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April 30, 2008

Mr. Matt Horvat
Partners for Clean Streams
300 Dr. Martin Luther King Jr. Drive
Toledo, OH 43604

***RE: Waters of the U.S. Delineation of the Highland Park Property,
Lucas County, Ohio***

Dear Mr. Horvat,

Enclosed are two copies of our report. We have completed our delineation of jurisdictional wetlands and other "waters of the United States (U.S.)" within the project area in Highland Park, Lucas County, Ohio. One stream, Swan Creek, and an associated wetland were found on site. Swan Creek is considered "jurisdictional waters of the United States. The wetland was contiguous to Swan Creek and is considered "jurisdictional waters of the U.S."

Please note the U.S. Army Corps of Engineers (Corps) is the regulatory authority that must make the final determination as to the jurisdictional status of the project area. We strongly recommend that our report be sent to the Corps for verification and would be glad to forward a copy at your request.

Please call if you have any questions or concerns. We appreciate the opportunity to be of service.

Sincerely,
JFNew

Erin Switala
Project Manager

Enclosure

File No. **070812.00**

WETLAND DELINEATION REPORT

**HIGHLAND PARK PROPERTY
LUCAS COUNTY, OHIO**

April 30, 2008

Prepared for:

Partners for Clean Streams
300 Dr. Martin Luther King Drive
Toledo, OH 43604

Prepared by:



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WETLAND DELINEATION REPORT

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DRAWING 2 - National Wetland Inventory Map of Study Area

DRAWING 3 - Soil Survey Map of Study Area

DRAWING 4 – Aerial Map of Study Area

APPENDIX A – SITE PHOTOGRAPHS

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**WETLAND DELINEATION REPORT:
HIGHLAND PARK PROPERTY
LUCAS COUNTY, OHIO**

1.0 INTRODUCTION

1.1 JFNew was contracted to perform a jurisdictional determination and delineation of the boundaries of “waters of the United States (U.S.),” including wetlands, which occur within the Highland Park Property in Toledo, Lucas County, Ohio (**Drawing 1**). The delineation was conducted on April 4, 2008. Approximately 500 linear feet of Swan Creek was identified in the project area, as well as one wetland (Wetland A) totaling approximately 0.20 acre.

1.2 This report identifies the jurisdictional status of the project area based on JFNew’s best professional understanding and interpretation of the *Corps of Engineers’ Wetland Delineation Manual* (Environmental Laboratory, 1987) and U.S. Army Corps of Engineers’ (Corps) guidance documents and regulations. Jurisdictional determinations for other “waters of the U.S.” were made based on definitions and guidance found in 33 CFR 328.3, Corps Regulatory Guidance Letters, and the wetland delineation manual. The Corps administers Section 404 of the Clean Water Act (CWA), which regulates the discharge of fill or dredged material into all “waters of the U.S.,” and is the regulatory authority that must make the final determination as to the jurisdictional status of the project area.

2.0 REGULATORY DEFINITIONS

2.1 Waters of the United States

“Waters of the U.S.” are within the jurisdiction of the Corps under the CWA. “Waters of the U.S.” is a broad term, which includes waters that are used or could be used for interstate commerce. This includes wetlands, ponds, lakes, territorial seas, rivers, tributary streams including any definable intermittent waterways, and some ditches below the ordinary high water mark (OHWM). Also included are manmade water bodies such as quarries and ponds, which are no longer actively being mined or constructed and are connected to other “waters”. Wetlands, mudflats, vegetated shallows, riffle and pool complexes, coral reefs, sanctuaries, and refuges are all considered special aquatic sites which involve more rigorous regulatory permitting requirements. A specific, detailed definition of “waters of the U.S.” can be found in the Federal Register (33 CFR 328.3).

On January 9, 2001 the U.S. Supreme Court issued a decision, *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* (No. 99-1178). The decision reduces the regulation of isolated wetlands under Section 404 of the CWA, which assigns the Corps’ authority to issue permits for the discharge of dredge or fill material into “waters of the U.S.”. Prior to the SWANCC decision, the Corps had adopted a regulatory definition of “waters of the U.S.” that afforded federal protection for almost all of the nation’s wetlands. The Supreme Court decision interpreted that the Corps’ jurisdiction is restricted to navigable waters, their tributaries, and wetlands that are adjacent to these navigable waterways and tributaries. The decision leaves the majority of “isolated” wetlands unregulated by the CWA. Therefore, most wetlands that are not adjacent to, or contiguous with, any other “waters of the U.S.” via a surface drain such as a swale, ditch, or stream are considered isolated and thus no longer jurisdictional by the Corps.

On June 5, 2007 the U.S. Supreme Court issued a decision in the consolidated cases *Rapanos v. United States and Carabell v. United States* (Rapanos). The decision reduces the Federal regulation of some traditionally defined “waters of the U.S.” The following waters remain jurisdictional:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries that are relatively permanent
- Wetlands directly abutting such tributaries

The preceding list leaves many areas in question. Therefore, under the decision, the Corps is required on a case by case basis to determine if there is a “significant nexus” to a navigable waterway. Areas not determined to contain a “significant nexus” are not federally regulated. The decision also requires interagency coordination for jurisdictional determinations between the Corps and USEPA under many cases.

The Supreme Court’s decisions leave the majority of isolated wetlands and many headwater streams and wetlands unregulated by the CWA.

2.2 Waters of the State

“Waters of the State” are those waters within the jurisdiction of the Ohio Environmental Protection Agency (OEPA). They are generally defined as surface and underground water bodies, which extend through or exist wholly within the State; these include, but are not limited to, streams and both isolated and non-isolated wetlands. Private ponds, or any pond, reservoir, or facility built for reduction of pollutants prior to discharge are not included in this definition. In addition to “waters of the U.S.”, the OEPA also regulates and issues permits for isolated wetland impacts under Chapter 6111.21 of the Ohio Revised Code (ORC).

The State relies on the Corps’ jurisdictional authority regarding wetland determinations and delineations including whether or not a wetland is isolated or non-isolated.

2.3 Wetlands

Wetlands are a category of “waters of the U.S.” for which a specific identification methodology has been developed. As described in detail in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), wetland boundaries are delineated using three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology.

2.3.1 Hydrophytic Vegetation. In the course of developing the wetland determination methodology the Corps, in cooperation with the U.S. Fish and Wildlife Service (USFWS), Environmental Protection Agency (EPA), and the Soil Conservation Service (SCS), compiled a comprehensive list of wetland vegetation. The indicator status of plant species is expressed in terms of the estimated probability of that species occurring in wetland conditions within a given region. The indicator categories as defined by the Corps are:

Obligate Wetland (OBL): Occurs almost always (estimated probability >99 percent) under natural conditions in wetlands.

Facultative Wetland (FACW): Usually occurs in wetlands (estimated probability

67 to 99 percent), but occasionally found in non-wetlands.

Facultative (FAC): Equally likely to occur in wetlands or non-wetlands (estimated probability 34 to 66 percent).

Facultative Upland (FACU): Usually occurs in non-wetlands, but occasionally found in wetlands (estimated probability 1 to 33 percent).

Obligate Upland (UPL): Occurs almost always (estimated probability >99 percent) in uplands.

Plants that are OBL, FACW, and FAC (except FAC-) are considered wetland species. Positive or negative signs indicate a tendency toward higher (+) or lower (-) frequency of occurrence within a wetland. The percentage of the dominant wetland species in each of the vegetation strata in the sample area determines the hydrophytic or wetland status of the plant community. Soil type and hydroperiod are two factors important in controlling species composition.

2.3.2 Hydric Soils. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. In general, hydric soils are flooded, ponded, or saturated for a week or more during the growing season when soil temperatures are above 32 degrees Fahrenheit. The anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry, which are used to differentiate hydric from non-hydric soils.

In this report, soil colors are described using the Munsell notation system. This method of describing soil color consists of separate notations for hue, value, and chroma that are combined in that order to form the color designation. The hue notation of a color indicates its relation to red, yellow, green, blue, and purple; the value notation indicates its lightness, and the chroma notation indicates its strength or departure from a neutral of the same lightness.

The symbol for hue consists of a number from 1 to 10, followed by the letter abbreviation of the color. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The notation for value consists of numbers from 0 for absolute black, to 10 for absolute white. The notation for chroma consists of numbers beginning with /0 for neutral grays and increasing at equal intervals. A soil described as 10YR 3/1 soil is more gray than a soil designated 10YR 3/6. The Corps' color criteria for hydric soils specify that the chroma must be /1 if the soil has no redoximorphic concentrations (small variegations in color with a higher chroma than the matrix), and /1 or /2 if the soil contains redoximorphic concentrations.

2.3.3 Wetland Hydrology. Wetland hydrology is defined as the presence of water for a significant period of time at or near the surface (within the root zone) during the growing season. Wetland hydrology is present only seasonally in many cases, and is often inferred by indirect evidence. Hydrology is controlled by such factors as seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage. Primary indicators of hydrology are inundation, soil saturation in the upper 12 inches of the soil, watermarks, sediment deposits, and drainage patterns. Secondary indicators such as oxidized root channels in the upper 12 inches of the soil, water-stained leaves, local soil survey data, and the FAC-neutral vegetation test are sometimes used to identify hydrology. A primary indicator

or two or more secondary indicators are required to establish a positive indication of hydrology.

2.3.4 Wetland Definition Summary. In general, an area must meet all three criteria to be classified as a wetland. In certain problem areas such as seasonal wetlands, which are not wet at all times, or in recently disturbed (atypical) situations, areas may be considered a wetland if only two criteria are met. In special situations, an area that meets the wetland definition may not be within the Corps' jurisdiction due to a specific regulatory exemption.

3.0 BACKGROUND INFORMATION

3.1 Existing Maps

Several sources of information were consulted to identify potential wetlands and wetland soil units on the site. These include the USGS Topographic Map Series, USFWS's *National Wetland Inventory* (NWI) and the Natural Resources Conservation Service's (NRCS) *Soil Survey of Lucas County, Ohio* (2007). These maps identify potential wetlands and wetland soil units on the site. The NWI maps were prepared from high altitude photography and in most cases were not field checked. Because of this, wetlands are sometimes erroneously identified, missed, or misidentified. Additionally, the criteria used in identifying these wetlands were different from those currently used by the Corps. The county soil maps, on the other hand, were developed from actual field investigations. However, they address only one of the three required wetland criteria and may reflect historical conditions rather than current site conditions. The resolution of the soil maps limits their accuracy as well. The mapping units are often generalized based on topography and many mapping units contain inclusions of other soil types for up to 15 percent of the area of the unit. The Corps does not accept the use of either of these maps to make wetland determinations.

3.2 USGS Topographic Map

The Toledo (OH) Topographic Quadrangle was reviewed to identify mapped water bodies within the project area (**Drawing 1**). One mapped water body was identified as perennial Stream 1, named Swan Creek. No other mapped water bodies were identified. The project is located within the Maumee River Watershed.

3.3 National Wetland Inventory

The NWI map of the area (**Drawing 2**) identified one wetland complexes on the site. The wetland (R2UBH) was a jurisdictional floodplain wetland adjacent to both sides of the Swan Creek corridor. The NWI wetland complexes located within the study area are identified in the following table (**Table 1**) along with the corresponding identified feature or data point. A data point was taken in the mapped wetland complex which was field verified.

Table 1. NWI Wetlands Located within the Project Study Area

<i>NWI Wetland Type</i>	<i>Comments from NWI</i>	<i>Feature / Data Point / Comment corresponding with Field Verification</i>
<i>R2UBH</i>	<i>Riverine, Lower Perennial, Unconsolidated Bottom, Permanently flooded</i>	<i>Wetland A</i>

3.4 Soil Survey

The NRCS *Soil Survey of Lucas County, Ohio* (2007) (**Drawing 3**) identified a two soil series in the project area at Highland Park. The following table (**Table 2**) identifies the soil unit symbol, soil unit name, and whether or not the soil type contains components that meet the hydric soil criteria:

Table 2: Soil Types within the Highland Park Property, Lucas County, Ohio

Symbol	Description	Hydric
Uo	Udorthents, loamy	No
W	Water	N/A

4.0 SITE INVESTIGATION AND DESCRIPTION

4.1 Investigation Methodology

The delineation of wetlands and other “waters of the U.S.” on the site were based on the methodology described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) as required by current Corps’ policy.

Prior to the field work, the background information was reviewed to establish the probability and approximate location of streams and potential wetlands on the site. Next a general reconnaissance of the project area was conducted to determine site conditions. The site was then walked with the specific intent of determining wetland boundaries and identifying jurisdictional streams. A data station was established at a location displaying wetland characteristics to document soil characteristics, evidence of hydrology and dominant vegetation. Note that no attempt was made to examine a full soil profile to confirm any soil series designations. However, soils were examined to a depth of at least 16 inches to assess soil characteristics and site hydrology. Complete descriptions of typical soil series can be found in the soil survey for this county.

4.1.1 Site Photographs. Photographs of the site are located in **Appendix A**. These photographs are the visual documentation of site conditions at the time of inspection. The photographs are intended to provide representative visual samples of any streams or other special features found on the site.

4.2 General Site Conditions

JFNew inspected the Highland Park Property located in Lucas County, Ohio on April 4, 2008 (**Drawing 1**). The site consists predominantly of old-field/manicured lawn with a forested area along the river. The forest is dominated by sassafras, box elder, cockspur thorn, and sycamore (**Table 3**).

Table 3: Composition of forest vegetation on site

Canopy Layer			Shrub Layer		
Common Name	Scientific Name	% Cover	Common Name	Scientific Name	% Cover
Box elder	<i>Acer negundo</i>	33.3	Cockspur thorn	<i>Crataegus crus-galli</i>	50
Sycamore	<i>Platanus occidentalis</i>	33.3	Sassafras	<i>Sassafras albidum</i>	50
Sassafras	<i>Sassafras albidum</i>	33.3			

The canopy layer consists of a mixed forest with common floodplain and upland tree species. The trees in the canopy layer range in diameter at breast height (dbh) from 8 to 32 inches, with an average of 14 inches.

4.3 Technical Descriptions

Data point (DP) and stream locations are labeled throughout the report and can be found on **Exhibit 1**. Resource evaluation and scoring sheets can be found in **Appendix B**.

4.4 WETLANDS

One wetland was identified on-site totalling approximately 0.20 acre.

Wetland Data Point A-1 (0.20 acre)

Data Point (A-1)

This wetland (± 0.02 acre) is a palustrine emergent (PEM) wetland which is connected to the floodplain of Swan Creek. The wetland is dominated by sedge (*Carex spp.*, most FAC, FAC+ or wetter), sycamore (*Platanus occidentalis*, FACW-), and moneywort (*Lysimachia nummularia*, OBL). Positive wetland hydrology was indicated by drainage patterns and soil pit hydrology at 14 inches below the soil surface. The soils displayed a matrix color of 10 YR 4/1 to 14 inches and 10YR 4/1 with 10YR 4/4 redoximorphic concentrations to 18 inches with sandy clay and sandy loam textures, respectively. Wetland A is likely to be considered jurisdictional by the Corps due to its connection with Swan Creek.

This area meets the three wetland criteria and is classified as a wetland. This wetland appears to be within the floodplain of Swan Creek, which would indicate the wetland is considered “jurisdictional waters of the U.S.”

Upland Data Point A-2

Data Point (A-2)

This data point adjacent to A-1 is characterized by woody and herbaceous vegetation including cockspur thorn (*Crataegus crus-galli*, FACU), Kentucky bluegrass (*Poa pratensis*, FACU) box elder, sassafras (*Sassafras albidum*, FACU-) and tall goldenrod (*Solidago altissima*, FACU-). No hydrologic indicators were observed at this data point at the time of the site visit. The soils from

0-16 inches deep are a 10YR 4/2 with no redoximorphic concentrations and 10YR 3/1 to 21 inches. This area fails to meet any of the three wetland criteria. It is not classified as a wetland.

Wetland A Assessment

Wetland A is classified as a jurisdictional palustrine emergent wetland. The wetland functions as a backwater floodplain wetland of Swan Creek. Wetland A was assessed using Ohio's Rapid Assessment Methodology (ORAM) for wetlands and received an ORAM score of 27 out of a possible 100 points, which classifies it as a Category 1 wetland.

4.5 STREAMS

Swan Creek (500 Linear Feet, Perennial)

Swan Creek is a perennial stream located along the northwest property line and flowing on the property for approximately 500 linear feet through the project area. Swan Creek is approximately 75 feet wide at bankfull width with 5.5 foot high banks. At the time of the site visit the stream had water flowing at a maximum depth of approximately three to six feet. The substrate of the stream consisted of sand, gravel, silt, rip rap, and cobble. Adjacent vegetation consisted of sycamore, box elder, and sassafras. Swan Creek has low sinuosity and has a very low gradient of less than 0.04% from the project site to the mouth of the river. Swan Creek received a QHEI score of 31 out of 100 and is considered modified warm water habitat.

5.0 JURISDICTIONAL ANALYSIS

5.1 Corps of Engineers and the OEPA

The Corps has authority over the discharge of fill or dredged material into "waters of the U.S.". This includes authority over any filling, mechanical land clearing, or construction activities that occur within the boundaries of any "waters of the U.S.". A permit must be obtained from the Corps before any of these activities occur. Permits can be divided into two general categories: Individual Permits and Nationwide Permits.

Individual Permits are required for projects that do not fall into one of the specific Nationwide Permits (NWP) or are deemed to have significant environmental impacts. These permits are much more difficult to obtain and receive a much higher level of regulatory agency and public scrutiny and may require several months to more than a year for processing.

Nationwide Permits (NWP) have been developed for projects that meet specific criteria and are deemed to have minimal impact on the aquatic environment.

The OEPA is responsible for issuing Clean Water Act (CWA) Section 401 permits known as Water Quality Certifications (WQC) in conjunction with the Corps' Section 404 permits. The OEPA must issue WQC for all Individual Permits. The Ohio EPA also requires notification for all impacts to isolated wetlands, which includes a permit application and mitigation plan. Water quality certification is granted by the Ohio EPA if the project falls under Nationwide Permit limitations administered by the Corps.

6.0 SUMMARY AND CONCLUSION

JFNew inspected the Highland Park Property located in Lucas County, Ohio on April 4, 2008. One stream (Swan Creek) and one wetland were located in the project area. Approximately 500

linear feet of perennial stream were identified as likely federally “jurisdictional waters of U.S.” during the site investigation. We recommend submitting this report to the Corps for verification prior to clearing or development on the site. **Table 4** summarizes the results of the stream identified during the delineation.

Table 4: Stream features identified within the Highland Park Property project study area

<i>ID</i>	<i>Type</i>	<i>Length (LF)</i>	<i>QHEI</i>	<i>“Waters of the U.S.”</i>	<i>QHEI Classification</i>
<i>Swan Creek</i>	<i>Perennial</i>	<i>500</i>	<i>31</i>	<i>Yes</i>	<i>Modified warm water habitat</i>

One jurisdictional wetland totaling approximately 0.20 acre was found on site and is summarized in **Table 5**.

Table 5: Wetland features identified within the Highland Park Property study area

<i>ID</i>	<i>Type</i>	<i>Area (ac)</i>	<i>ORAM</i>	<i>“Waters of the U.S.”</i>	<i>ORAM</i>
<i>Wetland A</i>	<i>PEM</i>	<i>0.20</i>	<i>27</i>	<i>Yes</i>	<i>Category 1</i>

Permits from the Corps and OEPA must be obtained prior to any filling or mechanical land clearing that occurs within the boundaries of any “waters of the U.S.”

While this report represents our best professional judgment based on our knowledge and experience, it is important to note that the Huntington District of the U.S. Army Corps of Engineers has final discretionary authority over all jurisdictional determinations of “waters of the U.S.” including wetlands under Section 404 of the CWA in this region. It is therefore recommended that a copy of this report be furnished to the Buffalo District of the U.S. Army Corps of Engineers to confirm the results of our findings.

7.0 REFERENCES

Environmental Laboratory. 1987. *U.S. Army Corps of Engineers’ Wetland Delineation Manual*, Technical Report Y-87-1, U.S. Waterways Experiment Station, Vicksburg, MS.

United States Department of Agriculture, Natural Resource Conservation Service (NRCS). 2007. *Soil Survey of Lucas County, Ohio*.

EXHIBIT 1

Locations of Identified Features

**WATERS OF THE U.S. DELINEATION REPORT
HIGHLAND PARK PROPERTY
LUCAS COUNTY, OHIO**



SITE PLAN

NOTE
 1.) Contours on this document are derived from available public domain DEM data. This data does not constitute professional topographic survey, and may not accurately represent actual field elevations. This data is not intended to support engineering plans or detailed site design.

LEGEND

- Existing Grade
- Existing Trees
- Wetland
- # Data Point Location / Designation
- * Stream Impact / Designation

Area 1	0.13 Acres
Area 2	0.17 Acres
Area 3	0.11 Acres
TOTAL	0.41 Acres

* NOTE: Wetland was not impacted with design.

0 40'

SCALE IN FEET

GRAPHIC SCALE VERIFICATION
 This is 1/2" on 11x17" original.
 Adjust scale accordingly.

JFNEW

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 317-850-3400

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 734-225-9899

REVISION	DATE	BY

Highland Park Dam Mitigation and Riparian Enhancement
Partners for Clean Streams
 Lucas County, Toledo, Ohio
EXHIBIT 1

DRAWN BY: GOD
 DESIGNED BY: ES
 DATE: MAY 2008
 JOB NO: 070812.00

DRAFT

EXHIBIT

1

PRELIMINARY DRAWING:
 NOT APPROVED FOR CONSTRUCTION.

DRAWINGS

**WATERS OF THE U.S. DELINEATION REPORT
HIGHLAND PARK PROPERTY
LUCAS COUNTY, OHIO**



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 608-240-1453

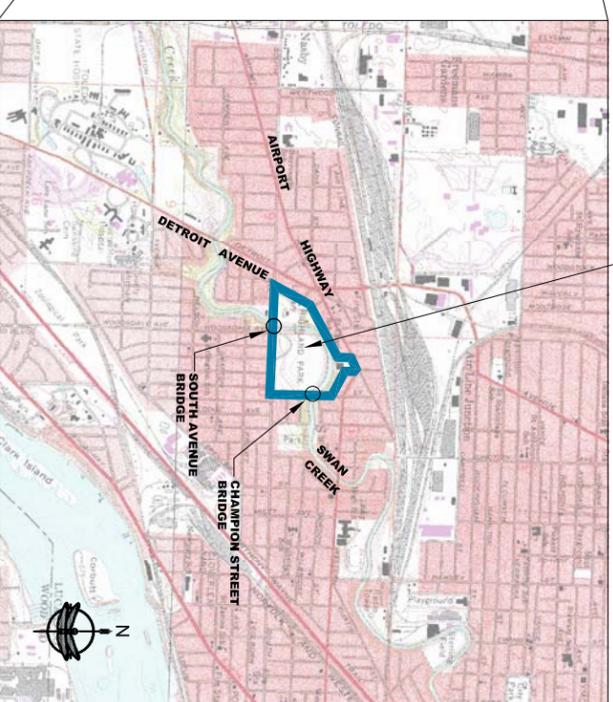
HIGHLAND PARK DAM MITIGATION AND RIPARIAN ENHANCEMENT

LUCAS COUNTY TOLEDO, OHIO

APRIL 2008

SHEET INDEX

SHEET	DESCRIPTION
1	TITLE SHEET AND SHEET INDEX
2	NWI MAP
3	SOILS MAP
4	PROJECT SITE AERIAL
5	EXISTING CONDITIONS
6	PROPOSED PLAN
7	PROFILE AND CROSS-SECTIONS
8	DETAILS



HIGHLAND PARK
PROJECT LOCATION

VICINITY MAP

(SEC. 9 AND 10, TOWNSHIP 3, RANGE 7 EAST)

NOT TO SCALE

PRELIMINARY DRAWING:
NOT APPROVED FOR CONSTRUCTION.

Our mission is to provide the highest quality environmental services to our clients while positively impacting the lives of our employees and the conservation of natural resources through prosperity and stewardship.

REVISION

Highland Park Dam Mitigation and
Riparian Enhancement
Partners for Clean Streams
Lucas County, Toledo, Ohio
TITLE SHEET AND SHEET INDEX MAP

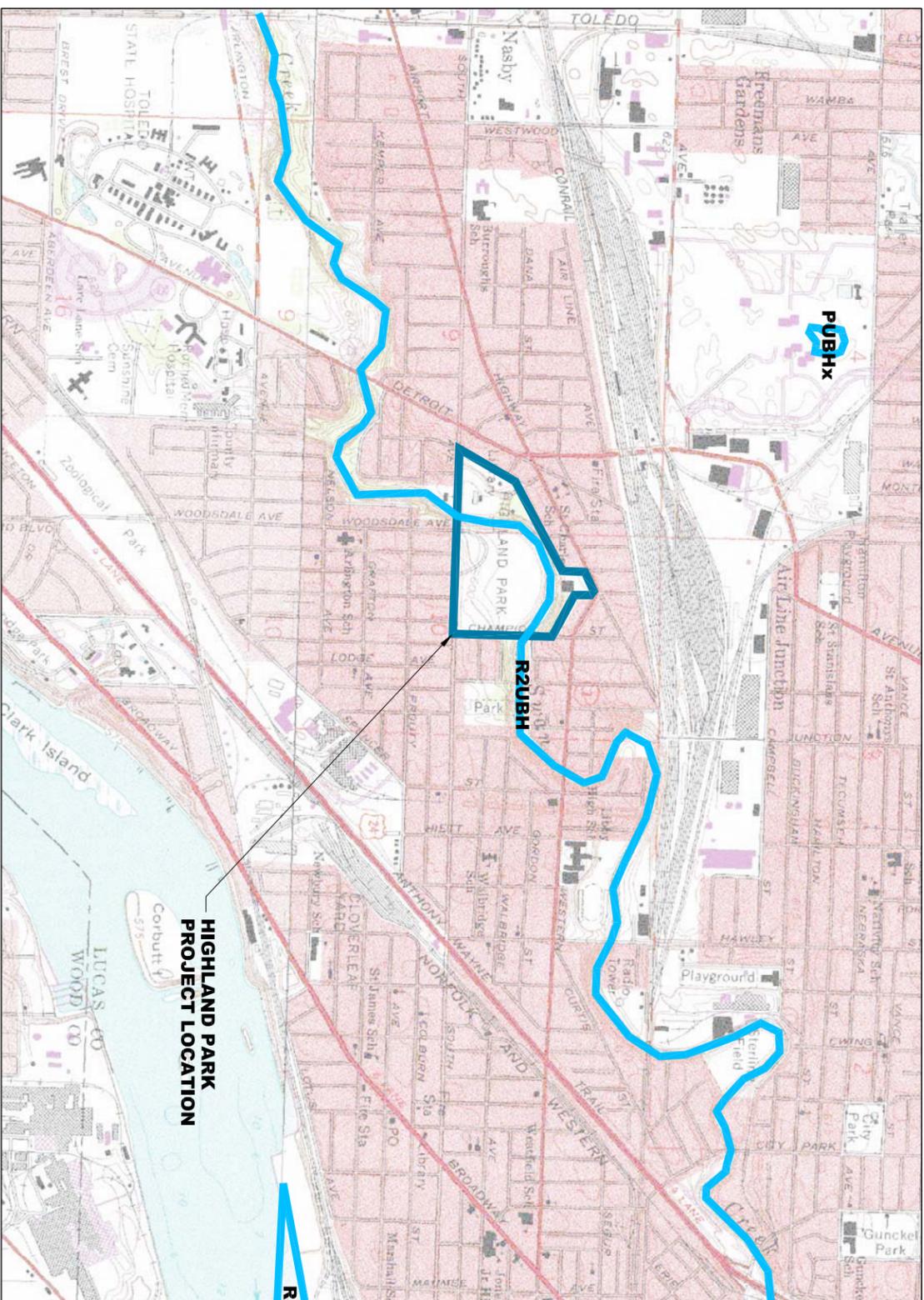
DRAWN BY: JFH/COO
 DESIGNED BY: ES
 DATE: APRIL 2008
 JOB NO: 070812

DRAFT

DRAWING NO.

1

1 OF 8

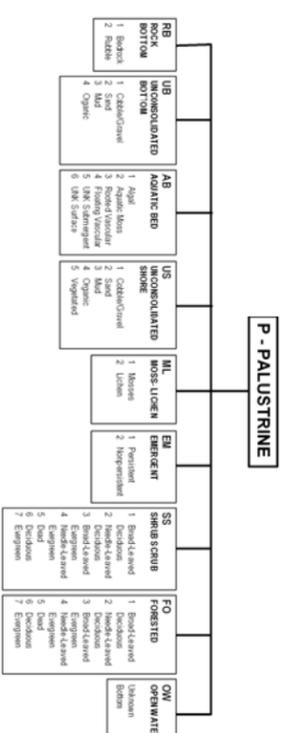


NWI MAP

Toledo (OH, MI) Quadrangle

**HIGHLAND PARK
PROJECT LOCATION**

FRESHWATER WETLAND CLASSIFICATION

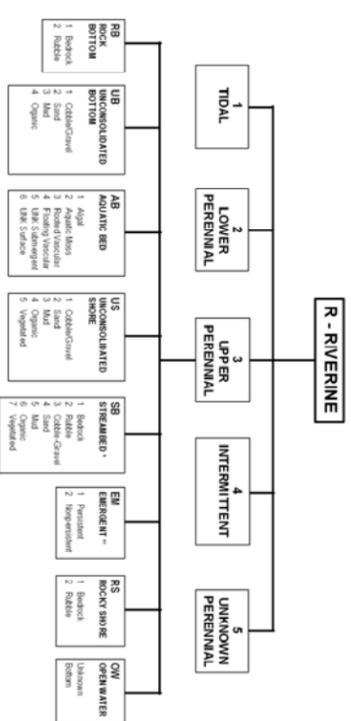


MODIFYING TERMS
 In order to more adequately describe wetland and aquatic habitat, water regime, water chemistry, soil & special modifiers may be applied.

NON-TIDAL	WATER REGIME	WATER CHEMISTRY	SOIL	SPECIAL MODIFIERS
A Temporarily Flooded	J Intermittently Flooded	7 Hypersaline	a Acid	g Organic
B Seasonally Flooded	K Artificially Flooded	8 Euxaline	1 Circumneutral	h Mineral
C Seasonally Flooded	W Intermittently Flooded	9 Mesohaline	1 Alkaline	i Partially Drowned/Diked
D Seasonally Flooded	Y Seasonally Flooded	0 Fresh		j Fanned
E Seasonally Flooded	Z Intermittently Flooded			k Diked/Impounded
F Seasonally Flooded	U Unknown			l Artificial Substrate
G Intermittently Flooded				m Spoil
H Permanently Flooded				n Erosion

Classification of wetland and dependent habitats of the U.S. Cowardin et al. 1979 as modified for national wetland inventory mapping convention.

FRESHWATER WETLAND CLASSIFICATION



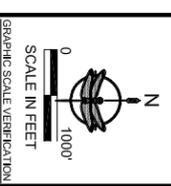
MODIFYING TERMS
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NON-TIDAL	WATER REGIME	WATER CHEMISTRY	SOIL	SPECIAL MODIFIERS
A Temporarily Flooded	J Intermittently Flooded	7 Hypersaline	a Acid	g Organic
B Seasonally Flooded	K Artificially Flooded	8 Euxaline	1 Circumneutral	h Mineral
C Seasonally Flooded	W Intermittently Flooded	9 Mesohaline	1 Alkaline	i Partially Drowned/Diked
D Seasonally Flooded	Y Seasonally Flooded	0 Fresh		j Fanned
E Seasonally Flooded	Z Intermittently Flooded			k Diked/Impounded
F Seasonally Flooded	U Unknown			l Artificial Substrate
G Intermittently Flooded				m Spoil
H Permanently Flooded				n Erosion

Classification of wetland and dependent habitats of the U.S. Cowardin et al. 1979 as modified for national wetland inventory mapping convention.

* STRAUBER is linked to TIDAL and INTERMITTENT SUBSYSTEMS and comprises the only CASES in the INTERMITTENT SUBSYSTEM
 ** EMBAYMENT IS LIMITED TO TIDAL and LOWER PERENNIAL SUBSYSTEMS. The remaining CLASSES are found in SUBSYSTEMS.

**PRELIMINARY DRAWING:
NOT APPROVED FOR CONSTRUCTION.**



JFNEW
 Corporate/Nonprofit Indiana
 708 Roosevelt Road
 Walkerton, Indiana 46574
 317-850-2400

Eastern Michigan
 605 S. Main Street, Suite 1,
 Ann Arbor, MI 48104
 313-225-9899

REVISION	DATE	BY

**Highland Park Dam Mitigation and
Riparian Enhancement**
Partners for Clean Streams
 Lucas County, Toledo, Ohio
NWI MAP

DRAWN BY: SK/LOD
 DESIGNED BY: ES
 DATE: APRIL 2008
 JOB NO.: 070812.00

DRAFT

2
 DRAWING NO.
 2 OF 8

APPENDIX A

SITE PHOTOGRAPHS

**WATERS OF THE U.S. DELINEATION REPORT
HIGHLAND PARK PROPERTY
LUCAS COUNTY, OHIO**

Photo #1: View looking north toward wetland area on West floodplain along Swan Creek



Photo #2: View looking north toward wetland area on West floodplain along Swan Creek



**Site Photographs from 04/04/2008 Wetland Delineation
Highland Park, Swan Creek**

Lucas County, Ohio

April 4, 2008

File No. 070812_Highland Park Dam Mitigation



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Photo #3: View looking southwest across wetland area on West floodplain along



Photo #4: View looking east at upland point



**Site Photographs from 04/04/2008 Wetland Delineation
Highland Park, Swan Creek**

Lucas County, Ohio

April 4, 2008

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Photo #5: View looking across Swan Creek from left downstream bank at South Avenue Bridge during high



Photo #6: View looking downstream from South Avenue Bridge during high flow



**Site Photographs from 04/04/2008
Highland Park, Swan Creek**

Lucas County, Ohio

April 4, 2008

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Photo #7: View looking towards right downstream bank at Pedestrian Bridge during high flow



Photo #8: View looking toward left downstream bank at Pedestrian Bridge during high



**Site Photographs from 04/04/2008
Highland Park, Swan Creek**

Lucas County, Ohio

April 4, 2008

File No. 070812_Highland Park Dam Mitigation



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Photo #9: View looking upstream towards South Avenue Bridge during low flow



Photo #10: View looking downstream from South Avenue Bridge during low flow



**Site Photographs from 10/03/2007
Highland Park, Swan Creek**

Lucas County, Ohio

October 3, 2007

File No. 070812_Highland Park Dam Mitiga-



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Photo #11: Existing Low-head Dam



Photo #12: View looking upstream towards South Avenue Bridge



**Site Photographs from 10/03/2007
Highland Park, Swan Creek**

Lucas County, Ohio

October 3, 2007

File



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Photo #13: Upstream End of Proposed Rock Ramp #1



Photo #14: View looking toward stake marking downstream end of Rock Ramp #1



**Site Photographs from 04/04/2008
Highland Park, Swan Creek**

Lucas County, Ohio

April 4, 2008

File No. 070812_Highland Park Dam Mitigation



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Photo #15: Upstream End of Proposed Rock Ramp #2



Photo #16: View looking toward towards right downstream bank at downstream end of Rock Ramp #2



**Site Photographs from 04/04/2008
Highland Park, Swan Creek**

Lucas County, Ohio

April 4, 2008

File No. 070812_Highland Park Dam Mitigation



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Photo #17: Upstream End of Proposed Rock Ramp #3



Photo #18: View looking toward towards right downstream bank at downstream end of Rock Ramp #3



**Site Photographs from 04/04/2008
Highland Park, Swan Creek**

Lucas County, Ohio

April 4, 2008

File No. 070812_Highland Park Dam Mitigation



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APPENDIX B

**STREAM AND WETLAND EVALUATION FORMS
(QHEI, ORAM)**

**WATERS OF THE U.S. DELINEATION REPORT
HIGHLAND PARK PROPERTY
LUCAS COUNTY, OHIO**

River Code: _____ RM: 4.4 Stream: Swan Creek, Highland Park, Toledo, OHDate: 4/04/08 Location: Lat/Long: 41.633N /83.585WScorers Full Name: Joe VonWalde Affiliation: JFNew**1.) SUBSTRATE** (Check ONLY Two Substrate TYPE BOXES; Estimate % present)

TYPE	Pool	Riffle	Pool	Riffle	SUBSTRATE ORIGIN	SUBSTRATE QUALITY		
<input type="checkbox"/> <input type="checkbox"/> -BLDR/SLBS (10)	_____	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> -GRAVEL (7)	<u>80</u>	Check ONE (OR 2 & AVERAGE)	Check ONE (OR 2 & AVERAGE)		
<input type="checkbox"/> <input checked="" type="checkbox"/> -BOULDER (9)	_____	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> -SAND (6)	_____	<input type="checkbox"/> -LIMESTONE (1)	SILT: <input type="checkbox"/> -SILT HEAVY (-2)	Substrate 8 Max 20	
<input type="checkbox"/> <input checked="" type="checkbox"/> -COBBLE (8)	_____	_____	<input type="checkbox"/> <input type="checkbox"/> -BEDROCK (5)	_____	<input checked="" type="checkbox"/> -TILLS (1)	<input checked="" type="checkbox"/> -SILT MODERATE (-1)		
<input type="checkbox"/> <input type="checkbox"/> -HARDPAN (4)	_____	_____	<input type="checkbox"/> <input type="checkbox"/> -DETRITUS (3)	_____	<input type="checkbox"/> -WETLANDS (0)	<input type="checkbox"/> -SILT NORMAL (0)		
<input type="checkbox"/> <input type="checkbox"/> -MUCK (2)	_____	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> -ARTIFICIAL (0)	<u>10</u>	<input type="checkbox"/> -HARDPAN (0)	<input type="checkbox"/> -SILT FREE (1)		
<input type="checkbox"/> <input type="checkbox"/> -SILT (2)	_____	_____	NOTE: Ignore Sludge Originating From Point Sources		<input type="checkbox"/> -SANDSTONE (0)	EMBEDDED <input type="checkbox"/> -EXTENSIVE (-2)		
NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> -4 or More (2)						<input type="checkbox"/> -RIP/RAP (0)	NESS: <input checked="" type="checkbox"/> -MODERATE (-1)	
(High Quality Only, Score 5 or >)						<input type="checkbox"/> -LACUSTRINE (0)	<input type="checkbox"/> -NORMAL (0)	
COMMENTS: <u>Gravel, cobble, boulder, sand</u>						<input type="checkbox"/> -SHALE (-1)	<input type="checkbox"/> -NONE (1)	
						<input type="checkbox"/> -COAL FINES (-2)		

2.) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure)	TYPE: Score All That Occur	AMOUNT: (Check ONLY One or Check 2 & AVERAGE)	Cover
<u>0</u> UNDERCUT BANKS (1)	<u>1</u> POOLS > 70 cm (2)	<input type="checkbox"/> EXTENSIVE >75% (11)	8 Max 20
<u>1</u> OVERHANGING VEGETATION (1)	<u>0</u> ROOTWADS (1)	<input type="checkbox"/> MODERATE 25-75% (7)	
<u>0</u> SHALLOWS (IN SLOW WATER) (1)	<u>1</u> BOULDERS (1)	<input checked="" type="checkbox"/> SPARSE 5-25% (3)	
<u>0</u> ROOTMATS (1)	COMMENTS: _____	<input type="checkbox"/> NEARLY ABSENT <5% (1)	

3.) CHANNEL MORPHOLOGY (Check ONLY One per Category OR Check 2 & AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER	Channel
<input type="checkbox"/> -HIGH (4)	<input type="checkbox"/> -EXCELLENT (7)	<input type="checkbox"/> -NONE (6)	<input type="checkbox"/> -HIGH (3)	<input type="checkbox"/> -SNAGGING	5 Max 20
<input type="checkbox"/> -MODERATE (3)	<input type="checkbox"/> -GOOD (5)	<input type="checkbox"/> -RECOVERED (4)	<input type="checkbox"/> -MODERATE (2)	<input type="checkbox"/> -RELOCATION	
<input checked="" type="checkbox"/> -LOW (2)	<input type="checkbox"/> -FAIR (3)	<input type="checkbox"/> -RECOVERING (3)	<input checked="" type="checkbox"/> -LOW (1)	<input type="checkbox"/> -CANOPY REMOVAL	
<input type="checkbox"/> -NONE (1)	<input checked="" type="checkbox"/> -POOR (1)	<input checked="" type="checkbox"/> -RECENT OR NO RECOVERY (1)		<input type="checkbox"/> -DREDGING	
COMMENTS: _____					

4.) RIPARIAN ZONE AND BANK EROSION (Check ONE box per bank OR Check 2 & AVERAGE per bank)

River Right Looking Downstream

RIPARIAN WIDTH		FLOOD PLAIN QUALITY (Past 100 ft Riparian)		BANK EROSION		Riparian
L	R (Per Bank)	L	R (Most Predominant Per Bank)	L	R (Per Bank)	
<input type="checkbox"/>	<input type="checkbox"/> -WIDE >50m (4)	<input type="checkbox"/>	<input type="checkbox"/> -FOREST, SWAMP (3)	<input type="checkbox"/>	<input type="checkbox"/> -CONSERVATION TILLAGE (1)	5 Max 10
<input type="checkbox"/>	<input type="checkbox"/> -MODERATE 10-50m (3)	<input type="checkbox"/>	<input type="checkbox"/> -SHRUB OR OLD FIELD (2)	<input type="checkbox"/>	<input type="checkbox"/> -URBAN OR INDUSTRIAL (0)	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> -NARROW 5-10m (2)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> -RESIDENTIAL, PARK, NEW FIELD (1)	<input type="checkbox"/>	<input type="checkbox"/> -OPEN PASTURE, ROWCROP (0)	
<input type="checkbox"/>	<input type="checkbox"/> -VERY NARROW <5m (1)	<input type="checkbox"/>	<input type="checkbox"/> -FENCED PASTURE (1)	<input type="checkbox"/>	<input type="checkbox"/> -MINING/CONSTRUCTION (0)	
<input type="checkbox"/>	<input type="checkbox"/> -NONE (0)					
COMMENTS: _____						

5.) POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)	MORPHOLOGY (Check 1 or 2 & AVERAGE)	CURRENT VELOCITY (POOLS & RIFFLES!) (Check All that Apply)	Pool/Current
<input type="checkbox"/> >1 m (6)	<input type="checkbox"/> -POOL WIDTH > RIFFLE WIDTH (2)	<input type="checkbox"/> -EDDIES (1)	3 Max 12
<input type="checkbox"/> 0.7-1m (4)	<input type="checkbox"/> -POOL WIDTH = RIFFLE WIDTH (1)	<input type="checkbox"/> -FAST (1)	
<input checked="" type="checkbox"/> 0.4-0.7m (2)	<input checked="" type="checkbox"/> -POOL WIDTH < RIFFLE WIDTH (0)	<input type="checkbox"/> -MODERATE (1)	
<input type="checkbox"/> 0.2-0.4m (1)	COMMENTS: _____	<input checked="" type="checkbox"/> -SLOW (1)	
<input type="checkbox"/> <0.2m (pool = 0)			

CHECK ONE OR CHECK 2 & AVERAGE

RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS	Riffle/Run
<input type="checkbox"/> -BEST AREAS >10cm (2)	<input type="checkbox"/> -MAX >50 (2)	<input type="checkbox"/> -STABLE (e.g., Cobble, Boulder (2)	<input type="checkbox"/> -NONE (2)	0 Max 8
<input type="checkbox"/> -BEST AREAS 5-10cm (1)	<input type="checkbox"/> -MAX <50 (1)	<input type="checkbox"/> -MOD. STABLE (e.g., Large Gravel (1)	<input type="checkbox"/> -LOW (1)	
<input type="checkbox"/> -BEST AREAS <5cm (RIFFLE=0)		<input type="checkbox"/> -UNSTABLE (Fine Gravel, Sand) (0)	<input type="checkbox"/> -MODERATE (0)	
COMMENTS: _____				
				<input type="checkbox"/> -EXTENSIVE (-1)
				<input type="checkbox"/> NO RIFFLE (Metric=0)
				2 Max 10

6.) GRADIENT (ft. mi.): <0.16 **DRAINAGE AREA** (sq. mi.): 197 **%POOL:** 10 **%GLIDE:** 90
 Very low – low (2-4) **%RIFFLE:** **%RUN:**

*Best areas must be large enough to support a population of riffle-obligate species

Is Sampling Reach Representative of the Stream? (Y/N) _____ If Not, Explain _____

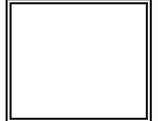
Reach impacted by low-head dam and walls; further downstream of this reach, pools and riffles start to form (with pools >1m)

Aesthetics: Excess turbidity

Measurements: Width, depth, bankfull width, bankfull depth, floodprone x² width



Subjective Rating (1-10)



Aesthetic Rating (1-10)

Gear:	Distance:	Water Clarity:	Water Stage:	Canopy-% Open:
First Sampling Pass	L.Line	0.12Km		55% - <85%

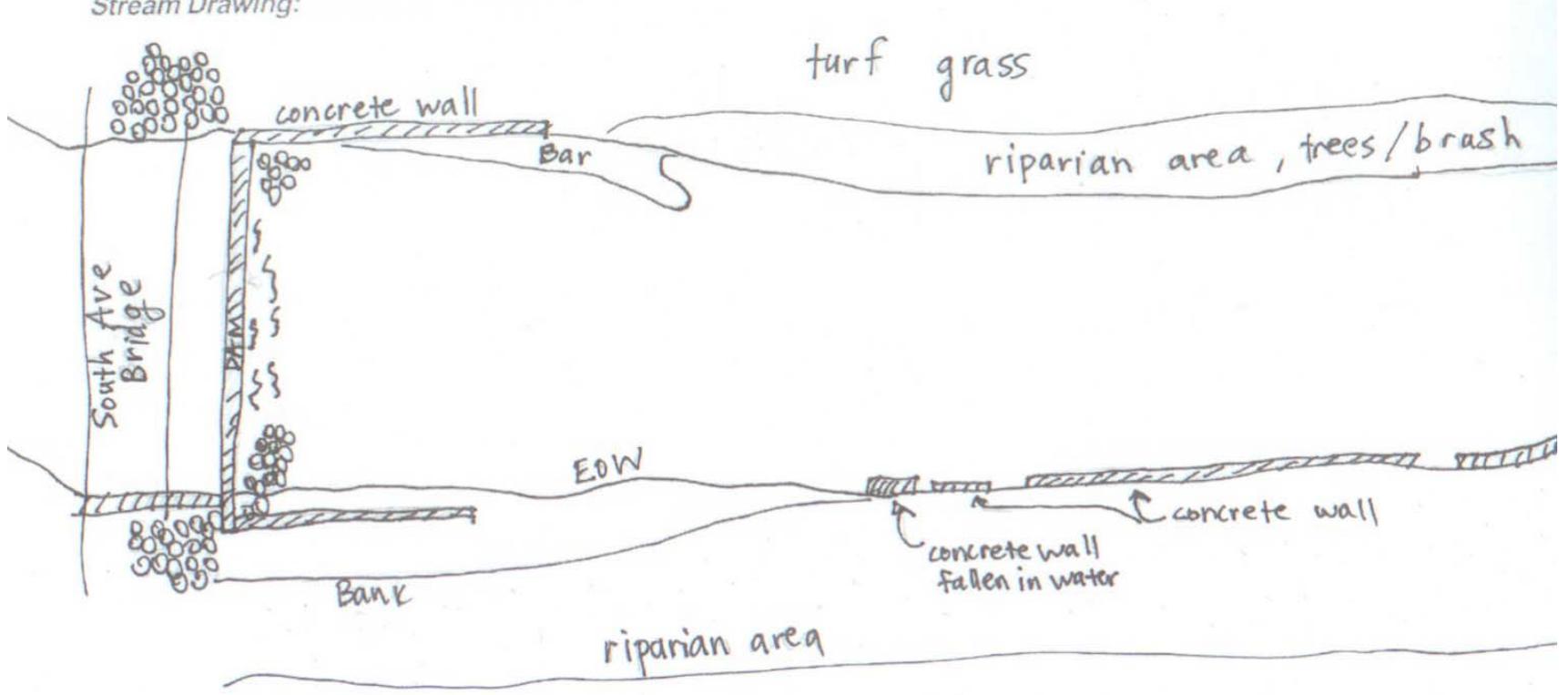
Stream Measurements:

Average Width	Average Depth	Maximum Depth	Av. Bankfull Width	Bankfull Mean Depth	W/D Ratio	Bankfull Max Depth	Floodprone Area Width	Entrench. Ratio

Gradient: Low Moderate High

- Major Suspected Sources of Impacts (Check All That Apply):
- None
 - Industrial
 - WWTP
 - Ag
 - Livestock
 - Silviculture
 - Construction
 - Urban Runoff
 - CSOs
 - Suburban Impacts
 - Mining
 - Channelization
 - Riparian Removal
 - Landfills
 - Natural
 - Dams
 - Other Flow Alteration
 - Other: _____

Stream Drawing:



Site: Swan Creek	Rater(s): JWV	Date: 04/04/2008
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1	1
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

7	8
max 14 pts.	subtotal

Metric 2. Upland Buffers and Surrounding Land Use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

11	19
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High ph groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3c. Maximum water depth. Score only one and assign score.

- >0.7 (27.6 in) (3)
- 0.4 to 0.7 m (15.7 to 27.6 in) (2)
- <0.4 m (<15.7 in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30 cm (12 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other ____

5	24
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input checked="" type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

24
subtotal this page

Site: Swan Creek	Rater(s):	Date: 04/04/2008
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3

subtotal this page

0	0
----------	----------

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain sand prairies (oak openings) (10)
- Relict wet prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 wetland. See Question 1 Qualitative Rating (-10)

3	3
----------	----------

max 20 pts.

subtotal

Metric 6. Plant Communities, Interspersion, Microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- 0 Aquatic bed
- 1 Emergent
- 0 Shrub
- 0 Forest
- 0 Mudflats
- 0 Open water
- 0 Other _____

6b. Horizontal (plan view) interspersion.

Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 0 Vegetated hummocks/tussocks
- 0 Coarse woody debris >15 cm (6 in)
- 0 Standing dead >25 cm (10 in) dbh
- 0 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

27

GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring break points between wetland categories at the following address: <http://www.epa.state.oh.us/dswl/401/401.html>

**DATA SHEET:
WETLAND DELINEATION**

Project/Site:	Highland Park	Date:	4/4/2008
Client:	Partners for Clean Streams	County:	Lucas
Investigator(s):	J. von Wahlde	State:	Ohio

WETLAND	WETLAND
STATION # <u> </u> A-1 Distance from Stake: <u> </u>	STATION # <u> </u> A-2 Distance from Stake: <u> </u>
Normal Circumstances? Yes/No <u> </u> Y	Normal Circumstances? Yes/No <u> </u> Y
Significantly Disturbed? Yes/No <u> </u> N	Significantly Disturbed? Yes/No <u> </u> N
Potential Problem Area? Yes/No <u> </u> N	Potential Problem Area? Yes/No <u> </u> N

VEGETATION			VEGETATION		
DOMINANT SPECIES	STRATUM	INDICATOR	DOMINANT SPECIES	STRATUM	INDICATOR
<u>Carex sp.</u>	<u>Herb</u>	<u>FACW</u>	<u>Crataegus crus-galli</u>	<u>Tree</u>	<u>FACU</u>
<u>Lysimachia annularis</u>	<u>Herb</u>	<u>OBL</u>	<u>Acer negundo</u>	<u>Tree</u>	<u>FACW-</u>
<u>Platanus occidentalis</u>	<u>Tree</u>	<u>FACW-</u>	<u>Sassafras albidum</u>	<u>Tree</u>	<u>FACU-</u>
<u> </u>	<u> </u>	<u> </u>	<u>Solidago altissima</u>	<u>Herb</u>	<u>FACU</u>
<u> </u>	<u> </u>	<u> </u>	<u>Poa pratensis</u>	<u>Herb</u>	<u>FACU</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Percent of Species OBL, FACW, FAC (excl. FAC-)	<u> </u>	<u>100%</u>	Percent of Species OBL, FACW, FAC (excl. FAC-)	<u> </u>	<u>0%</u>

Remarks: <input checked="" type="checkbox"/> Meets the hydrophytic vegetation criterion.	Remarks: <input type="checkbox"/> Meets the hydrophytic vegetation criterion.
<input type="checkbox"/> Does not meet the hydrophytic vegetation criterion.	<input checked="" type="checkbox"/> Does not meet the hydrophytic vegetation criterion.
<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

HYDROLOGY			HYDROLOGY		
Field Indicators:	Depth of Surface Water:	<u>6"</u>	Field Indicators:	Depth of Surface Water:	<u>none</u>
	Depth to Free Water:	<u>14"</u>		Depth to Free Water:	<u>>16"</u>
	Depth to Saturated Soil:	<u>12"</u>		Depth to Saturated Soil:	<u>>16"</u>
PRIMARY INDICATORS	SECONDARY INDICATORS		PRIMARY INDICATORS	SECONDARY INDICATORS	
Inundated <u> </u> x 6"	Ox. root channels	<u> </u>	Inundated <u> </u>	Ox. root channels	<u> </u>
Saturated <12" <u> </u> x 14"	Water-stained leaves	<u> </u> x	Saturated <12" <u> </u>	Water-stained leaves	<u> </u>
Water marks <u> </u>	Local soil survey data	<u> </u>	Water marks <u> </u>	Local soil survey data	<u> </u>
Sediment deposit <u> </u>	FAC- Neutral test	<u> </u>	Sediment deposit <u> </u>	FAC- Neutral test	<u> </u>
Drainage patterns <u> </u> x	Other (ex. in Remarks)	<u> </u>	Drainage patterns <u> </u>	Other (ex. in Remarks)	<u> </u>

Remarks: <input checked="" type="checkbox"/> Meets the wetland hydrology criterion.	Remarks: <input type="checkbox"/> Meets the wetland hydrology criterion.
<input type="checkbox"/> Does not meet the wetland hydrology criterion.	<input checked="" type="checkbox"/> Does not meet the wetland hydrology criterion.
<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

SOILS				SOILS			
Map Unit Name:	<u>Udorthents, loamy</u>			Map Unit Name:	<u>Udorthents, loamy</u>		
Profile Description:	<u> </u>			Profile Description:	<u> </u>		
DEPTH	MATRIX	MOTTLE	TEXTURE	DEPTH	MATRIX	MOTTLE	TEXTURE
<u>0-14"</u>	<u>10YR 4/1</u>	<u>none</u>	<u>sandy clay</u>	<u>0-16"</u>	<u>10YR 4/2</u>	<u>none</u>	<u>clay loam</u>
<u>14-18"+</u>	<u>10YR 4/1</u>	<u>10YR 4/4</u>	<u>sandy loam</u>	<u>16-21"</u>	<u>10YR 3/1</u>	<u>none</u>	<u>clay loam</u>
	HYDRIC SOIL INDICATORS				HYDRIC SOIL INDICATORS		
Histosol	<u> </u>	Concretions	<u> </u>	Histosol	<u> </u>	Concretions	<u> </u>
Histic epipedon	<u> </u>	Organic content	<u> </u>	Histic epipedon	<u> </u>	Organic content	<u> </u>
Sulfidic odor	<u> </u>	Organic streaking	<u> </u>	Sulfidic odor	<u> </u>	Organic streaking	<u> </u>
Aquic moisture reg.	<u> </u>	Local hydric soils list	<u> </u>	Aquic moisture reg.	<u> </u>	Local hydric soils list	<u> </u>
Gleyed	<u> </u>	National hydric soils list	<u> </u>	Gleyed	<u> </u>	National hydric soils list	<u> </u>
Low Chroma	<u> </u> x	Other (ex. in Remarks)	<u> </u>	Low Chroma	<u> </u>	Other (ex. in Remarks)	<u> </u>

Remarks: <input checked="" type="checkbox"/> Meets the hydric soil criterion.	Remarks: <input type="checkbox"/> Meets the hydric soil criterion.
<input type="checkbox"/> Does not meet the hydric soil criterion.	<input checked="" type="checkbox"/> Does not meet the hydric soil criterion.
<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

WETLAND DETERMINATION			WETLAND DETERMINATION		
Hydrophytic vegetation present?	<u> </u> x Yes	<u> </u> No	Hydrophytic vegetation present?	<u> </u> Yes	<u> </u> x No
Wetland hydrology present?	<u> </u> x Yes	<u> </u> No	Wetland hydrology present?	<u> </u> Yes	<u> </u> x No
Hydric soils present?	<u> </u> x Yes	<u> </u> No	Hydric soils present?	<u> </u> Yes	<u> </u> x No

Remarks: <input checked="" type="checkbox"/> Qualifies as a wetland.	Remarks: <input type="checkbox"/> Qualifies as a wetland.
<input type="checkbox"/> Does not qualify as a wetland.	<input checked="" type="checkbox"/> Does not qualify as a wetland.
<input type="checkbox"/> Other:	<input type="checkbox"/> Other: