**Figure 5A and 5B – Wetland Location Map**



**FIGURE 1**  
 SITE LOCATION MAP  
 SEVEN HILLS SANITARY SEWER PROJECT AREA  
 LOCATED BETWEEN BROADVIEW ROAD AND LAURA LEE LANE  
 CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO



# NATIONAL WETLANDS INVENTORY

UNITED STATES DEPARTMENT OF THE INTERIOR  
1977 CLEVELAND SOUTH / 1977 BROADVIEW HEIGHTS, OHIO

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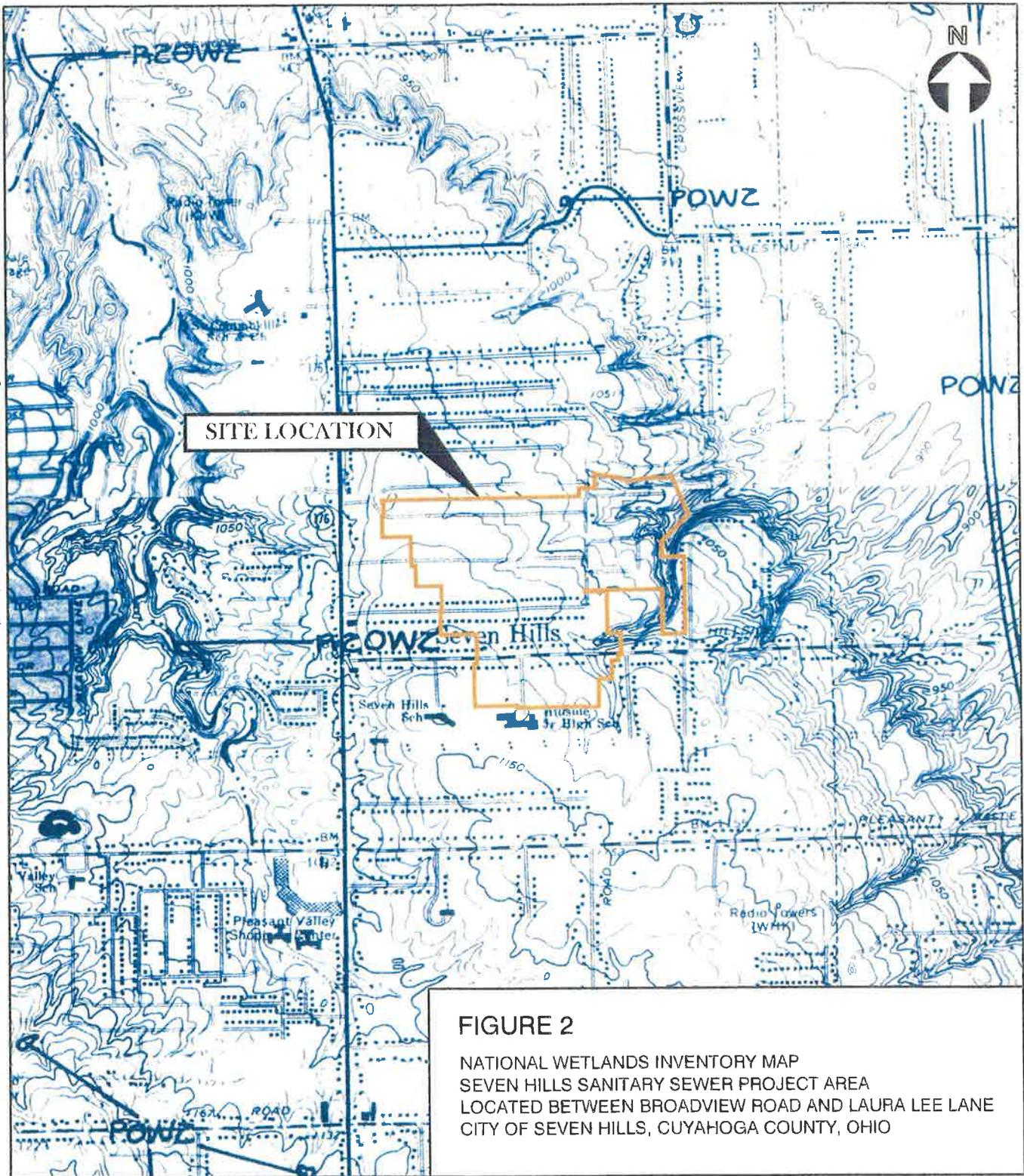


FIGURE 2

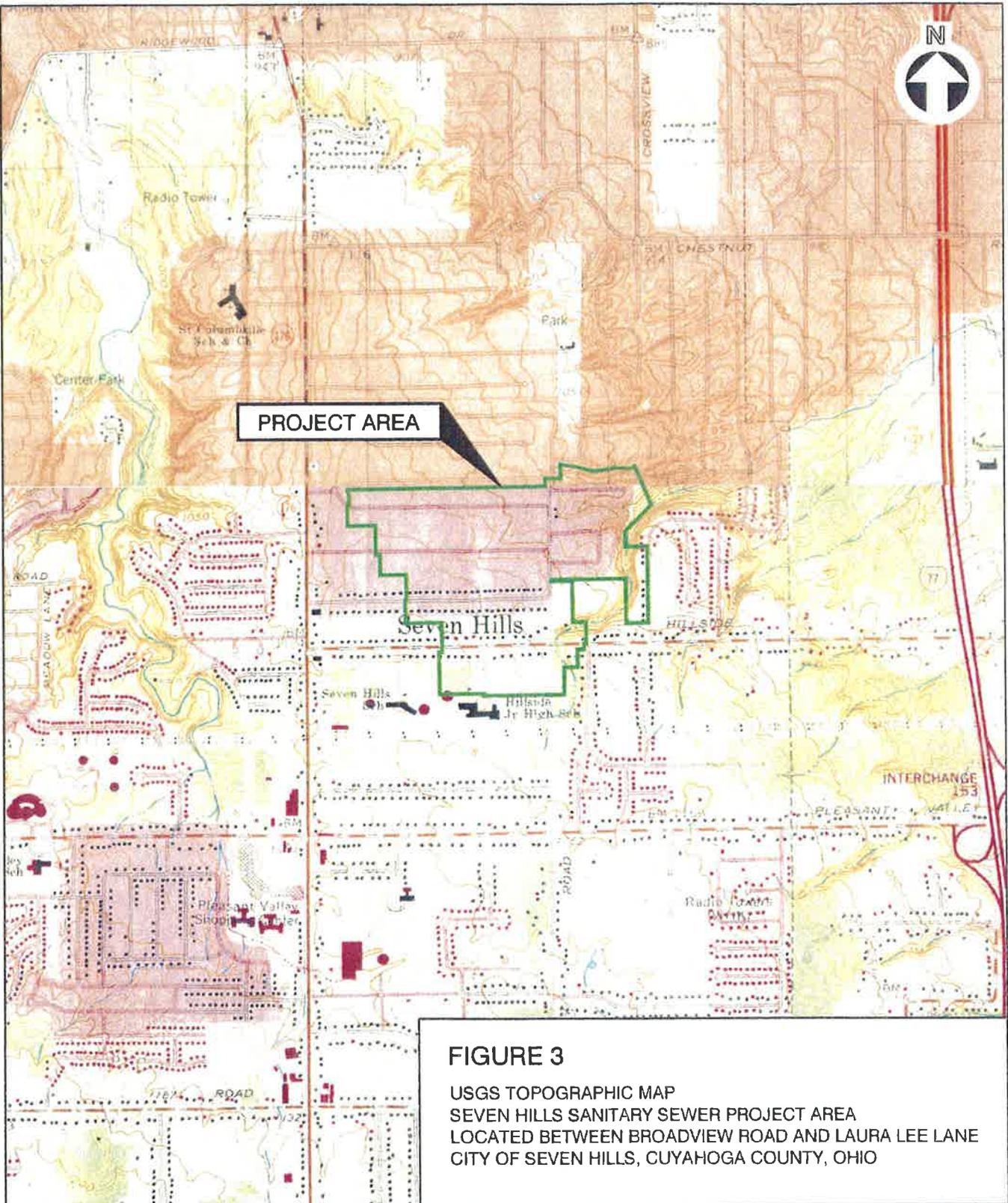
NATIONAL WETLANDS INVENTORY MAP  
SEVEN HILLS SANITARY SEWER PROJECT AREA  
LOCATED BETWEEN BROADVIEW ROAD AND LAURA LEE LANE  
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO

# TOPOGRAPHIC MAP

## UNITED STATES GEOLOGICAL SURVEY

1994 CLEVELAND SOUTH / 1963 (PHOTOREVISED 1984) BROADVIEW HEIGHTS, OHIO

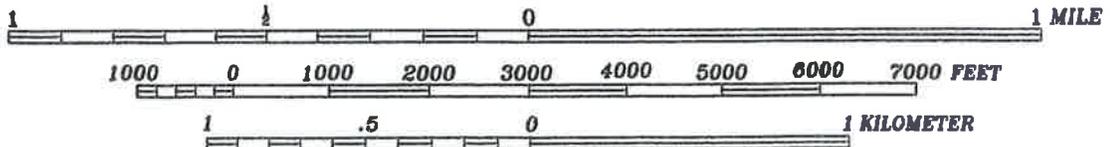
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**FIGURE 3**

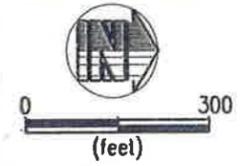
USGS TOPOGRAPHIC MAP  
SEVEN HILLS SANITARY SEWER PROJECT AREA  
LOCATED BETWEEN BROADVIEW ROAD AND LAURA LEE LANE  
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO

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M A T C H L I N E   S H E E T   5   B



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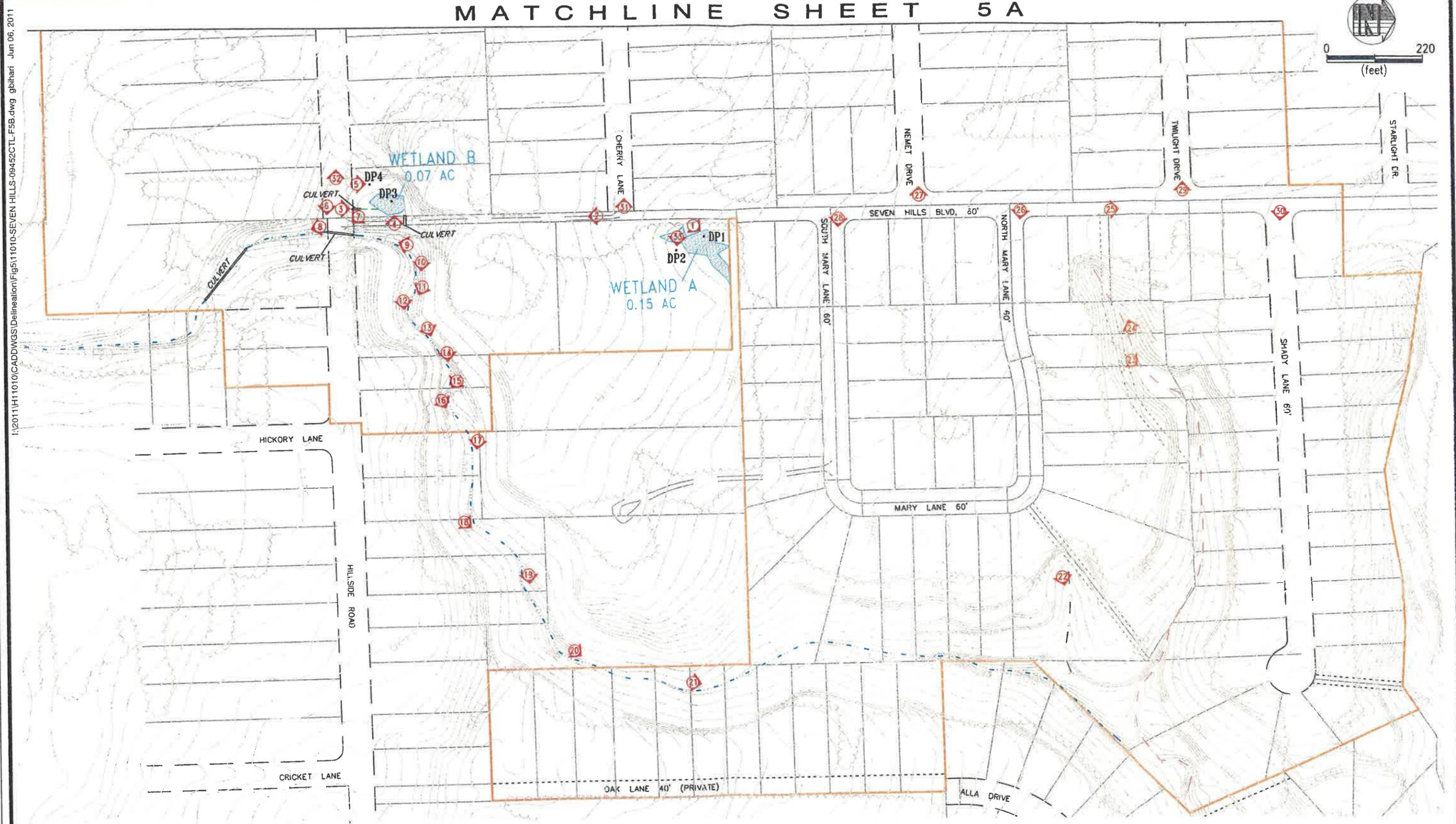
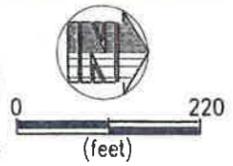
**LEGEND:**

— PROJECT AREA

**FIGURE 5A**

PROJECT AREA LOCATION MAP  
SEVEN HILLS SANITARY SEWER PROJECT AREA  
LOCATED BETWEEN BROADVIEW ROAD AND LAURA LEE LANE  
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO

# MATCHLINE SHEET 5A



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### LEGEND:

-  WETLAND
-  PROJECT AREA
-  SAMPLE DATA POINTS
-  PHOTO LOCATION
-  PERENNIAL STREAM
-  EPHEMERAL STREAM
-  INTERMITTENT STREAM
-  DRAINAGE WAY

**FIGURE 5B**

WETLAND LOCATION MAP  
SEVEN HILLS SANITARY SEWER PROJECT AREA  
LOCATED BETWEEN BROADVIEW ROAD AND LAURA LEE LANE  
CITY OF SEVEN HILLS, CUYAHOGA COUNTY, OHIO



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**APPENDIX B**

**PHOTOGRAPHIC LOG**

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Photograph 1

View facing northeast showing Wetland A at data point DP1.



Photograph 2

View facing south showing a walking path.



Photograph 3

View facing north showing a drainageway from a culvert leading to Wetland B.



Photograph 4

View facing west showing Wetland B at data point DP3.



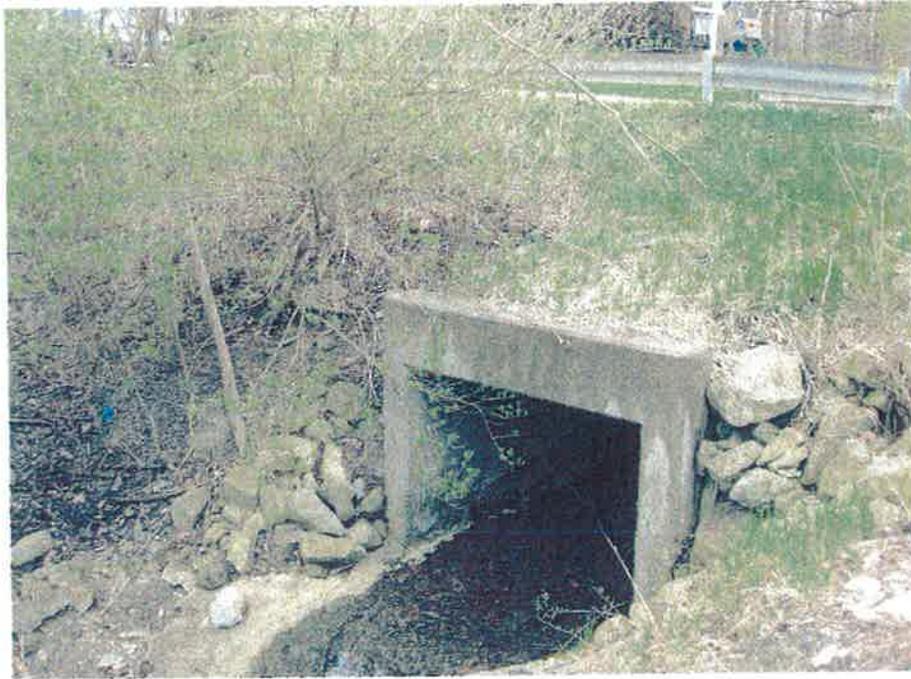
Photograph 5

View facing north showing the non-wetland vegetation of data point DP4.



Photograph 6

View facing east showing a culvert located south of Hillside Road associated with the perennial stream.



Photograph 7

View facing southeast showing a culvert located north of Hillside Road associated with the perennial stream.



Photograph 8

View facing south showing the perennial stream.



Photograph 9

View facing south showing the perennial stream.



Photograph 10

View facing east showing the perennial stream.



Photograph 11

View facing southeast showing the perennial stream.



Photograph 12

View facing east showing the perennial stream.



Photograph 13

View facing northeast showing the perennial stream.



Photograph 14

View facing east showing the perennial stream.



Photograph 15

View facing southeast showing the perennial stream.



Photograph 16

View facing northeast showing the perennial stream.



Photograph 17

View facing east showing the perennial stream.



Photograph 18

View facing northeast showing the perennial stream.



Photograph 19

View facing east showing the perennial stream.



Photograph 20

View facing northeast showing the perennial stream.



Photograph 21

View facing north showing the perennial stream.



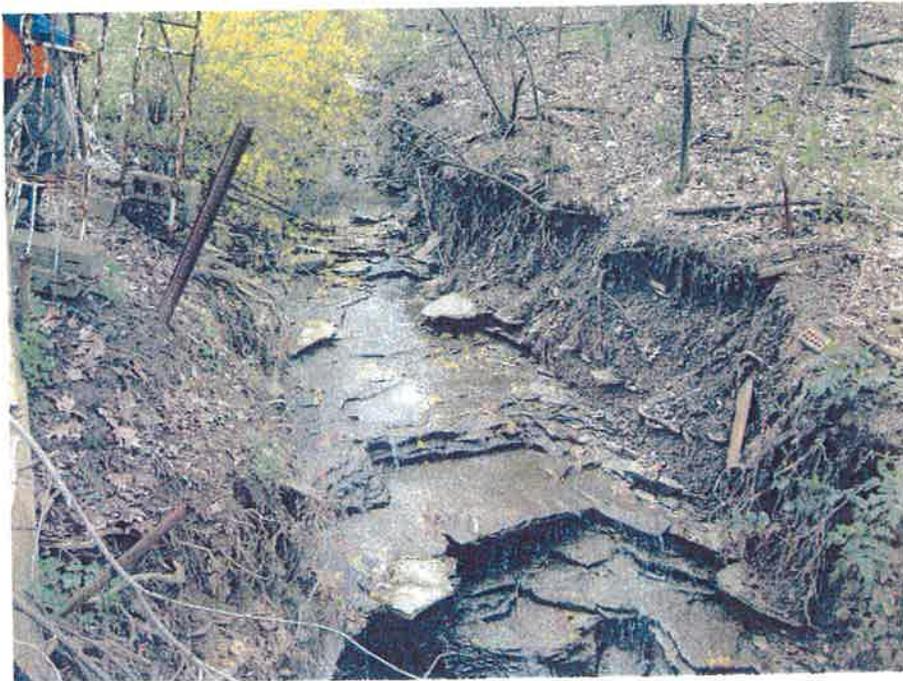
Photograph 22

View facing east showing the ephemeral stream.



Photograph 23

View facing northeast showing the intermittent stream.



Photograph 24

View facing southwest showing the intermittent stream.



Photograph 25

View facing north showing Seven Hills Boulevard.



Photograph 26

View facing east showing North Mary Lane.



Photograph 27

View facing west showing Nemet Drive.



Photograph 28

View facing east showing South Mary Lane.



Photograph 29

View facing west showing Twilight Drive.



Photograph 30

View facing east showing Shady Lane.



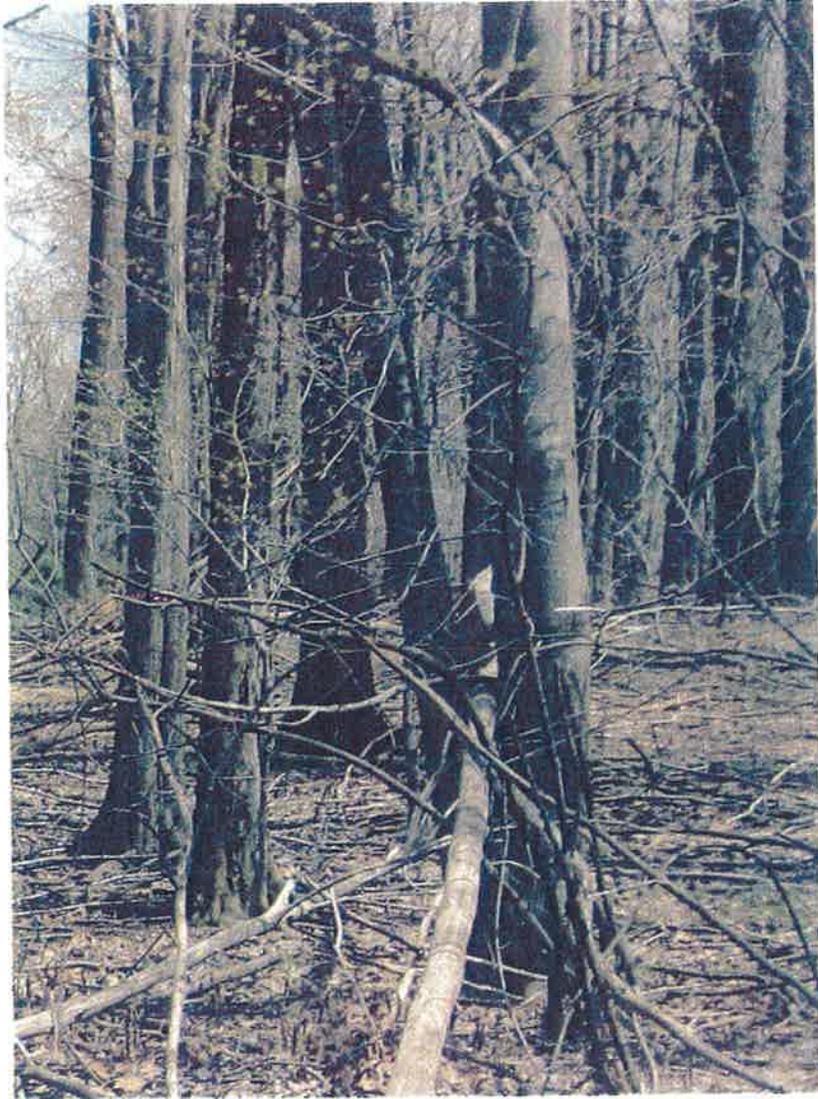
Photograph 31

View facing west showing Cherry Lane.



Photograph 32

View facing west showing Hillside Road.



Photograph 33

View facing east showing non-wetland data point DP2.

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**APPENDIX C**

**DATA SHEETS**

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## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Seven Hills Sanitary Sewer Project Area City/County: Seven Hills Sampling Date: 4-28-11  
 Applicant/Owner: CT Consultants, Inc. State: OH Sampling Point: DP1-Wetland A  
 Investigator(s): TPS Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_  
 Slope (%): \_\_\_\_\_ Lat: 41.3715 Long: -81.6721 Datum: \_\_\_\_\_  
 Soil Map Unit Name: MmB NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: <u>Wetland A</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators</u> (minimum of one is required; check all that apply)	<u>Secondary Indicators</u> (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)      ___ Water-Stained Leaves (B9) ___ High Water Table (A2)      ___ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3)      ___ Marl Deposits (B15) ___ Water Marks (B1)      ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2)      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)      ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)      ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7)      ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>3"</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Heavy Rain prior to and during delineation	

**VEGETATION – Use scientific names of plants.**

Sampling Point: DP1

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u><i>Acer rubrum</i> (Red Maple)</u>	40	Y	FAC	
2. <u><i>Fraxinus pennsylvanica</i> (Green Ash)</u>	30	Y	FACW	
3. _____				
4. _____				
	70 = Total Cover			
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u><i>Cornus species</i> (Dogwood species)</u>	2		NI	
2. _____				
3. _____				
4. _____				
	2 = Total Cover			
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u><i>Graminae species</i> (Grass Species)</u>	45	Y	NI	
2. <u><i>Juncus effuses</i> (Soft Rush)</u>	20	Y	FACW+	
3. _____				
4. _____				
	65 = Total Cover			
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. _____				
2. _____				
3. _____				
4. _____				
	_____ = Total Cover			

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species <u>50</u>	x 2 = <u>100</u>
FAC species <u>40</u>	x 3 = <u>120</u>
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>90</u> (A)	<u>220</u> (B)

Prevalence Index = B/A = 2.44

**Hydrophytic Vegetation Indicators:**

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

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

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

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

**Definitions of Vegetation Strata:**

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

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

**Hydrophytic Vegetation Present?**      Yes X      No \_\_\_\_\_

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



## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Seven Hills Sanitary Sewer Project Area City/County: Seven Hills Sampling Date: 4-28-11  
 Applicant/Owner: CT Consultants, Inc. State: OH Sampling Point: DP2  
 Investigator(s): TPS Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_  
 Slope (%): \_\_\_\_\_ Lat: 41.3715 Long: -81.6721 Datum: \_\_\_\_\_  
 Soil Map Unit Name: MmB NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ Water-Stained Leaves (B9) ___ High Water Table (A2)      ___ Aquatic Fauna (B13) ___ Saturation (A3)      ___ Marl Deposits (B15) ___ Water Marks (B1)      ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2)      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)      ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)      ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7)      ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Heavy Rain prior to and during delineation	

**VEGETATION – Use scientific names of plants.**

Sampling Point: DP2

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u><i>Acer rubrum</i> (Red Maple)</u>	15	Y	FAC	
2. <u><i>Fraxinus pennsylvanica</i> (Green Ash)</u>	30	Y	FACW	
3. <u><i>Prunus serotina</i> (Black Cherry)</u>	15	Y	FACU	
4. <u><i>Ostrya virginiana</i> (Hop Hornbeam)</u>	15	Y	FACU-	
	75	= Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u><i>Roas multiflora</i> (Multiflora Roase)</u>	5	Y	FACU	
2. _____				
3. _____				
4. _____				
		= Total Cover		
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>Graminae species (Grass Species)</u>	5	Y	NI	
2. _____				
3. _____				
4. _____				
	5	= Total Cover		
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. _____				
2. _____				
3. _____				
4. _____				
		= Total Cover		

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

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**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species <u>30</u>	x 2 = <u>60</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>35</u>	x 4 = <u>140</u>
UPL species _____	x 5 = _____
Column Totals: <u>80</u> (A)	<u>245</u> (B)

Prevalence Index = B/A = 3.06

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**Hydrophytic Vegetation Indicators:**

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

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

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

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

---

**Definitions of Vegetation Strata:**

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

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

---

**Hydrophytic Vegetation Present?**      Yes \_\_\_\_\_ No X

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

**SOIL**

Sampling Point: DP2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 4/2	100					Organic	
2-12	2.5Y 4/2	80	7.5yr 5/8	20	D	M	Clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)	

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

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

# WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Seven Hills Sanitary Sewer Project Area City/County: Seven Hills Sampling Date: 4-28-11  
 Applicant/Owner: CT Consultants, Inc. State: OH Sampling Point: DP3-Wetland B  
 Investigator(s): TPS Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_  
 Slope (%): \_\_\_\_\_ Lat: 41.3715 Long: -81.6721 Datum: \_\_\_\_\_  
 Soil Map Unit Name: MmB NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: <u>Wetland B</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) ___ High Water Table (A2)                      ___ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3)                                  ___ Marl Deposits (B15) ___ Water Marks (B1)                              ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2)                      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)                              ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)                          ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)                              ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7)     ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	

Remarks:  
 Heavy Rain prior to and during delineation

**VEGETATION – Use scientific names of plants.**

Sampling Point: DP3

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u><i>Acer rubrum</i> (Red Maple)</u>	15	Y	FAC	
2. <u><i>Ostrya virginiana</i> (Hop Hornbeam)</u>	15	Y	FACU-	
3. _____				
4. _____				
	30	= Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u><i>Lonicera</i> species (Honeysuckle species)</u>	60	Y	NI	
2. _____				
3. _____				
4. _____				
	60	= Total Cover		
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>Graminae species (Grass Species)</u>	5		NI	
2. <u><i>Lysimachia nummularia</i> (Moneywort)</u>	40	Y	OBL	
3. _____				
4. _____				
	45	= Total Cover		
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. _____				
2. _____				
3. _____				
4. _____				
		= Total Cover		

<b>Dominance Test worksheet:</b>	
Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u>	(A)
Total Number of Dominant Species Across All Strata: <u>4</u>	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u>	(A/B)
<b>Prevalence Index worksheet:</b>	
Total % Cover of:	Multiply by:
OBL species <u>40</u>	x 1 = <u>40</u>
FACW species _____	x 2 = _____
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species _____	x 5 = _____
Column Totals: <u>70</u>	(A) <u>145</u> (B)
Prevalence Index = B/A = <u>2.07</u>	
<b>Hydrophytic Vegetation Indicators:</b>	
<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation	
<input type="checkbox"/> Dominance Test is >50%	
<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>	
<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Definitions of Vegetation Strata:</b>	
<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
<b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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



## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Seven Hills Sanitary Sewer Project Area City/County: Seven Hills Sampling Date: 4-28-11  
 Applicant/Owner: CT Consultants, Inc. State: OH Sampling Point: DP4  
 Investigator(s): TPS Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_  
 Slope (%): \_\_\_\_\_ Lat: 41.3715 Long: -81.6721 Datum: \_\_\_\_\_  
 Soil Map Unit Name: MmB NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	<b>Secondary Indicators (minimum of two required)</b>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

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

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

Remarks:  
 Heavy Rain prior to and during delineation

**VEGETATION – Use scientific names of plants.**

Sampling Point: DP4

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____
				_____ = Total Cover
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>Lonicera species (Honeysuckle Species)</u>	60	_____	NI	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____
				60 = Total Cover
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>Graminae species (Grass Species)</u>	75	Y	NI	_____
2. <u>Narcissusspecies (Daffodill species)</u>	5	_____	NI	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____
				80 = Total Cover
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____
				_____ = Total Cover

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: \_\_\_\_\_ (A)  
 Total Number of Dominant Species Across All Strata: \_\_\_\_\_ (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: \_\_\_\_\_ (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_  
 FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_  
 FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_  
 FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_  
 UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_  
 Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)  
 Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**  
 Rapid Test for Hydrophytic Vegetation  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Definitions of Vegetation Strata:**  
**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  
**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  
**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  
**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?**      Yes \_\_\_\_\_ No X

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



## Bob Greytak

---

**From:** Traci Snode [TSnode@hzwenv.com]  
**Sent:** Tuesday, June 28, 2011 9:40 AM  
**To:** Bob Greytak  
**Subject:** RE: Seven Hills

Hi Bob- based on the mapping, Jason McKenney & I believed we were beyond the solid black outline area noted as "Sanitary Sewer Boundary" during the 2010 walkover, so we stayed within the solid black boundary for the 2011 delineation. The X located south of Forest Overlook and west of Linda Lane (located at the detention basin) was the only area we did not return to during the 2011 delineation. We did not observe any wetland fringe on either side of the stream which extends southeast of Shady Lane. If you need HzW to return to the detention basin area, please let me know, otherwise, the rest of the areas, including the streams, were walked.

Thanks

~Traci

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

**From:** Bob Greytak [mailto:BGreytak@ctconsultants.com]  
**Sent:** Monday, June 27, 2011 5:19 PM  
**To:** Traci Snode  
**Cc:** Jerry Smith  
**Subject:** Seven Hills

Traci,

See the attached map from the walkover report. The downstream area wasn't covered in your June 2011 Wetland Delineation. Can you give me some input on why this area was left out?

Thanks,

Robert H. Greytak, P.E.  
Principal  
CT Consultants, Inc.  
8150 Sterling Court  
Mentor, OH 44060  
440.530.2301 (Direct)  
440.951.7487 (Fax)

[www.ctconsultants.com](http://www.ctconsultants.com)



# APPENDIX C

## Drainage System Video Logs



Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
Nemet Drive	2363	108+68	2197	10	108+78	LT		15	305.00
				23	108+91	RT			
				95	109+63	RT			
				119	109+87	LT			
				132	110+41	RT			
				108	110+65	LT			
				58	111+15	RT			
				33	111+40	LT			
				28	111+45	LT			
				15	111+88	RT			
				44	112+17	LT			
				90	112+63	RT			
				108	112+81	LT			
				163	113+36	RT			
				186	113+59	LT			
238	114+11	RT							
259	114+32	LT							
265	114+38	LT							
	2263	114+79	1939	12	114+91	RT		18	295
				34	115+13	LT			
				89	115+68	RT			
				106	115+85	LT			
				160	116+39	RT			
				181	116+60	LT			
				235	117+14	RT			
				248	117+27	LT			
				250	117+29	LT			
				25	117+99	RT			
				36	118+10	LT			
				93	118+67	RT			
				109	118+83	LT			
				112	118+86	LT			
				166	119+40	RT			
182	119+56	LT							
240	120+14	RT							
260	120+34	LT							
	1784	117+74	1784	25	117+99	RT		18	298
				36	118+10	LT			
				93	118+67	RT			
				109	118+83	LT			
				112	118+86	LT			
				166	119+40	RT			
				182	119+56	LT			
				240	120+14	RT			
				260	120+34	LT			
				28	121+00	RT			
				29	121+01	LT			
				30	121+02	LT			
				40	121+12	LT			
				93	121+65	RT			
				117	121+89	LT			
168	122+40	RT							
188	122+60	LT							
247	123+19	RT							
260	123+32	LT							
	1718	123+74	1660	26	124+00	RT		21	302

Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
				36	124+10	LT			
				90	124+64	R			
				111	124+85	LT			
				164	125+38	R			
				187	125+61	LT			
				242	126+16	R			
				262	126+36	LT			
	1660	126+77	1607	24	127+01	RT		21	293
				36	127+13	LT			
				87	127+64	RT			
				110	127+87	LT			
				112	127+89	LT			
				153	128+30	RT			
				184	128+61	LT			
				236	129+13	RT			
				261	129+38	LT			
	1607	129+79	1336	18	129+97	RT		21	293
				36	130+15	LT			
				98	130+77	RT			
				108	130+87	LT			
				178	131+57	RT			
				183	131+62	LT			
				250	132+29	RT			
				254	132+33	LT			
				264	132+43	LT			
	1336	132+72	1265	38	133+10	LT		21	293
				44	133+16	RT			
				55	133+27	LT			
				116	133+88	LT			
				118	133+90	RT			
				195	134+67	LT			
				199	134+71	RT			
				208	134+80	LT			
				274	135+46	LT			
				283	135+55	RT			
	1265	135+65	4490	NO LATERALS				21	279
Twilight Drive	3799	147+40	3718	78	148+18	RT		12	319.00
				90	148+30	LT			
				164	149+04	RT			
				167	149+07	LT			
				237	149+77	RT			
				240	149+80	LT			
	3718	150+54	3406	72	151+26	RT		15	298
				75	151+29	LT			
				148	152+02	RT			
				150	152+04	LT			

Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
				221	152+75	RT			
				225	152+79	LT			
	3406	153+52	3286	75	154+27	RT		18	303
				78	154+30	LT			
				151	155+03	RT			
				155	155+07	LT			
				227	155+79	RT			
				228	155+80	RT			
				230	155+82	LT			
	3286	156+55	3353	69	157+24	RT		18	299
				72	157+27	LT			
				146	158+01	RT			
				150	158+05	LT			
				222	158+77	RT			
				225	158+80	LT			
				236	158+91	RT			
	3353	159+55	3069	72	160+27	RT		18	301
				75	160+30	LT			
				149	161+04	RT			
				152	161+07	LT			
				229	161+84	RT			
				232	161+87	LT			
				242	161+97	RT			
	3069	162+23	3139	77	163+00	LT		18	298
				80	163+03	RT			
				147	163+70	LT			
				150	163+73	RT			
				218	164+41	RT			
				221	164+44	LT			
	3139	165+54	2769	74	166+28	RT		24	301
				77	166+31	LT			
				150	167+04	RT			
				222	167+76	RT			
				225	167+79	LT			
				225	167+79	RT			
	2689	171+80	2769	5	171+75	RT		24	325
				82	170+98	LT			
				85	170+95	RT			
				169	170+11	LT			
				172	170+08	RT			
				240	169+40	LT			
				241	169+39	RT			
	2689	171+80	2727	78	172+58	RT		24	184
				80	172+60	LT			

Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
	2727	173+64	2689	19	173+45	RT		24	75
				20	173+44	LT			
				36	173+28	RT			
	2727		2727A	NO LATERALS				24	195
	2727A		Outlet					30	244
Cherry Lane	7339	78+90	7672	20	78+70	RT		12	290
				25	78+65	LT			
				31	78+59	RT			
				101	77+89	RT			
				103	77+87	LT			
				116	77+74	RT			
				118	77+72	LT			
				173	77+17	RT			
				176	77+14	LT			
				190	77+00	RT			
				194	76+96	LT			
				250	76+40	RT			
				253	76+37	LT			
				263	76+27	LT			
				272	76+18	RT			
	7672	76+01	7848	35	75+66	RT		12	300
				60	75+41	RT			
				60	75+41	LT			
				72	75+29	RT			
				96	75+05	LT			
				108	74+93	LT			
				111	74+90	RT			
				134	74+67	RT			
				157	74+44	LT			
				160	74+41	RT			
				161	74+40	LT			
				185	74+16	LT			
				202	73+99	RT			
				209	73+92	LT			
				211	73+90	RT			
				257	73+44	LT			
				260	73+41	RT			
				275	73+26	RT			
	7848		7783	No Laterals				12	241
	7783		7786	No Laterals				18	34
	7339	78+90	7153	9	78+99	RT		15	312
				28	79+18	LT			
				55	79+45	RT			
				73	79+63	LT			
				129	80+19	LT			
				131	80+21	RT			
				149	80+39	LT			

Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
				203	80+93	RT			
				222	81+12	LT			
				246	81+36	LT			
				279	81+69	RT			
	7153	82+02	7063	37	82+39	LT		18	298
				61	82+63	LT			
				115	83+17	RT			
				134	83+36	LT			
				186	83+88	RT			
				207	84+09	LT			
				266	84+68	RT			
	7063	85+00	6731A	39	85+39	RT		21	300
				62	85+62	LT			
				113	86+13	RT			
				132	86+32	LT			
				188	86+88	RT			
				208	87+08	LT			
				262	87+62	RT			
				267	87+67	LT			
				283	87+83	LT			
	6731A	87+97	6731	36	88+33	RT		21	300
				39	88+36	LT			
				58	88+55	LT			
				114	89+11	RT			
				121	89+18	LT			
				133	89+30	LT			
				187	89+84	RT			
				187	89+84	LT			
				207	90+04	LT			
				261	90+58	RT			
				263	90+60	LT			
				281	90+78	LT			
	6731	91+00	6682	39	91+39	RT		24	300
				41	91+41	LT			
				59	91+59	LT			
				115	92+15	RT			
				125	92+25	LT			
				131	92+31	LT			
				187	92+87	RT			
				206	93+06	LT			
				260	93+60	RT			
				263	93+63	LT			
				280	93+80	LT			
	6682	94+00	6426	38	94+38	RT		24	300
				44	94+44	LT			
				56	94+56	LT			
				114	95+14	RT			

Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
				116	95+16	LT			
				132	95+32	LT			
				190	95+90	RT			
				193	95+93	LT			
				204	96+04	LT			
				264	96+64	RT			
				280	96+80	LT			
	6426	97+00	6360	43	97+43	RT		27	300
				56	97+56	LT			
				63	97+63	LT			
				114	98+14	RT			
				132	98+32	LT			
				187	98+87	RT			
				205	99+05	LT			
				263	99+63	RT			
				266	99+66	LT			
				278	99+78	LT			
	6360	100+00	4875	32	100+32	LT		27	276
				34	100+34	RT			
				39	100+39	LT			
				68	100+68	RT			
				70	100+70	LT			
				106	101+06	RT			
				108	101+08	LT			
				120	101+20	LT			
				139	101+39	RT			
				142	101+42	LT			
				170	101+70	RT			
				175	101+75	LT			
				181	101+81	LT			
				187	101+87	RT			
				208	102+08	LT			
				244	102+44	RT			
	4875	102+76	4857	58	102+70	RT		30	50
	4857	103+28	4875	48	102+80	LT	Capped Capped		
Seven Hill Blvd.	4857		7993	NO LATERALS					
	7993		7981	NO LATERALS				30	87
	7981		outfall	NO LATERALS				30	461
	4711	309+35	Unknown	3	309+32	RT		12	30
				28	309+07	RT			
	4678	310+88	4711	38	310+50	LT		12	153
				40	310+48	RT			
				128	309+60	RT			
	4678	310+88	4490	53	311+41	LT		12	245

Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
				120	312+08	RT			
				148	312+36	LT			
				208	312+96	RT			
				228	313+16	RT			
	4490	313+33	4466	38	313+71	RT		24	165
				41	313+74	RT			
				59	313+92	LT			
				125	314+58	RT			
				152	314+85	LT			
				152	314+85	RT			
	4466	314+98	4276	70	315+68	LT		24	238
				123	316+21	RT			
				147	316+45	LT			
				210	317+08	RT			
	4276		outlet					24	208
	4276		4290	NO LATERALS				24	
	4170		4133	unable to televise				12	80
	4115	321+73	4133	49	322+22			12	67
	4115		4115A					12	
Shady Lane	4115	180+19	5017	231	182+50	LT		12	301
				270	182+89	RT			
	5017	183+20	5017A/5088	8	183+28	LT		12	282
				48	183+68	RT			
				82	184+02	LT			
				124	184+44	RT			
				157	184+77	LT			
				203	185+23	RT			
				230	185+50	LT			
	5017A/5088	186+01	5225	15	186+16	RT		15	256
				30	186+31	LT			
				103	187+04	LT			
				103	187+04	RT			
				114	187+15	LT			
				181	187+82	LT			
				191	187+92	RT			
				194	187+95	LT			
	5146	191+13	5225	81	190+32	RT		15	254
				88	190+25	LT	Televising abandoned		
	5225	188+59	5146	15	188+44	RT		15	
				18	188+41	LT	Televising abandoned		

Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
	5225		outlet	24		LT	Storm not parallel to street	15	159
				137		RT			
	5416		5365	39		LT	Storm not parallel to street	12	
				48		LT			
				50		LT			
<b>N. Mary Lane</b>	5847		5581	28		LT	Storm not parallel to street	12	223
				88		RT			
				92		RT			
				96		LT			
				176		RT			
				179		LT			
				183		RT			
				215		RT			
	5819		5847	15		LT	Storm not parallel to street	12	129
				41		LT			
				92		RT			
				92		LT			
<b>S. Mary Lane</b>	6052	214+59	6052A	4	214+55	RT		12	324
				13	214+46	LT			
				60	213+99	RT			
				257	213+93	LT			
				182	213+18	LT			
				182	213+18	RT			
				178	213+14	RT			
				94	212+30	LT			
	6052A	211+36	6052	18	211+54	LT			
	6037		6052A	3	No stationing since on curve			12	51
				36	No stationing since on curve				
<b>Mary Lane</b>	6307	210+50	5786	17	210+33	RT		12	324
				22	210+28	LT			
				33	210+17	LT			
				75	209+75	LT			
				121	209+29	RT			
				152	208+98				
	5786		5819	46		RT	Storm not parallel to street	12	192
				58		LT			
				131		LT			
				142		RT			
				147		RT			
				179		LT			
	5819		5707				NO LATERALS	12	166
	5707		5707A				NO LATERALS	12	51

Inventory of Storm Sewer Lateral Connections

Street Name	From CB	Station	To CB	Length of lat. From CB	Lateral station	Lateral direction (follows station)	Comments	Pipe size (in)	Pipe Length (ft)
	5707A		Outlet			NO LATERALS		21	66
								Total:	13938.00



## Index of Codes



CODE	DESCRIPTION	Page
		Number
A	Access point	7-13
ACB	- Catch Basin	7-14
ACO	- Clean out	7-14
ACOM	-Mainline	7-14
ACOP	-Property	7-14
ACOH	-House	7-14
ADP	- Discharge point	7-13
AEP	- End of Pipe	7-14
AJB	- Junction box	7-14
AM	- Meter	7-14
AMH	- Manhole	7-13
AOC	- Other special chamber	7-14
ATC	- Tee connection	7-13
AWA	- Wastewater Access	7-13
AWW	- Wet well	7-14
B	Broken (pipe)	5-14
BSV	- soil visible beyond defect	5-14
B V V	- void visible beyond defect	5-14
C	Crack	5-1
CC	- circumferential	5-2
CL	- longitudinal	5-2
CM	- multiple	5-2
CS	- spiral	5-2
D	Deformed (pipe)	5-18
DH	Deformed – horizontally (brick)	5-18
DV	Deformed – vertically (brick)	5-18



## Index of Codes



CODE	DESCRIPTION	Page
		Number
DA	Deposits Attached	6-1
DAE	- Encrustation	6-2
DAGS	- Grease	6-2
DAR	- Ragging	6-2
DAZ	- Other	6-2
DB	Displaced Brick	5-68
DI	Dropped invert (brick)	5-68
DN	Deposits Ingress	6-1
DNF	- Fine material (silt, sand)	6-3
DNGV	- Gravel	6-3
DNZ	- Other	6-3
DS	Deposits Settled	6-1
DSC	- Hard/compacted material	6-2
DSF	- Fine	6-2
DSGV	- Gravel	6-2
DSZ	- Other	6-2
F	Fracture	5-7
FC	- circumferential	5-7
FL	- longitudinal	5-7
FM	- multiple	5-7
FS	- spiral	5-7
H	Hole	5-16
HSV	- soil visible beyond defect	5-16
H V V	- void visible beyond defect	5-16
I	Infiltration	6-13
ID	- Dripper	6-13
IG	- Gusher	6-13



## Index of Codes



CODE	DESCRIPTION	Page
		Number
IR	- Runner	6-13
IW	- Weeper	6-13
IS	Intruding Sealing Material	7-8
ISSR	- Sealing ring	7-8
ISSRH	- hanging	7-8
ISSRB	- broken	7-8
ISGT	- Grout	7-8
ISZ	- Other	7-8
J	Joint	5-25
JA	- Angular	5-25
JO	- Offset (displaced)	5-25
JS	- Separated (open)	5-25
L	Line (of sewer)	7-11
LD	- Down	7-11
LL	- Left	7-11
LLD	- Left & Down	7-11
LLU	- Left & Up	7-11
LR	- Right	7-11
LRD	- Right & Down	7-11
LRU	- Right & Up	7-11
LU	- Up	7-11
LF	Lining failure	5-44
LFAC	- Abandoned Connection	5-44
LFB	- Blistered lining	5-44
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