

Large Filing Separator Sheet

Case Number: 09-479-EL-BGN

File Date: 12/11/2009

Section: 1 of 4

Number of Pages: 200

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FILE



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RECEIVED-DOCKETING DIV

December 11, 2009

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Via Hand Delivery

PUCO

Ms. Renee Jenkins
Administration/Docketing
Ohio Power Siting Board
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3793

Re: Hardin Wind Energy LLC, Case No. 09-479-EL-BGN

Dear Ms. Jenkins:

Attached please find Hardin Wind Energy LLC's (Hardin) response to Staff's Data Requests and Interrogatories Request Nos. 16 and updated response to No. 52.

If you have any questions, please call me at the number listed above.

Sincerely,

Sally W. Bloomfield

Attachment

Cc: Parties of Record

I hereby certify that the images appearing are an
accurate and complete reproduction of a case file
as delivered in the regular course of business.
Technician Da Date Processed 12/11/09

Responses to Data Requests and Interrogatories

Hardin Wind Energy LLC

December 11, 2009

As a follow up to the Applicant's November 20th response to interrogatories, the OPSB Staff requests answers to the following additional interrogatories:

16. *Can the Applicant supply the following for each resource considered jurisdictional or isolated relative to the document called "Wetland Reconnaissance Survey" created by TetraTech, EC, Inc.?*

A. *Ohio Rapid Assessment Method (ORAM v 5.0) Wetland Delineation Forms (per USACE, Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (2008))*

See attached.

B. *Qualitative Habitat Evaluation Index (QHEI), Primary Headwater Habitat Evaluation Index (HHEI), and/or Headwater Macroinvertebrate Field Evaluation Index (HMF EI), if performed*

See attached.

C. *Post-Rapanos Jurisdictional Determination Forms (8 page forms)*

See attached.

52. *Please provide an approximate cubic yardage of solid waste that is expected to be generated during construction, either total or per wind turbine. Please be more specific on what type of waste will be generated.*

The Applicant anticipates that approximately 4 tons of solid waste per wind turbine will be generated during construction of the Hardin Wind Farm. The materials disposed are mostly packaging of various sorts the majority of which is made up of heavy duty rolls for geotextile fabric, spools for underground cable and used silt fence. The Applicant will take all commercially reasonable steps to reuse and recycle as much of the material as possible. The Applicant does not anticipate generating any hazardous waste.

RESPONSE TO 16(A) AND (C)

AWBO 036-SSQ

10/27/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HOLDIN WIND FALW City/County: HOLDEN Sampling Date: 10/27/09
 Applicant/Owner: INWENRGY State: OH Sampling Point: SSQ
 Investigator(s): DELAHUNTY, COLLIN Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): CONCAVE
 Slope (%): 0 Lat: 40.6377 Long: -83.7730 Datum: NAD 83
 Soil Map Unit Name: (Pm) PEWAMO Silty Clay LOAM NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil IV, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil IV, or Hydrology IV 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>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks: Early Successional wetland (NWI - PmC) FALLOW FIELD
NOT FUNCTIONING AS A WETLAND

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
5. _____	_____	_____	_____	
= Total Cover				OBL species <u>0</u> x 1 = <u>0</u>
Sapling/Shrub Stratum (Plot size: <u>0</u>)				FACW species <u>0</u> x 2 = <u>0</u>
1. _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
2. _____	_____	_____	_____	FACU species <u>26</u> x 4 = <u>104</u>
3. _____	_____	_____	_____	UPL species <u>39</u> x 5 = <u>195</u>
4. _____	_____	_____	_____	Column Totals: <u>65</u> (A) <u>299</u> (B)
5. _____	_____	_____	_____	Prevalence Index = B/A = <u>4.6</u>
= Total Cover				Hydrophytic Vegetation Indicators:
Herb Stratum (Plot size: <u>51</u>)				Dominance Test is >50% <u>NO</u>
1. <u>DRACAENA SP.</u>	<u>13</u>	<u>Y</u>	<u>UPL*</u>	Prevalence Index is >3.0 ¹ <u>NO</u>
2. <u>SETARIA SP.</u>	<u>13</u>	<u>Y</u>	<u>UPL*</u>	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>none</u>
3. <u>TARAXACUM OFFICINALE</u>	<u>13</u>	<u>Y</u>	<u>FACW</u>	Problematic Hydrophytic Vegetation ¹ (Explain) <u>none</u>
4. <u>ARCTIUM LAPPA</u>	<u>13</u>	<u>Y</u>	<u>UPL*</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. <u>AMMOSIA ARTEMISIIFOLIA</u>	<u>13</u>	<u>Y</u>	<u>FACW</u>	
6. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	Remarks: (Include photo numbers here or on a separate sheet.)
9. _____	_____	_____	_____	
10. <u>200213</u>	_____	_____	_____	<u>65% cover ~ 35% EXPOSED SOIL</u>
Woody Vine Stratum (Plot size: <u>0</u>)	_____	_____	_____	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				

10/27/09

SOIL

Sampling Point: 552

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 ¹	Loc ²		
0-6	10YR 3/1	-					Silt Clay	
6-12	10YR 3/1	-					Clay	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

No mottles.

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

REFUSOL AT 12"

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)				
☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Sparsely Vegetated Concave Surface (B8)	☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13) ☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1) ☐ Oxidized Rhizospheres on Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C8) ☐ Thin Muck Surface (C7) ☐ Gauge or Well Data (D9)	☒ Surface Soil Cracks (B6) ☐ Drainage Patterns (B10) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☐ Geomorphic Position (D2) ☐ FAC-Neutral Test (D5)	LOW DEPRESSIONAL AREAS	
☒ Other (Explain in Remarks)				
Field Observations:				
Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____	Wetland Hydrology Present? Yes ☒ No ☒	
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes ☐ No ☒	Depth (inches): _____		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks:				
NO INLET OR OUTLET NON-WETLANDS - APPEARS TO RECEIVE SURFACE WATER RUN-OFF DURING STREAM EVENTS				

AWTBI47009-SS2

10/28/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDIN WOOD FARM City/County: HARDIN Sampling Date: 10/28/09
 Applicant/Owner: INDEPENDENT State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, COLLIER Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.5896 Long: -83.7621 Datum: NAD 83
 Soil Map Unit Name: (PM) PELWAND SILTY CLAY LOAM NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
 Are Vegetation N, Soil N, or Hydrology N 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 ✓
 Hydric Soil Present? Yes X No _____
 Wetland Hydrology Present? Yes _____ No ✓

Is the Sampled Area
within a Wetland? Yes _____ No ✓

Remarks:

many wetlands (OWI - woods on hydric soil)

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet
1. <u>ULMUS AMERICANA</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u>JUGLANS N. GRA</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. <u>FRAXINUS AMERICANA</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>17%</u> (AB)
4. <u>PRUNUS SEROTINA</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5. <u>20% = 319</u>	<u>95</u>			
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet:
1. <u>ACER SACCHARUM</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	Total % Cover of: _____ Multiply by: _____
2. <u>RUBUS OCCIDENTALIS</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	OBL species <u>✓</u> x 1 = _____
3. <u>RIBES LACUSTRE</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	FACW species _____ x 2 = _____
4. <u>GLEDITSIA TRIACANTHOS</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	FAC species _____ x 3 = _____
5. <u>VIBURNUM LENOXIA</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	FACU species _____ x 4 = _____
6. <u>20% = 15</u>	<u>75</u>			UPL species _____ x 5 = _____
Herb Stratum (Plot size: <u>5'</u>)				Column Totals: _____ (A) _____ (B)
1. <u>PARTHENOCESSUS QUINQUEFOLIA</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	Prevalence Index = B/A = <u>0.17</u>
2. <u>ACER SACCHARUM</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. <u>BIDENS FRONDOSA</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4. <u>CAREX SP</u>	<u>5</u>	<u>N</u>	<u>---</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. <u>20% = 14</u>	<u>70</u>			
Woody Vine Stratum (Plot size: <u>0</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
_____ = Total Cover				

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

Photo 6 = Sack

AWT B147009 - SS2

10/28/09

SOIL

Sampling Point: SS2

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 ¹	Loc ²		
0-12	10YR 4/1	—	—	—	—	—	Silt Clay	—
12-18	10YR 4/1	—	7.5YR 4/4	2%	C	PL	Clay	Faint Fine Faint

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

margin
chroma only

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)

- ☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

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 ☒

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

Remarks:

BTB089-552

10124109

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wind Farm City/County: Hardin Sampling Date: 10/24/09
 Applicant/Owner: FOUNDER 64 State: OH Sampling Point: 552
 Investigator(s): DELAHUNTY, SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.7110 Long: -83.7043 Datum: NAD83
 Soil Map Unit Name: (B3B) Blount Silt loam NWI classification: NIA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil NI, or Hydrology IV significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation NI, Soil NI, or Hydrology NI 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>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>MADEIRA WETLAND - (NWI - PFOIA)</u> <u>UPLAND DEER FOREST</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>9</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>22%</u> (A/B)
1. <u>ACER SACCHARUM</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	
2. <u>ULMUS AMERICANA</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>FRAXINUS PENNSYLVANICA</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. <u>JUGLANS NIGRA</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
5. <u>QUERCUS COBRA</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>ACER SACCHARUM</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2. <u>FRAXINUS PENNSYLVANICA</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>EUPATORIUM rugosum</u>	<u>20</u>	<u>Y</u>	<u>UPL*</u>	
2. <u>ACER SACCHARUM</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
3. <u>PARthenocissus quinquefolia</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>VITIS AESTIVALIS</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. <u>TOXICODENDRON radicans</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2090 = 29% 40 = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

BTBD 89-SS2

10/24/09

SOIL

Sampling Point: SS2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-12	10YR 3/2	-	-	-	-	-	-	Silty Clay loam
12-18	10YR 5/2	-	7.5YR 5/2	20	-	PL	CLAY	Coarse / Fine / Fr. cl.

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)
☐ 2 cm Muck (A10)	☐ Depleted Matrix (F3)
☒ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)
☐ 5 cm Mucky Peat or Peat (S3)	

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

Restrictive Layer (if observed):	Hydric Soil Present? Yes ☒ No ☐
Type: _____	
Depth (inches): _____	

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)
☐ 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)	☐ Gauge or Well Data (D9)
☐ Sparsely Vegetated Concave Surface (B8)	☒ Other (Explain in Remarks) <u>BUTTERFIED TRUNKS</u>

Field Observations:		Wetland Hydrology Present? Yes ☒ No ☐
Surface Water Present? Yes ☐ No ☒	Depth (inches): _____	
Water Table Present? Yes ☐ No ☒	Depth (inches): _____	
Saturation Present? Yes ☐ No ☒	Depth (inches): _____	

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

Remarks: _____

BLWBU003-SS2

10/24/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDIN WIND FARM City/County: HARDIN Sampling Date: 10/24/09
 Applicant/Owner: LOUVER 65 State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): SLIGHT SIDE SLOPE Local relief (concave, convex, none): NONE
 Slope (%): <5% Lat: 40.6441 Long: -83.7198 Datum: NAD83
 Soil Map Unit Name: (B6B) Blount Silty loam NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation X, Soil X, or Hydrology X 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>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>DISTURBED Area w/ Soil piles ~4' high</u> <u>CONTIGUOUS TO MARSH WETLAND (LOW - WOODS on Hydric Soil)</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>14.9</u> (A/B)	
1. <u>UNIDENTIFIED</u>	<u>30</u>	<u>Y</u>	<u>—</u>		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 = _____
2. <u>FRAXINUS</u>					
3. _____					
4. _____					
5. _____					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>Ø</u>)					
1. _____				Hydrophytic Vegetation Indicators: — Dominance Test is >50% — Prevalence Index is ≤3.0' — Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) — Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover					
Herb Stratum (Plot size: <u>5'</u>)					
1. <u>ASTER PILOSUS</u>		<u>Y</u>	<u>UPL</u>		
2. <u>DACUS CAROTA</u>		<u>Y</u>	<u>UPL*</u>		
3. <u>DIPSACUS SUAVESTRIS</u>		<u>Y</u>	<u>UPL</u>		
4. <u>SOLIDAGO ALTISSIMA</u>		<u>Y</u>	<u>FACU</u>		
5. <u>PHYTOLACCA AMERICANA</u>		<u>Y</u>	<u>FACU</u>		
6. <u>SETARIA SP</u>		<u>Y</u>	<u>UPL*</u>		
7. <u>AMBROSIA TRIFIDA</u>		<u>Y</u>	<u>FAC</u>		
8. <u>VERBENA URTEICIFOLIA</u>		<u>N</u>	<u>FACU</u>		
9. <u>ARCTIUM LAPPA</u>		<u>N</u>	<u>UPL*</u>		
10. <u>UNIDENTIFIED GRASS</u>		<u>N</u>	<u>—</u>		
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
Woody Vine Stratum (Plot size: <u>Ø</u>)					
1. _____					
2. _____					
_____ = Total Cover					

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

- UNIDENTIFIED FRAXINUS NOT USED IN DOMINANCE TEST
 — DOMINANT UPLANDS VEG - ABSOLUTE COVER NOT COLLECTED

10/24/09

Sampling Point: SS2

SOIL

Sampling Point:

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Water-Stained Leaves (B9) |
| ☐ High Water Table (A2) | ☐ Aquatic Fauna (B13) |
| ☐ Saturation (A3) | ☐ True Aquatic Plants (B14) |
| ☐ 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) | ☐ Gauge or Well Data (D9) |
| ☐ Sparsely Vegetated Concave Surface (B8) | ☐ Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

photo 15 $\Rightarrow$ EAST

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wind Farm City/County: Hardin Sampling Date: 10/22/09
 Applicant/Owner: INDEPENDENT State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.6988 Long: -83.7398 Datum: NAD83
 Soil Map Unit Name: (pm) PEW and Silty CLAY LOAM NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks.)
 Are Vegetation N Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N Soil N, or Hydrology N 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 X
 Hydric Soil Present? Yes X No _____
 Wetland Hydrology Present? Yes _____ No X

Is the Sampled Area
within a Wetland? Yes _____ No X

Remarks:

Wetland (LOW-WOODS ON HYDRIC SOIL)
NATURAL UPLAND DECIDUOUS FOREST may be 18" tall

VEGETATION - Use scientific names of plants. Handwritten.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>ACER SACCHARUM</u>		<u>Y</u>	<u>FACU</u>
2. <u>CARYA OVATA</u>		<u>Y</u>	<u>FACU</u>
3. <u>QUERCUS RUBRA</u>		<u>Y</u>	<u>FACU</u>
4. <u>CELTIS OCCIDENTALIS</u>		<u>N</u>	<u>FACU</u>
5. <u>FRAXINUS AMERICANA</u>		<u>N</u>	<u>FACU</u>
<u>QUERCUS ALBA</u> <u>15'</u>			
= Total Cover			

Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>ACER SACCHARUM</u>		<u>Y</u>	<u>FACU</u>
2. <u>AESCULUS GLABRA</u>		<u>Y</u>	<u>FACU</u>
3. <u>RUBUS OCCIDENTALIS</u>		<u>Y</u>	<u>UPL</u>
4. <u>ULMUS AMERICANA</u>		<u>N</u>	<u>FACU</u>
5. <u>Berberis THUNBERGII</u>		<u>N</u>	<u>FACU</u>
= Total Cover			

Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>PARTHENDISSUS QUINQUEFOLIA</u>		<u>Y</u>	<u>FACU</u>
2. <u>UNIDENTIFIED GRASSES</u>		<u>N</u>	<u>—</u>
3. <u>SOLIDAGO AITIKSSIMA</u>		<u>N</u>	<u>FACU</u>
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
= Total Cover			

Woody Vine Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
= Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 7 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (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:

___ Dominance Test is >50%
 ___ Prevalence Index is ≤ 3.0 ¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic
Vegetation
Present?

Yes _____ No X

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

Photo 14 - N. Oak

Dominant upland veg.
Absolute cover not collected

73WBO0821-SSQ

10/22/09

SOIL

Sampling Point: SSQ

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 ¹	Loc ²		
0-14	10YR2/1						Silt CLAY	
14-18	10YR4/1	-	7.5YR 5/6	720°	C	DL	CLAY	Many / med / dirt

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

Hydric Soil Indicators:

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)	☐ Indicators for Problematic Hydric Soils ³ :
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)	☐ Coast Prairie Redox (A16)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)	☐ Iron-Manganese Masses (F12)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)	☐ Other (Explain in Remarks)
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)	
☐ 2 cm Muck (A10)	☐ Depleted Matrix (F3)	
☒ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F8)	
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)	
☐ 5 cm Mucky Peat or Peat (S3)		

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ FAC-Neutral Test (D5)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)	
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____	Wetland Hydrology Present? Yes ☐ No ☒
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____	
Saturation Present?	Yes ☐ No ☒	Depth (inches): _____	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: None

Remarks: _____

CWAR 011-552

10/27/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wood Farm City/County: Hardin Sampling Date: 10/27/09
 Applicant/Owner: INVERED BY State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY; SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 17 Lat: 40.6968 Long: -83.7452 Datum: NAD 83
 Soil Map Unit Name: (Pm) Pennsylvanian Silty Clay (WAM) NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N 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 X
 Hydric Soil Present? Yes X No _____
 Wetland Hydrology Present? Yes _____ No X

Is the Sampled Area
within a Wetland? Yes _____ No X

Remarks:

MANAGED WETLANDS (LOW-WOODS ON HYDRIC SOIL)
UPLAND DECIDUOUS FOREST

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30') Absolute % Cover Dominant Species? Indicator Status
 1. CARYA OVATA _____ FACW
 2. ACER NEGUNDO _____ FAC
 3. GLICITSIA TRIACANTHOS _____ FAC
 4. QUERCUS RUBRA _____ FACW
 5. _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 22 (A/B)

Sapling/Shrub Stratum (Plot size: 15') Absolute % Cover Dominant Species? Indicator Status
 1. QUERCUS RUBRA _____ FACW
 2. CARYA OVATA _____ FACW
 3. RUBUS OCCIDENTALIS _____ UPL
 4. _____
 5. _____

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:

___ Dominance Test is >50%
 ___ Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Herb Stratum (Plot size: 5') Absolute % Cover Dominant Species? Indicator Status
 1. SECALE CEREALE _____ UPL
 2. PANTHEROXYSSUS QUINQUEFIDA _____ FACW
 3. UNIDENTIFIED GRASS _____
 4. _____
 5. _____
 6. _____
 7. _____
 8. _____
 9. _____
 10. _____

Woody Vine Stratum (Plot size: Ø) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 _____ = Total Cover

Hydrophytic
Vegetation
Present? Yes _____ No X

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

10/27/09

Sampling Point: SS 2

SOIL

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³:

- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Water-Stained Leaves (B9) |
| ☐ High Water Table (A2) | ☐ Aquatic Fauna (B13) |
| ☐ Saturation (A3) | ☐ True Aquatic Plants (B14) |
| ☐ 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) | ☐ Gauge or Well Data (D9) |
| ☐ Sparsely Vegetated Concave Surface (B8) | ☐ Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? Yes _____ No ~~/X~~ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

CWA 2016-SSR

10/27/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wins Farm City/County: HARDIN Sampling Date: 10/27/09
 Applicant/Owner: TOVENERLY State: OH Sampling Point: SS2
 Investigator(s): DELANNOY, J. Colling Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.7079 Long: -83.7084 Datum: NAD83
 Soil Map Unit Name: (Pm) - PELHAM Silty Clay loam NWI classification: none
 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>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks: MAPES WETLAND (OBL - WOODSON hydric soil)
AB PIELA - SOY (HARVESTED)

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
5. _____				
= Total Cover				
Sepling/Shrub Stratum (Plot size: <u>0</u>)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
Herb Stratum (Plot size: <u>5'</u>)				Column Totals: _____ (A) _____ (B)
1. <u>GLYCINE MAX</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>	Prevalence Index = B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
= Total Cover				Hydrophytic Vegetation Indicators:
Woody Vine Stratum (Plot size: <u>0</u>)				___ Dominance Test is >50%
1. _____				___ Prevalence Index is ≤3.0 ¹
2. _____				___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
= Total Cover				___ Problematic Hydrophytic Vegetation ¹ (Explain)
Remarks: (Include photo numbers here or on a separate sheet.)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

10127109

SOIL

Sampling Point: SS2

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|--|
| ☐ Histosol (A1) | ☐ Sandy Gleyed Matrix (S4) |
| ☐ Histic Epipedon (A2) | ☐ Sandy Redox (S5) |
| ☐ Black Histic (A3) | ☐ Stripped Matrix (S6) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Mucky Mineral (F1) |
| ☐ Stratified Layers (A5) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ 2 cm Muck (A10) | ☒ Depleted Matrix (F3) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) |
| ☐ 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils³:

- ___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ~~X~~ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Water-Stained Leaves (B9) |
| ☐ High Water Table (A2) | ☐ Aquatic Fauna (B13) |
| ☐ Saturation (A3) | ☐ True Aquatic Plants (B14) |
| ☐ 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 (C5) |
| ☐ Iron Deposits (B5) | ☐ Thin Muck Surface (C7) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Gauge or Well Data (D9) |
| ☐ Sparsely Vegetated Concave Surface (B8) | ☐ Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

nmf

Field Observations:

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 ☒

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Howe Wind Farm City/County: Howe Sampling Date: 10/28/09
 Applicant/Owner: JOHN ERGAS State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, COLIN Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): CONVEX
 Slope (%): 15% Lat: 40.6131 Long: -83.7068 Datum: NAD 83
 Soil Map Unit Name: (Pm/GYB2) DELAWARE SILT CLAY LOAM NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation N, Soil N, or Hydrology N 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	

Remarks:

mapped wetland (owl - woods on hydric soil)

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>Ø</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>Ø</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>Ø</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>Ø</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 ¹ _____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>DAUCUS CAROTA</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
2. <u>TRIFOLIUM PRATENSE</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u>CIRSIIUM DISCOLOR</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
4. <u>PLANTAGO LANCEOLATA</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
5. <u>UNIDENTIFIED GRASS</u>	<u>10</u>	<u>N</u>	<u>—</u>	
6. <u>MELLOTUS ALBA</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
7. <u>DIPSACUS SYLVESTRIS</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
8. <u>ASTER PILOSUS</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
9. _____				
<u>20% = 20</u> _____ = Total Cover				
Woody Vine Stratum (Plot size: <u>Ø</u>)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____				
2. _____				
_____ = Total Cover				

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

Early Successional knob surrounded by corn

10128109

SOIL

Sampling Point: SSD

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 ¹	Loc ²		
0-9	7.5YR 4/13	—	—	—	—	—	Silt clay loam	
9-18	7.5YR 5/13	—	—	—	—	—	Silt clay	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³:

- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Wetlands at 0-9"

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Sparsely Vegetated Concave Surface (B8)	☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13) ☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1) ☐ Oxidized Rhizospheres on Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Gauge or Well Data (D9) ☐ Other (Explain in Remarks)	☐ Surface Soil Cracks (B6) ☐ Drainage Patterns (B10) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☐ Geomorphic Position (D2) ☐ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe) NONE		
Wetland Hydrology Present? Yes ☐ No ☒		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: -upland island -early, successional vegetation surrounded by corn field		

CW3 UOS4-SS2

10/28/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDIN WET FLOW City/County: HARDIN Sampling Date: 10/28/09
 Applicant/Owner: INDEPENDENT State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, CAROL Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.5910 Long: -83.7653 Datum: NAD 83
 Soil Map Unit Name: (0m) PEMAD Silty Clay Loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation Y, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ☒
 Are Vegetation N, Soil N, or Hydrology N 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 ☒	Is the Sampled Area within a Wetland?	Yes _____ No ☒
Hydric Soil Present?	Yes ☒ No _____		
Wetland Hydrology Present?	Yes _____ No ☒		
Remarks: - <u>marsh wetland (NWI - PEMAD)</u> <u>- AG FIELD - Recently Tilled - NO UEG</u>			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC:	_____ (A)
2. _____				Total Number of Dominant Species Across All Strata:	_____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	_____ (A/B)
4. _____					
5. _____					
				= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)					
1. _____				Prevalence Index worksheet:	
2. _____				Total % Cover of:	Multiply by:
3. _____				OBL species _____	x 1 = _____
4. _____				FACW species _____	x 2 = _____
5. _____				FAC species _____	x 3 = _____
				FACU species _____	x 4 = _____
				UPL species _____	x 5 = _____
				Column Totals:	_____ (A) _____ (B)
				Prevalence Index = B/A = _____	
Herb Stratum (Plot size: _____)					
1. _____				Hydrophytic Vegetation Indicators:	
2. _____				___ Dominance Test is >50%	
3. _____				___ Prevalence Index is ≤3.0 ¹	
4. _____				___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____				___ Problematic Hydrophytic Vegetation ¹ (Explain)	
6. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. _____					
8. _____					
9. _____					
10. _____					
				= Total Cover	
Woody Vine Stratum (Plot size: _____)					
1. _____				Hydrophytic Vegetation Present?	
2. _____				Yes _____ No ☒	
				= Total Cover	
Remarks: (Include photo numbers here or on a separate sheet.)					

CLWBO 034-SS2

10128109

SOIL

Sampling Point: SS2

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 ¹	Loc ²		
0-6	10YR 4/1	—	—	—	—	—	CLAY	—
6-12	10YR 6/2	—	10YR 5/4	20%	C	PL	CLAY	commentary
12-18	10YR 5/4	50%	—	—	—	—	CLAY	—
	10YR 4/1	50%	—	—	—	—	CLAY	—

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)
☐ 2 cm Muck (A10)	☐ Depleted Matrix (F3)
☒ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)
☐ 5 cm Mucky Peat or Peat (S3)	

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Worm 0-9

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ FAC-Neutral Test (D5)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)	
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)	

Field Observations:

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 ☒

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

Remarks:

DUNE

2WTB1200361-SS2

10/27/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hoodin Wind Farm City/County: Hoodin Sampling Date: 10/27/09
 Applicant/Owner: Lawrence G. Y. State: OH Sampling Point: SS2
 Investigator(s): DeArment, Corley Section, Township, Range: 5
 Landform (hillslope, terrace, etc.): Relatively flat Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 40.6388 Long: 83.7804 Datum: NAD83
 Soil Map Unit Name: (Pm) Peewee Silt Clay loam NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No <u> </u>		
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>		
Remarks: <u>marked wetlands (NWI-Pemc)</u> <u>AG Field - SWH - Relatively Hoodin</u>			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u> </u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. <u> </u>				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. <u> </u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. <u> </u>				
5. <u> </u>				
				<u> </u> = Total Cover
Sapling/Shrub Stratum (Plot size: <u>0</u>)				Prevalence Index worksheet:
1. <u> </u>				Total % Cover of: <u> </u> Multiply by: <u> </u>
2. <u> </u>				OBL species <u> </u> x 1 = <u> </u>
3. <u> </u>				FACW species <u> </u> x 2 = <u> </u>
4. <u> </u>				FAC species <u> </u> x 3 = <u> </u>
5. <u> </u>				FACU species <u> </u> x 4 = <u> </u>
				UPL species <u> </u> x 5 = <u> </u>
				Column Totals: <u> </u> (A) <u> </u> (B)
				Prevalence Index = B/A = <u> </u>
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators:
1. <u>GLYCINE MAX</u>	<u>80</u>	<u>Y</u>	<u>UPL*</u>	<u> </u> Dominance Test is >50%
2. <u> </u>				<u> </u> Prevalence Index is ≥3.0 ¹
3. <u> </u>				<u> </u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u> </u>				<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u> </u>				
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: <u>0</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u> </u>				
2. <u> </u>				
				<u> </u> = Total Cover
Remarks: (Include photo numbers here or on a separate sheet.)				

- 11 APPLES WETLANDS JUST WEST OF THE 120 RADIALS

10127109

SOIL

Sampling Point:

Signature: SSd

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
 Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ~~X~~ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|---|--|---|
| ___ Surface Water (A1) | ___ Water-Stained Leaves (B9) | ___ Surface Soil Cracks (B6) |
| ___ High Water Table (A2) | ___ Aquatic Fauna (B13) | ___ Drainage Patterns (B10) |
| ___ Saturation (A3) | ___ True Aquatic Plants (B14) | ___ Dry-Season Water Table (C2) |
| ___ Water Marks (B1) | ___ Hydrogen Sulfide Odor (C1) | ___ Crayfish Burrows (C8) |
| ___ Sediment Deposits (B2) | ___ Oxidized Rhizospheres on Living Roots (C3) | ___ Saturation Visible on Aerial Imagery (C9) |
| ___ Drift Deposits (B3) | ___ Presence of Reduced Iron (C4) | ___ Stunted or Stressed Plants (D1) |
| ___ Algal Mat or Crust (B4) | ___ Recent Iron Reduction in Tilled Soils (C6) | ___ Geomorphic Position (D2) |
| ___ Iron Deposits (B5) | ___ Thin Muck Surface (C7) | ___ FAC-Neutral Test (D5) |
| ___ Inundation Visible on Aerial Imagery (B7) | ___ Gauge or Well Data (D9) | |
| ___ Sparsely Vegetated Concave Surface (B8) | ___ Other (Explain in Remarks) | |

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? Yes _____ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

AWB0002-SS2

10/22/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HALDIN WIND TOWER City/County: HALDIN Sampling Date: 10/22/09
 Applicant/Owner: INVENOR GT State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELIEF FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.6728 Long: -83.7172 Datum: NAD 83
 Soil Map Unit Name: (PM) DEWAND Silty Clay LOAM NWI classification: Pine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation Y, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N 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>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	

Remarks: - MARSH WETLAND (NWI-Pine)
CORNER OF CORNFIELD by ROAD - MAY RELIEF RUNOFF FROM
ROADWAY - DRAINAGE WOULD CONFINED TO NE INTO CORN FIELD.

VEGETATION Use scientific names of plants.

Tree Stratum (Plot size: <u>Ø</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>Ø</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>Ø</u> (A/B)
4. _____				
5. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>Ø</u>)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
Herb Stratum (Plot size: <u>5'</u>)				Column Totals: _____ (A) _____ (B)
1. <u>SETARIA SP.</u>	<u>25</u>	<u>Y</u>	<u>UPL*</u>	Prevalence Index = B/A = _____
2. <u>TARAXACUM OFFICINALE</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. <u>GIELOMA HEDERACEA</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators:
4. <u>MAIUA SP.</u>	<u>55</u>	<u>N</u>	<u>UPL*</u>	___ Dominance Test is >50%
5. _____				___ Prevalence Index is ≤3.0 ¹
6. _____				___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
7. _____				___ Problematic Hydrophytic Vegetation ¹ (Explain)
8. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
9. _____				
10. _____				
<u>209028</u>				
Woody Vine Stratum (Plot size: <u>Ø</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
_____ = Total Cover				

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

Contiguous to corn fields

- upland veg adjacent to corn fields

Photo 9 → N/E

10122109

Sampling Point: SS2

HYDROLOGY

Midwest Region – Interim Version

CWS0002-SS2

10/19/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDON WIND FARM City/County: HARDON Sampling Date: 10/19/09
 Applicant/Owner: INVERBROOK State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY; SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.6978 Long: -83.8386 Datum: NAD83
 Soil Map Unit Name: (mc) muck NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N 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 X
 Hydric Soil Present? Yes X No _____
 Wetland Hydrology Present? Yes _____ No X

Is the Sampled Area
within a Wetland? Yes _____ No X

Remarks:

NO GPS POINTS COLLECTED
MAPPED WETLANDS (NWI-DEM CO)
AB FIELD - SOY

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 0)
 1. _____ Absolute % Cover _____ Dominant Species? _____ Indicator Status _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Sapling/Shrub Stratum (Plot size: 0)
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Herb Stratum (Plot size: 5')
 1. GLYCINE MAX 80 4 upb
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____
 7. _____
 8. _____
 9. _____
 10. _____
 _____ = Total Cover

Woody Vine Stratum (Plot size: 0)
 1. _____
 2. _____
 _____ = Total Cover

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (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:

___ Dominance Test is >50%
 ___ Prevalence Index is >3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic
Vegetation
Present?

Yes _____ No X

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

Photo 2 ⇒ NORTH

CWR0002-SS2

10/19/09

SOIL

Sampling Point: SS2

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 ¹	Loc ²		
0-9	10YR 2/1	—	—	—	—	—	Silt, Clay	→ CIA
9-18	10YR 4/1	—	5YR 4/6	22%	C	PL	CLAY	many / moist

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

- 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 ☒

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

Remarks:

CWTB002001-552

10/19/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wind Farm City/County: Hardin Sampling Date: 10/19/09
 Applicant/Owner: INTERSTATE 65 State: OH Sampling Point: SSR
 Investigator(s): DELAHUNTY, SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVE FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.6992 Long: -83.838 Datum: NAD 83
 Soil Map Unit Name: (mc) McGuffey muck NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation AL Soil AL or Hydrology AL significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation AL Soil N or Hydrology AL naturally problematic? (If needed, explain any answers in Remarks.) X

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

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>NO GPS POINT COLLECTED</u> <u>AKS FIELD - 504</u> <u>MARSH WETLAND (NUT-PEMCA)</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1.				
2.				
3.				
4.				
5.				
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>0</u>)				
1.				
2.				
3.				
4.				
5.				
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is >3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>0</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1.				
2.				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) <u>PHOTO 3 = NE</u>				

MARSH WETLANDS WITHIN TURBINE 2 RADIUS

CWT B002001-SS2

10/19/09

SOIL

Sampling Point: SS2

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 ¹		
0-12	10YR 2/1	—	—	—	—	Silty Clay	Clay > Clay
12-18	10YR 4/1	—	5YR 4/6	<2%	C PL	Clay	Red/Med Peat

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

Hydric Soil Indicators:

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)	☐ Coast Prairie Redox (A16)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)	☐ Iron-Manganese Masses (F12)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)	
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)	
☐ 2 cm Muck (A10)	☒ Depleted Matrix (F3)	
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)	
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)	
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)	
☐ 5 cm Mucky Peat or Peat (S3)		

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

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

INCREASED CLAY CONTENT w/ DEPTH

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☒ Surface Soil Cracks (B6) (minor)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ FAC-Neutral Test (D5)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)	
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____	Wetland Hydrology Present? Yes ☐ No ☒
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ☐ No ☒	Depth (inches): _____	

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

Remarks:

CWTB003003-SS2

10/19/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wind Farm City/County: Hardin Sampling Date: 10/19/09
 Applicant/Owner: LOVEN PROPT State: OH Sampling Point: SS2
 Investigator(s): DEAMUNTY; SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.696 Long: -83.8378 Datum: NAD 83
 Soil Map Unit Name: (MC) Moberly Muck NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation AL, Soil AL, or Hydrology AL significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation AL, Soil AL, or Hydrology AL 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>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>NO GPS POINT COLLECTED</u> <u>MAPPED WITHIN (NWI - PCEM)</u> <u>AL FIELD (SOY)</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
5. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>0</u>)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by:
2. _____				OBL species <u>0</u> x 1 = _____
3. _____				FACW species <u>0</u> x 2 = _____
4. _____				FAC species <u>0</u> x 3 = _____
5. _____				FACU species <u>0</u> x 4 = _____
= Total Cover				UPL species <u>80</u> x 5 = <u>400</u>
Herb Stratum (Plot size: <u>5'</u>)				Column Totals: <u>80</u> (A) <u>400</u> (B)
1. <u>Glycine max</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>	Prevalence Index = B/A = <u>5.0</u>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
= Total Cover				
Woody Vine Stratum (Plot size: <u>0</u>)				Hydrophytic Vegetation Indicators:
1. _____				— Dominance Test is >50% <u>no</u>
2. _____				— Prevalence Index is ≤3.0 <u>no</u>
= Total Cover				— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>none</u>
				— Problematic Hydrophytic Vegetation ¹ (Explain) <u>none</u>
Remarks: (Include photo numbers here or on a separate sheet.)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>Photo 1 = NNE</u>				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

14/9/09

SOIL

Sampling Point: SS2

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required)		
☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Sparsely Vegetated Concave Surface (B8)	☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13) ☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1) ☐ Oxidized Rhizospheres on Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Gauge or Well Data (D9) ☒ Other (Explain in Remarks)	☒ Surface Soil Cracks (B6) ☐ Drainage Patterns (B10) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☐ Geomorphic Position (D2) ☐ FAC-Neutral Test (D6)
Field Observations:		
Surface Water Present? Yes ☐ No ☒	Depth (inches): _____	SLIGHT DEPRESSION
Water Table Present? Yes ☐ No ☒	Depth (inches): _____	
Saturation Present? Yes ☐ No ☒ (includes capillary fringe)	Depth (inches): _____	
Wetland Hydrology Present? Yes ☒ No ☐		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WB0004-551

10/19/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDIN WIND FARM City/County: HARDIN Sampling Date: 10/19/09
 Applicant/Owner: FOUENER 64 State: OH Sampling Point: SS1
 Investigator(s): DELAHUNTY SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): CONCAVE
 Slope (%): 2 Lat: 40.6931 Long: -83.8135 Datum: NAD83
 Soil Map Unit Name: (R0) Roundhead muck NWI classification: PUBF
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N 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 X No _____
 Hydric Soil Present? Yes X No _____
 Wetland Hydrology Present? Yes X No _____

Is the Sampled Area
within a Wetland? Yes X No _____

Remarks: MADE WETLAND (NWI - PUBF)
MAN MADE FROM POND CULVERT TO AG DITCH

VEGETATION - Use scientific names of plants. (Intermittent) to WEST.

Tree Stratum (Plot size: N/A)
 1. _____ Absolute % Cover _____ Dominant Species? _____ Indicator Status _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Sapling/Shrub Stratum (Plot size: N/A)
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Herb Stratum (Plot size: 5')
 1. SCIRPUS VALIDUS 30 4 OBL
 2. ELEOCHARIS SP 60 4 OBL
 3. _____
 4. _____
 5. _____
 6. _____
 7. _____
 8. _____
 9. _____
 10. _____
 20% to 18% 90 = Total Cover

Woody Vine Stratum (Plot size: N/A)
 1. _____
 2. _____
 _____ = 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: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (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 = 1

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%
 ___ Prevalence Index is ≥3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic
Vegetation
Present?

Yes X No _____

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

Photo 11 → NE AT WB0004 (1-11) * EURASIAN MILL PAIL
Photo 12 → NW AT CULVERT TO AG DITCH (Myriophyllum
SPICATUM)

10119/29

Sampling Point: 551

HYDROLOGY

Wetland Hydrology Indicators:

US Army Corps of Engineers

WBU004-SS2

10/19/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDIN Wind Farm City/County: HARDIN Sampling Date: 10/19/09Applicant/Owner: INUP ENERGY State: OH Sampling Point: SS2Investigator(s): DELAHUNTY, SPARKS Section, Township, Range: _____Landform (hillslope, terrace, etc.): Hill Slope Local relief (concave, convex, none): CONVEXSlope (%): 30% Lat: 40.6930 Long: -83.8135 Datum: NAD 83Soil Map Unit Name: (R2) Ranshead Muck NWI classification: NIAAre climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____Are Vegetation N, Soil N, or Hydrology N 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>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: <u>FARM Pond BEHIND</u>			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>NIA</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				

Sapling/Shrub Stratum (Plot size: <u>NIA</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				

Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: — Dominance Test is >50% — Prevalence Index is ≤3.0 ¹ — Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) — Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>DAUCUS CAROTA</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
2. <u>DIPSACUS SYLVESTRIS</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
3. <u>CENTAUREA NIGRA</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
4. <u>ASTER PILOSUS</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
5. <u>UNIDENTIFIED GRASSES</u>	<u>50</u>	<u>Y</u>	<u>—</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				

Woody Vine Stratum (Plot size: <u>NIA</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				

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

* UNIDENTIFIED GRASSES NOT USED IN DOMINANCE TEST
REMAINING SPECIES APPEAR CO-DOMINANT

WB0004-SS2

10/19/29

SOIL

Sampling Point:

SS2

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 ¹	Loc ²		
0-18	10YR 4/1	—	—	—	—	5	CLAY	—

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

HYDROLOGY

N/A

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

None

Field Observations:

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 ☒

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

Remarks:

W150004

ORAM v. 5.0 Field Form Quantitative Rating

Site: HOLLYN WIND FARM Rater(s): RTJ, SMS Date: 10/19/09

1	1
---	---

Metric 1. Wetland Area (size).

max 6 pts.

subtotal

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) (2pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

0.126749

NO RESTRICTIONS

8	9
---	---

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

CORN TO SOUTH
SOY TO NORTH &
EASTFALLOW & AGRI
TO WEST

12	21
----	----

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) *- FARM CULVERT*
☐ Perennial surface water (lake or stream) (5)

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

- ☒ >0.7 (27.6in) (3) *> 2'*
☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
☐ <0.4m (<15.7in) (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)

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)
☒ 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 30cm (12in) (1)

Check all disturbances observed

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input

- ☒ point source (nonstormwater)
☒ milling/grading
☒ road bed/RR track
☒ dredging
☒ other *FARM POND*

MAINTAINED

4	25
---	----

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)

EARLY SUCCESSIONAL EDGES
THEN ROW CROPS

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

- ☐ mowing
☐ grazing
☐ clearcutting
☐ selective cutting
☐ woody debris removal
☐ toxic pollutants

- ☒ shrub/sapling removal
☒ herbaceous/aquatic bed removal
☒ sedimentation
☒ dredging
☒ farming
☒ nutrient enrichment

NONE PRESENT

25

subtotal this page

WB0004

ORAM v. 5.0 Field Form Quantitative Rating

Site: HOLDIN WIND FLOW Rater(s): (JSD) SMS Date: 10/19/09

25

subtotal this page

max 10 pts. subtotal 25

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)

NIA
Farm
Pond

max 20 pts. subtotal 3 28

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☒ Aquatic bed
- ☒ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☒ Open water
- ☐ Other

5

6b. horizontal (plan view) Interspersion.

Select only one.

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

1

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)

-3

6d. Microtopography.

Score all present using 0 to 3 scale.

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

0

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

28 GRAND TOTAL(max 100 pts)

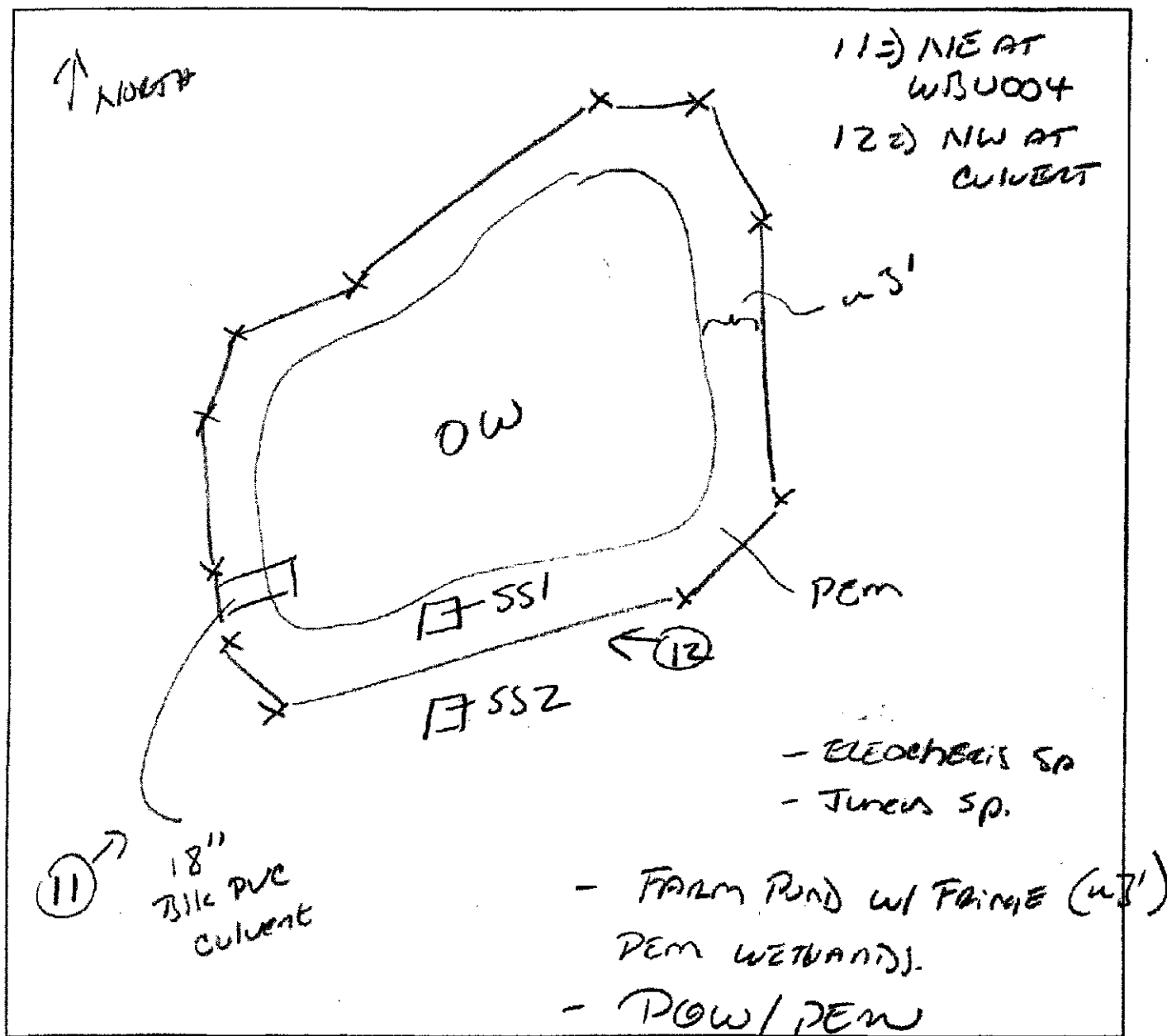
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.nh.us/dsw/401/401.html>

WB0004

10/19/09

WETLAND SKETCH FORM

Wetland ID/ Route #: WB WEST 06 WB 29	Date: 10/19/09	Location:
Initials of Delineators: (RSD), SMS	Photo ID & Direction:	



Legend:



Wetland



Sample Station



Perennial Stream



Upland



Flag



Intermittent Stream



Centerline



North Arrow



Culvert



Photo Location & Direction

WIS0018A10-SS1

10/21/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDIN WIND FARM City/County: HAGAN Sampling Date: 10/21/09
 Applicant/Owner: TAUBNERLY State: OH Sampling Point: SS1
 Investigator(s): DELAHUNTY, SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): SLIGHT
 Slope (%): 0 Lat: 40.6853 Long: -83.7572 Datum: NAD 83
 Soil Map Unit Name: (mc) McGuffey muck NWI classification: PFO/PSS/PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation N, Soil N, or Hydrology N 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 _____
 Hydric Soil Present? Yes ☒ No _____
 Wetland Hydrology Present? Yes ☒ No _____

Is the Sampled Area
within a Wetland? Yes ☒ No _____

Remarks: FORESTER'S DEPRESSIONAL AREA BETWEEN HISTORIC RAILROADS
BEHIND ACTIVE AG FIELD (CORN) - NOT MAPPED

VEGETATION - Use scientific names of plants. PFO/PSS/PEM

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>ULMUS AMERICANA</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. <u>SALIX NIGRA</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. <u>POPULUS DELTOIDES</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	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 = _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0' _____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>CORNUS AMOMUM</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes ☒ No _____
1. <u>CAREX CRINITA</u>	<u>75</u>	<u>Y</u>	<u>OBL</u>	
2. <u>AGRIMONIA PARVIFLORA</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>UNIDENTIFIED GRASS</u>	<u>25</u>	<u>Y</u>	<u>---</u>	
4. <u>ASTER VIMINEUS</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5. _____	_____	_____	_____	Remarks: (Include photo numbers here or on a separate sheet.) <u>* preservation - no disturbance ** UNIDENTIFIED GRASS NOT INCLUDED IN DOMTEST</u>
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: <u>6'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	

W30018A178-SS1

10/21/09

SOIL

Sampling Point: SS1

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 ¹	Loc ²		
0-8	10YR2/1	-					Silty Clay	
8-18	10YR5/1	-	5YR3/4	2-20	C	PL	Clay	Com/med / Bant

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☒ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☒ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☒ Water Marks (B1) on trees
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)

- ☒ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☒ Other (Explain in Remarks) DEPRESSURAL AREA

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☒ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (inches): _____
 Saturation Present? (Includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

- SURFACE WATER RUNNING FROM NW field to South
 - OPEN TO EAST & WEST

WBCOIRAB - 552

10/21/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDIN WILSON TRAIL City/County: HARDIN Sampling Date: 10/21/09
 Applicant/Owner: INDUSTRIAL State: OH Sampling Point: 552
 Investigator(s): DEAN H. SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.6853 Long: -83.7572 Datum: NAD 83
 Soil Map Unit Name: (MC) MCGUFFEY MUCK NWI classification: DIA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes N No _____
 Are Vegetation N, Soil N, or Hydrology N 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>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>EARLY SUCCESSIONAL AREA CONTIGUOUS TO CORN FIELDS.</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
5. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet:
1. <u>RUBUS OCCIDENTALIS</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
Herb Stratum (Plot size: <u>5'</u>)				Column Totals: _____ (A) _____ (B)
1. <u>SOLIDAGO ALTISSIMA</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	Prevalence Index = B/A = _____
2. <u>ARCTIUM LAPPA</u>	<u>5</u>	<u>N</u>	<u>UPL*</u>	Hydrophytic Vegetation Indicators:
3. <u>ASTER VIMINEUS</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	— Dominance Test is >50%
4. <u>ALAE PETIOLATA</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	— Prevalence Index is ≤3.0 ¹
5. <u>HERCULEUM LANATUM</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. <u>CIRSIIUM DISCOID</u>	<u>5</u>	<u>N</u>	<u>UPL*</u>	— Problematic Hydrophytic Vegetation ¹ (Explain)
7. <u>FRAGARIA VIRGINIANA</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
8. <u>ADOCYNUM CANNABINUM</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
9. <u>OENOTHERA BIGNONIS</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
10. _____				
<u>20% = 15</u>				
Woody Vine Stratum (Plot size: <u>0</u>)				
1. _____				
2. _____				
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

WB0018A13-SS2

10/21/09

SOIL

Sampling Point: SS2

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 ¹	Loc ²		
0-14	10YR2/1	—	—	—	—	—	Silty CLAY	
14-18	10YR5/1	2-20	7.5YR 4/6	2-20	C	PL	CLAY	Com/ Fine/ Rain

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

Hydric Soil Indicators:

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)	☐ Coast Prairie Redox (A16)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)	☐ Iron-Manganese Masses (F12)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)	
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)	
☐ 2 cm Muck (A10)	☒ Depleted Matrix (F3)	
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)	
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)	
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)	
☐ 5 cm Mucky Peat or Peat (S3)		

Indicators for Problematic Hydric Soils³:

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B8)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)
☐ 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)	☐ Gauge or Well Data (D9)
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)
	☐ Surface Soil Cracks (B6)
	☐ Drainage Patterns (B10)
	☐ Dry-Season Water Table (C2)
	☐ Crayfish Burrows (C8)
	☐ Saturation Visible on Aerial Imagery (C9)
	☐ Stunted or Stressed Plants (D1)
	☐ Geomorphic Position (D2)
	☐ FAC-Neutral Test (D5)

Field Observations:

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 ☒

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

Remarks: EDGE of Ag (corn) Field

Site: Hardin Wind Farm

Rater(s): RJTD, SMD

Date: 10/21/09

1 1

Metric 1. Wetland Area (size).

max 6 pts. subtotal

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) (2pts)
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

Delineated within 0.020527
 Continues to east & west.

Approx size ~ 1,000' long by 10'
 wide ~ 10,000 sq ft or ~ 1,229.6
 Acres.

10 11

Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

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

7 18

Metric 3. Hydrology.

max 30 pts. subtotal

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

- ☐ High pH groundwater (5)
☐ Other groundwater (3)
☒ Precipitation (1) SURFACE WATER RUN-OFF
☐ Seasonal/intermittent surface water (3)
☐ Perennial surface water (lake or stream) (5)

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

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

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input

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)

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 30cm (12in) (1)

Assumed

14 32

Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

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

- ☐ mowing
☐ grazing
☐ clearcutting
☐ selective cutting
☐ woody debris removal
☐ toxic pollutants
☐ shrub/sapling removal
☐ herbaceous/aquatic bed removal
☐ sedimentation
☐ dredging
☒ farming
☐ nutrient enrichment

Adjacent Area
 not within wetlands

32

subtotal this page

Site: W10018A13 Rater(s): RBK, SMS Date: 10/21/09

32

subtotal this page

max 10 pts. subtotal 32

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)

max 20 pts. subtotal 41

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ Emergent
- ☐ Shrub
- ☒ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ 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.

- ☐ Vegetated hummocks/mounds
- ☒ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ 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

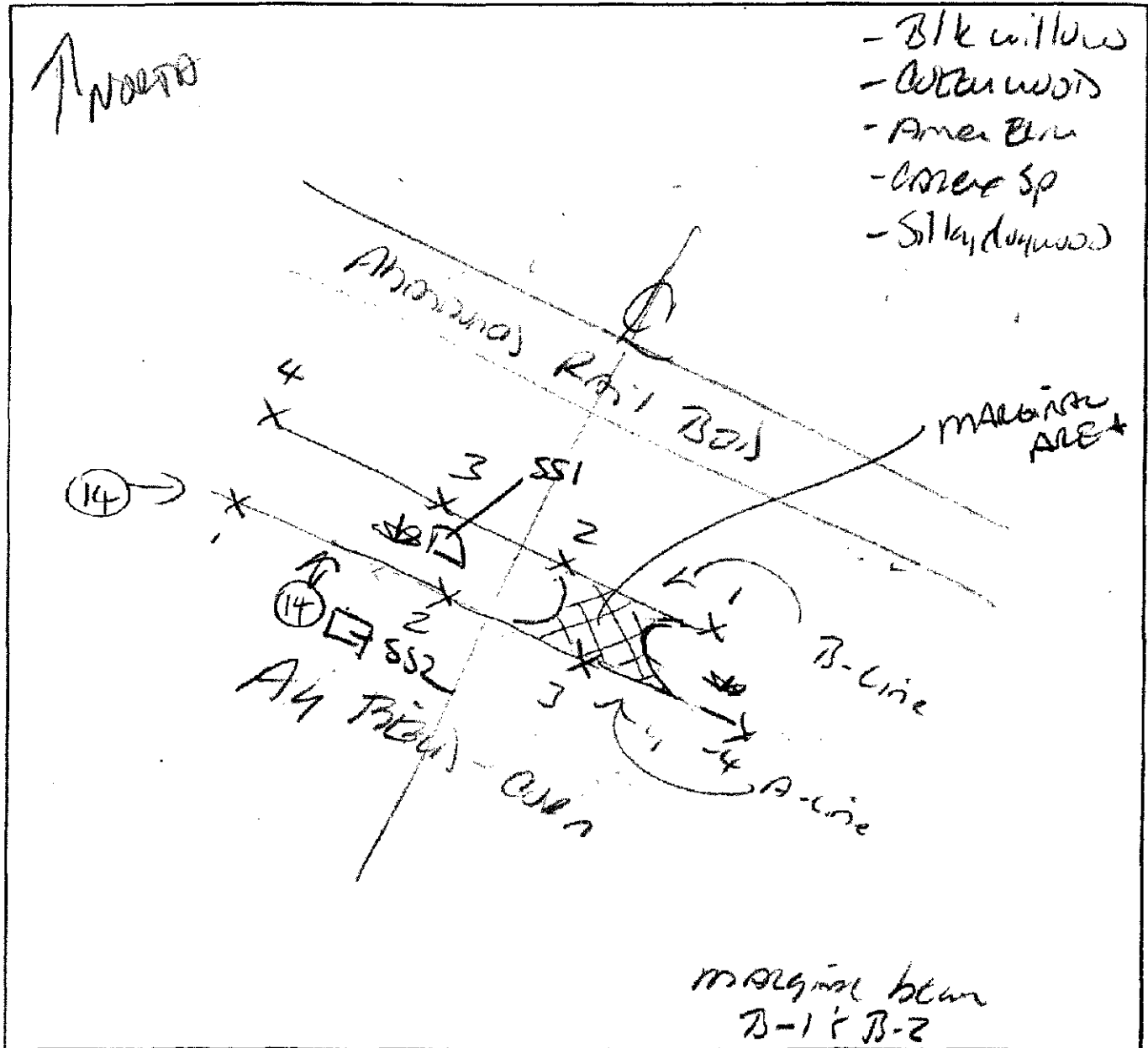
Microtopography Cover Scale

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

41 GRAND TOTAL(max 100 pts)

WETLAND SKETCH FORM

Wetland ID/ Route #: W80018A15	Date: 10/21/09	Location: BU-
Initials of Delineators: (KTD)/Sms	Photo ID & Direction: 14 → EAST	



Legend:			
	Wetland		Sample Station
	Upland		Flag
	Centerline		North Arrow
	Perennial Stream		Intermittent Stream
	Culvert		Photo Location & Direction

W. T. B. 031 - SS. 1

10/23/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Haden Windfarm City/County: Haden Sampling Date: 10/22/09
 Applicant/Owner: INVERGUY State: OH Sampling Point: SS1
 Investigator(s): DELAHUNTA; SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): SWALE Local relief (concave, convex, none): CONCAVE
 Slope (%): 0 Lat: 40.7039 Long: -83.7479 Datum: NAD83
 Soil Map Unit Name: (PM) PEWAMO Silt, Clay, Loam NWI classification: PEW
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes Y No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes Y No _____
 Are Vegetation N, Soil N, or Hydrology N 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>DEPRESSIONAL TRANSITION AREA FEED BY ROAD</u> <u>CULVERT 1 CONNECTS TO AG SWALE</u>		

VEGETATION - Use scientific names of plants. more wetlands (low - wet meadow)

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
4. _____				
5. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>CORNUS RACEMOSA</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by: _____
2. <u>SAMBUCUS CANADENSIS</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
<u>2090 ± 3</u> <u>15</u> = Total Cover				UPL species _____ x 5 = _____
Herb Stratum (Plot size: _____)				Column Totals: _____ (A) _____ (B)
1. <u>SECALE CEREALIS</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	Prevalence Index = B/A = <u>2</u>
2. <u>PHALARIS ARUNDINACEA</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators:
3. <u>SOLIDAGO GIGANTEA</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	— Dominance Test is >50%
4. _____				— Prevalence Index is ≤3.0 ¹
5. _____				— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. _____				— Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
<u>2090 ± 19</u> <u>95</u> = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Woody Vine Stratum (Plot size: <u>0</u>)				
1. _____				
2. _____				
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) <u>Photo 3 → SSW</u>				

W30031-SS1

10123109

SOIL

Sampling Point: SS1

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 ¹			
0-18	12yR 4/2	-	-	-	-	-	Silty Clay	

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

Hydric Soil Indicators:

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)	☐ Coast Prairie Redox (A16)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)	☐ Iron-Manganese Masses (F12)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)	
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)	
☐ 2 cm Muck (A10)	☒ Depleted Matrix (F3)	
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)	
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)	
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)	
☐ 5 cm Mucky Peat or Peat (S3)		

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Marginal

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☒ Drainage Patterns (B10) (swale)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ FAC-Neutral Test (D5)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)	
☐ Sparsely Vegetated Concave Surface (B8)	☒ Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes ☐ No ☒	Depth (inches): _____
Water Table Present? Yes ☐ No ☒	Depth (inches): _____
Saturation Present? Yes ☐ No ☒	Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: WETLAND ROAD SIDE ASSOCIATED w/ CULVERT
& BY STATE
18-24" culvert

WIS0031-552

10123109

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardie Wind Farm City/County: Hardin Sampling Date: 10/23/09
 Applicant/Owner: TRUEN ENERGY State: OH Sampling Point: 552
 Investigator(s): DELAHUNTY'S PARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.7039 Long: -83.7480 Datum: NAD 83
 Soil Map Unit Name: (PM) PEWAMO Silty Clay Loam NWI classification: O1A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
 Are Vegetation N, Soil N, or Hydrology N 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>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>Early Successional Field (Roadside)</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: Multiply by:
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = <u>1.5</u>
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>DAUCUS CERATA</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	— Dominance Test is >50%
2. <u>SECAIE CEREALE</u>	<u>15</u>	<u>N</u>	<u>UPL</u>	— Prevalence Index is >3.0 ¹
3. <u>CIRSITUM DISCOLO</u>	<u>3</u>	<u>N</u>	<u>UPL</u>	— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>MECLOTUS CAIBA</u>	<u>20</u>	<u>N</u>	<u>FACU</u>	— Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>EUTHAMIA GRAMINIFOLIA</u>	<u>20</u>	<u>N</u>	<u>FAC</u>	
6. <u>SOLIDAGO ALTISSIMA</u>	<u>20</u>	<u>N</u>	<u>FACU</u>	
7. <u>ASTER VIMINEUS</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
8. <u>AMBROSIA TRIFIDA</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
9. <u>UNIDENTIFIED GRASS</u>	<u>5</u>	<u>N</u>	<u>—</u>	
10. <u>UNIDENTIFIED GRASS</u>	<u>50</u>	<u>Y</u>	<u>—</u>	
<u>20% = 30%</u>				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) <u>UNIDENTIFIED GRASS NOT INCLUDED IN DOMINANCE TEST</u>				

10/23/09

Sampling Point: SS2

HYDROLOGY

Wetland Hydrology Indicators:

Midwest Region – Interim Version

10/23/09

Site: Hardin Wind Farm

Rater(s): RSD, SMS

Date: 10/23/09

☒	☒
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (8 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)

DECLARATED ACBA

0.021742 ACRES.

<u>15</u>	<u>5</u>
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 50m (164ft) or more around wetland perimeter (7)
- ☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

(50m + 50m + 50m + 3m) / 4 = 38.25

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)

corrected by ASUM

<u>7</u>	<u>12</u>
max 30 pts.	subtotal

Metric 3. Hydrology.

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

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1) *culvert/surface runoff*
- ☐ Seasonal/intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

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

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

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)

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 30cm (12in) (1)

Check all disturbances observed	
☒ ditch road	☐ point source (nonstormwater)
☐ tile	☐ filling/grading
☐ dike	☒ road bed/RR track
☐ weir	☐ dredging
☒ stormwater input	☐ other

<u>7</u>	<u>19</u>
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	
☐ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☐ clearcutting	☐ sedimentation
☐ selective cutting	☐ dredging
☐ woody debris removal	☒ farming
☐ toxic pollutants	☒ nutrient enrichment

pest/herbicide

<u>19</u>
subtotal this page

WBO031

ORAM v. 5.0 Field Form Quantitative Rating

10/23/09

Site: HARDIN WOOD PRAIRIE Rater(s): DEBRA HUNTER Date: 10/23/09

19

subtotal this page

0 19

max 10 pts.

subtotal

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)

NIA

Metric 5. Special Wetlands.

Phragmites
Dominant
But
Hydro Connected
via Subsoil
Therefore not Isolated
OR CAC 1

-2 17

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.**6a. Wetland Vegetation Communities.**

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ Emergent
- ☒ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ 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.

- ☐ Vegetated hummocks/tussocks
- ☒ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ 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

Phragmites
80% cover

17

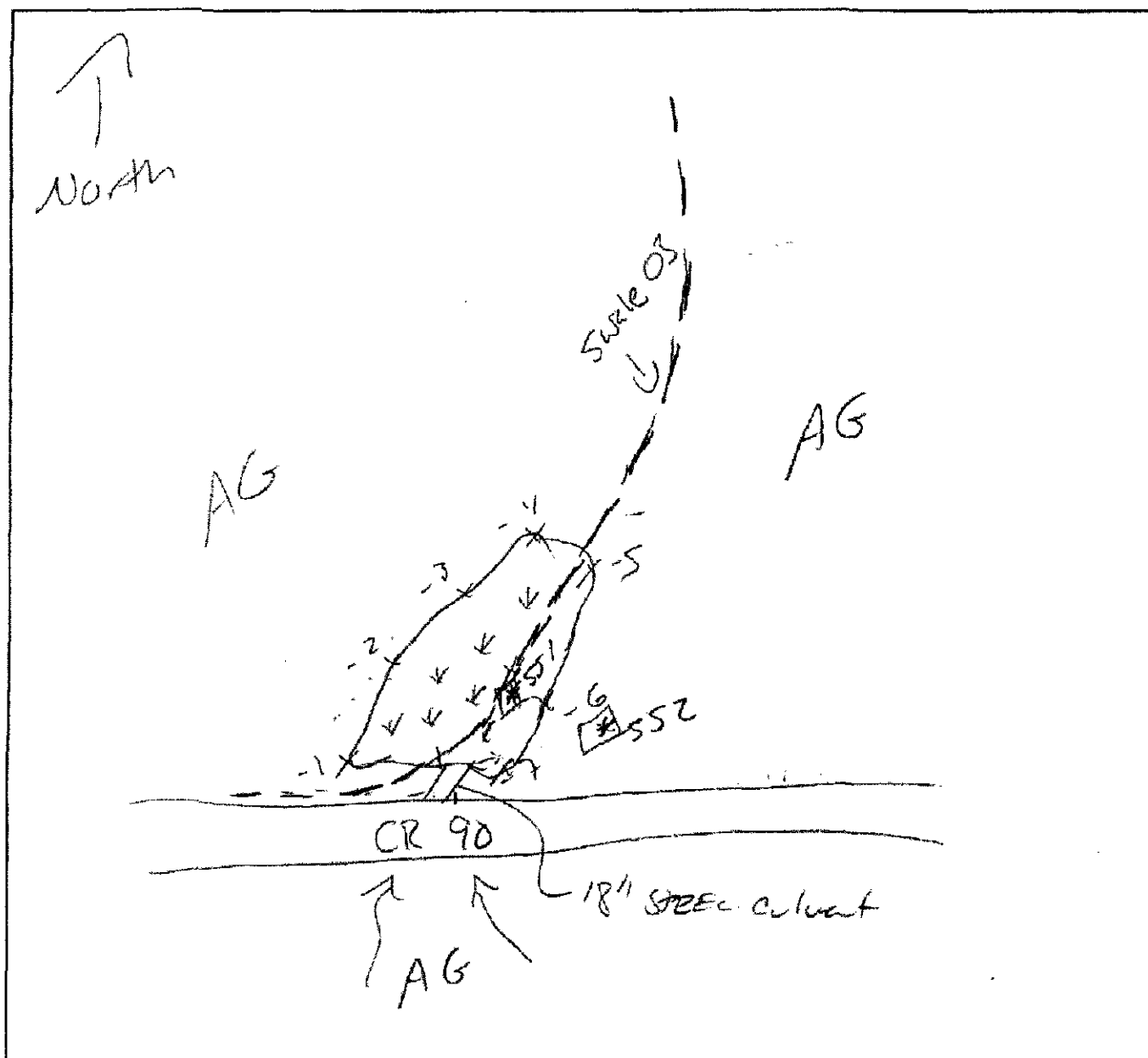
GRAND TOTAL(max 100 pts)Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsw/401/401.html>

WBU031

10/23/09

WETLAND SKETCH FORM

Wetland ID/ Route #: WBU031	Date: 10/23/09	Location: Hardin Wind Farm
Initials of Delineators: RJD, SMS	Photo ID & Direction: #3, S, SW	



Legend:



Wetland



Sample Station



Perennial Stream



Upland



Flag



Intermittent Stream



Centerline



North Arrow



Culvert



Photo Location & Direction

W130033-SS1

10/23/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin W. in Farm City/County: Hardin Sampling Date: 10/23/09
 Applicant/Owner: INDIAN State: OH Sampling Point: SS1
 Investigator(s): DEAN Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): FLAT Local relief (concave, convex, none): CONCAVE
 Slope (%): 0 Lat: 40.7037 Long: -83.7288 Datum: NAD 83
 Soil Map Unit Name: (PKA) PEWAMO SHL CLAY LO AW NWI classification: POW
 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? 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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks: <u>NO GPS POINT COLLECTED / MAN-MADE POND</u>	

VEGETATION - Use scientific names of plants. WETLAND INDIAN (NWI - PUBGX)

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
5. _____				
_____ = Total Cover				Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of: _____ Multiply by:
1. _____				OBL species _____ x 1 = _____
2. _____				FACW species _____ x 2 = _____
3. _____				FAC species _____ x 3 = _____
4. _____				FACU species _____ x 4 = _____
5. _____				UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: _____ (A) _____ (B)
Herb Stratum (Plot size: _____)				Prevalence Index = B/A = _____
1. _____				Hydrophytic Vegetation Indicators:
2. _____				___ Dominance Test is >50%
3. _____				___ Prevalence Index is >3.0 ¹
4. _____				___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				___ Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No _____
1. _____				
2. _____				
_____ = Total Cover				

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

10/23/09

Sampling Point: 55

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☐ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)	
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C6)	
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)	
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)	
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C8)	☐ Geomorphic Position (D2)	
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ FAC-Neutral Test (D5)	
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)		
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)		
Field Observations:			
Surface Water Present? Yes ☐ No ☐	Depth (inches): _____	Wetland Hydrology Present? Yes ☐ No ☐	
Water Table Present? Yes ☐ No ☐	Depth (inches): _____		
Saturation Present? Yes ☐ No ☐	Depth (inches): _____		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
man-made Pond			

Site: *Housh Wood Farm* Rater(s): *DELAHUNTY* Date: *10/23/09*

2 *2*

Metric 1. Wetland Area (size).

max 6 pts. subtotal

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)

- Delineated Area
0.093675

- ENTIRE POND
u 0.319856 acres

4 *6*

Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

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

(50, 25, 3, 10)

88/4 = 22

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)

12 *18*

Metric 3. Hydrology.

max 30 pts. subtotal

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)

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

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

- ☐ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

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)

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 30cm (12in) (1)

3 *21*

Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

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

- ☒ mowing
- ☐ grazing
- ☐ clearcutting
- ☐ selective cutting
- ☐ woody debris removal
- ☐ toxic pollutants

- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☐ nutrient enrichment

Riprap & plastic lined

- Adjacent Area

21
subtotal this page

Site: HOUSH WINDFARM Rater(s): DELAHUNTY Date: 10/23/09

21

subtotal this page

21

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)

MAN-MADE
PMD

3 24

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☒ Open water
- ☐ 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.

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

24 GRAND TOTAL(max 100 pts)

WTB0043-SS1

10/25/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARD: Wind Farm City/County: HARDIN Sampling Date: 10/25/09
 Applicant/Owner: JOHN ELLIS State: OH Sampling Point: SS-1
 Investigator(s): DELAHAY, SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.6358 Long: -83.7172 Datum: NAD83
 Soil Map Unit Name: (PM) DELWANO SILTY CLAY LOAM NWI classification: DEW
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation N, Soil N, or Hydrology N 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 _____
 Hydric Soil Present? Yes ☒ No _____
 Wetland Hydrology Present? Yes ☒ No _____

Is the Sampled Area
within a Wetland? Yes ☒ No _____

Remarks: - TEN wetland between corn fields & forest
- not mapped

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 0) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Sapling/Shrub Stratum (Plot size: 0) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Herb Stratum (Plot size: 5') Absolute % Cover Dominant Species? Indicator Status
 1. ELEOCHARIS SP 90 OBL
 2. CAREX SP 5 -
 3. _____
 4. _____
 5. _____
 6. _____
 7. _____
 8. _____
 9. _____
 10. _____

2090 - 19
Woody Vine Stratum (Plot size: 0) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 _____ = Total Cover

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (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:

___ Dominance Test is >50%
 ___ Prevalence Index is $\leq 3.0^1$
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No _____

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

W730043-SS1

1025109

SOIL

Sampling Point: SS-1

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 ¹	Loc ²		
0-12	7.5yR 4/1	—	7.5yR 4/16	7209	C	PL	clay	man / med / dust
12-18	10yR 4/1	—	7.5yR 4/16	7209	C	PL	clay	man / med / dust

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

Hydric Soil Indicators:

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)	☐ Coast Prairie Redox (A16)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)	☐ Iron-Manganese Masses (F12)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)	
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)	
☐ 2 cm Muck (A10)	☒ Depleted Matrix (F3)	
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)	
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)	
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)	
☐ 5 cm Mucky Peat or Peat (S3)		

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

* more compact (plastic) at ~ 9" & deeper

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
☐ Surface Water (A1)	☒ Water-Stained Leaves (B9)	☒ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☒ FAC-Neutral Test (D5)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)	
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____	Wetland Hydrology Present? Yes ☒ No ☐
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ☐ No ☒	Depth (inches): _____	

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

Remarks:

- SURFACE WATER RUNOFF FROM AG TOWARD TO NORTH

- COMPACTED AT FOREST EDGE - TO WETLAND TO SOUTH

WBW 043-582

10/25/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wind Farm City/County: Holt Co Sampling Date: 10/25/09
 Applicant/Owner: TELEENERGY State: OH Sampling Point: SS-2
 Investigator(s): DELANEY; SPARKS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): IRREGULARLY FLAT Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.6360 Long: -83.7172 Datum: NAD 83
 Soil Map Unit Name: (PM) DEWAND SILT, CLAY LOAM NWI classification: W1A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation IV, Soil IV, or Hydrology IV significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation IV, Soil IV, or Hydrology IV 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 ☒
 Hydric Soil Present? Yes ☒ No _____
 Wetland Hydrology Present? Yes _____ No ☒

Is the Sampled Area within a Wetland? Yes _____ No ☒

Remarks:

AG FIELD - CORN

- AREA MAPED AS WETLAND (OUT-)

VEGETATION - Use scientific names of plants.

(WOODS ON HYDRIC SOIL)

Tree Stratum (Plot size: 0) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Sapling/Shrub Stratum (Plot size: 0) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Herb Stratum (Plot size: 5') Absolute % Cover Dominant Species? Indicator Status
 1. TEA MATS 90 5 UPL*
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____
 7. _____
 8. _____
 9. _____
 10. _____
 _____ = Total Cover

Woody Vine Stratum (Plot size: 0) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 _____ = Total Cover

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (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 = 5
 Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%
 ___ Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present?

Yes _____ No ☒

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

W30043-SS2

10/25/09

SOIL

Sampling Point: SS2

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 ¹	Loc ²		
0-8	10YR 4/2						CLAY	
8-16	10YR 4/1	-	7.5YR 4/6	72010	C	PL	CLAY	many mes/ist

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

VERY COMPACTED CLAY

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

WB0495

10/25/09

ORAM v. 5.0 Field Form Quantitative Rating

Site: Hardin Wind Farm

Rater(s): RTD, SMS

Date: 10/25/09

1	1
---	---

Metric 1. Wetland Area (size).

max 8 pts.

subtotal

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)

DELINEATED AREA ~ 0.033064
 WETLAND EXTENDS TO SOUTH
 INTO FORESTED AREA
 APPROX ~ 20 ACRE TOTAL

11	12
----	----

Metric 2. Upland buffers and surrounding land use.

max 14 pts.

subtotal

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

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

2nd Growth Forest to South
 AG to North

$$7 \times \frac{1}{8} \times 12 = 4$$

8	20
---	----

Metric 3. Hydrology.

max 30 pts.

subtotal

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

- ☐ High pH groundwater (6)
☐ Other groundwater (3)
☒ Precipitation (1) *Surface runoff from AG*
☐ Seasonal/intermittent surface water (3)
☐ Perennial surface water (lake or stream) (5)

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

- ☐ >0.7 (27.6in) (3)
☐ 0.4 to 0.7m (15.7 to 27.6in) (2) *TP RESUMED*
☒ <0.4m (<15.7in) (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

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input

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)

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

- ☐ Semi- to permanently inundated/saturated (4)
☐ Regularly inundated/saturated (3)
☒ Seasonally inundated (2) *WATER MARKING ON TREES*
☐ Seasonally saturated in upper 30cm (12in) (1)

but not visible
 Trunking

8	28
---	----

Metric 4. Habitat Alteration and Development.

max 20 pts.

subtotal

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)

DELINEATED pasture Poor
 Forested pasture very good.
 Average - Fair

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

- ☐ mowing
☐ grazing
☐ clearcutting
☒ selective cutting
☐ woody debris removal
☐ toxic pollutants
☐ shrub/sapling removal
☐ herbaceous/aquatic bed removal
☐ sedimentation
☐ dredging
☒ farming
☒ nutrient enrichment

28

subtotal this page

WBU043

10/25/09

ORAM v. 5.0 Field Form Quantitative Rating

Site: Hardin Wind Farm

Rater(s): RJD, SMS

Date: 10/25/09

28

subtotal this page

0

max 10 pts.

28

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)

8

max 20 pts.

36

subtotal

Metric 6. Plant communities, interspersions, microtopography.**6a. Wetland Vegetation Communities.**

Score all present using 0 to 3 scale.

- ☒ Aquatic bed
☒ Emergent
☒ Shrub
☒ Forest
☒ Mudflats
☒ Open water
☐ 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.

- ☒ Vegetated hummocks/mounds
☒ Coarse woody debris >15cm (6in)
☒ Standing dead >25cm (10in) dbh
☒ 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

36

GRAND TOTAL(max 100 pts)Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.sps.state.oh.us/dsw/401/401.htm>

last revised 1 February 2001 jim

WETLAND SKETCH FORM

Wetland ID/ Route #: WB0043	Date: 10/25/08	Location: DO W of GUR-185
Initials of Delineators:	Photo ID & Direction: 2 → EAST PEN 3 → EAST PFO	

PREV. DETERMINED
NO WETLANDS
AREA (confirmed)

CORN

SS2

90% RSL

~ 10% corn

Along PEN/PFO margin

FO LINE

②

③ FORESTED WETLAND

- BURRASSO ROOTS (MAJOR)
- WATER SPANED LENS
- RED maple (T/S)
- GRAY DOGWOOD (CS)
- AMER ELM (T)
- BAY WOOD (CS)

T- % 60
S- % 25
H- % 5

LG CHESTNUT OAK
AT INTERPOL 86

PEN PFO

Legend:

- | | | | | | |
|--|----------------------------|--|----------------|--|---------------------|
| | Wetland | | Sample Station | | Perennial Stream |
| | Upland | | Flag | | Intermittent Stream |
| | Centerline | | North Arrow | | Culvert |
| | Photo Location & Direction | | | | |

WTS0044-SS1

10/25/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wind Farm City/County: Hardin Sampling Date: 10/25/09
 Applicant/Owner: INTEGRITY State: OH Sampling Point: SS1
 Investigator(s): DELAHUNTY Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): CONCAVE
 Slope (%): 0 Lat: 40.6418 Long: -83.7434 Datum: NAD83
 Soil Map Unit Name: (BOA) BROWN SILT LOAM NWI classification: POW3
 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? Yes _____ No X
 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 _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes _____ No _____	
Wetland Hydrology Present?	Yes _____ No _____	
Remarks: <u>NO GPS PT COLLECTED - MAPPED WETLAND (NWI-POW3X)</u> <u>- MAN-MADE ROAD</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	_____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	_____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	_____ (A/B)
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x 1 = _____
3. _____	_____	_____	_____	FACW species _____	x 2 = _____
4. _____	_____	_____	_____	FAC species _____	x 3 = _____
5. _____	_____	_____	_____	FACU species _____	x 4 = _____
_____ = Total Cover				UPL species _____	x 5 = _____
				Column Totals:	_____ (A) _____ (B)
				Prevalence Index = B/A = _____	
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:	
1. _____	_____	_____	_____	___ Dominance Test is >50%	
2. _____	_____	_____	_____	___ Prevalence Index is ≤3.0 ¹	
3. _____	_____	_____	_____	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)	
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
_____ = Total Cover					
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No _____	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					

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

10125109

Sampling Point: SSU

SOIL

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)
☐ 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)	☐ Gauge or Well Data (D9)
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): 1

Water Table Present? Yes ☐ No ☒ Depth (inches): 10

Saturation Present? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

mm - MADE (Puni)

W00044

Site: Hardin W. in Farm Rater(s): DeLahunty Date: 12/25/09

2 2
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)

Entire pond is 0.954 Acres
Delineated Area ~ 0.1937 Acres

6 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 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) 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)

0.15, 50, 50
115/4

28.75

4/2 = 2

12 20
max 30 pts. subtotal

Metric 3. Hydrology.

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

- ☒ High pH groundwater (5)
- ☒ Other groundwater (3) - Wind Pump
- ☒ Precipitation (1)
- ☐ Seasonal/intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

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

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

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)

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 30cm (12in) (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

- ☐ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

- ☐ point source (nonstormwater)
- ☐ filling/grading
- ☐ road bed/RR track
- ☐ dredging
- ☐ other

4 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

- ☐ mowing
- ☐ grazing
- ☐ clearcutting
- ☐ selective cutting
- ☐ woody debris removal
- ☐ toxic pollutants

- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☐ nutrient enrichment

24
subtotal this page

Rip Rap & Plastic lined
mowed - some present of
woody debris.

MAN-MADE POND

W20044

Site: Hornin Wind Farm Rater(s): DELAHUNT Date: 10/25/09

24

subtotal this page

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)

max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☒ Open water
- ☐ 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.

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

WETLAND SKETCH FORM

Wetland ID/ Route #: WR0044	Date: 10/25/09	Location:
Initials of Delineators: RVS	Photo ID & Direction: 5 ⇒ WSW	

6 ⇒ ENE

DIRT ROAD in center

with exposed RIP RAP around edges

SURCED LAWN/RIP RAP interface

Little Green ALGAE

Fairly clear "bluish" water

CIR-130

8" PVC outflow pipe

maintained lawn

Fire Pipe

Windmill

SPALES

MOUSSES (L. elongata)

POND LILIES

BRANCHES PLACED ALONG EDGES AS HABITAT

RIP RAP SUBSTRATE

DEEP

POND LILIES

BRANCHES PLACED ALONG EDGES AS HABITAT

FROG

Legend:			
	Wetland		Sample Station
	Upland		Flag
	Centerline		North Arrow
	Photo Location & Direction		Perennial Stream
			Intermittent Stream
			Culvert

WTR101-SSI

10/28/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Honda Wind Farm City/County: HARDIN Sampling Date: 10/28/09
 Applicant/Owner: TOUGHER GT State: OH Sampling Point: SSI
 Investigator(s): DELAHUNTY, COLLIER Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): PLAIN, FLAT Local relief (concave, convex, none): Slight depression
 Slope (%): 0 Lat: 40.6047 Long: -83.7057 Datum: NAD 83
 Soil Map Unit Name: (Pm) PEWAMO Silty clay loam NWI classification: PD1PSS1PEN
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation N, Soil N, or Hydrology N 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 _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks: <u>FORESTED WETLAND</u> <u>mapped wetland (Owl-woods or Hydric Soil)</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (C)
1. <u>ACER RUBRUM</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
2. <u>FRAXINUS PENNSYLVANICA</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>ULMUS AMERICANA</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
2090-16 Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index = B/A = _____
1. <u>ACER RUBRUM</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
2. <u>CEPHALANTHUS OCCIDENTALIS</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
2090-18 Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. <u>ACER RUBRUM</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>CAREX INTUMESCE</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3. <u>ASTER UMINEUS</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
2090-18 Woody Vine Stratum (Plot size: <u>0</u>)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	

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

EASTERN EDGE OF OWL MAPPLE WOODS

WAR101-SS1

10/28/09

SOIL

Sampling Point: SS-1

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 ¹		
0-9	10YR 4/2	—	—	—	—	Silty Clay	—
9-18	10YR 4/1	—	10YR 4/1	25%	C PL	CLAY COM 1 Fine (Front)	—

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

Hydric Soil Indicators:

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)	☐ Coast Prairie Redox (A16)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)	☐ Iron-Manganese Masses (F12)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)	
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)	
☐ 2 cm Muck (A10)	☒ Depleted Matrix (F3)	
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)	
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)	
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)	
☐ 5 cm Mucky Peat or Peat (S3)		

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
☐ Surface Water (A1)	☒ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)
☒ Water Marks (B1) (contours)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ FAC-Neutral Test (D5)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)	
☐ Sparsely Vegetated Concave Surface (B8)	☒ Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐ No ☒	Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

WAA 101 - 552

10/28/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HOUND WAD FARM City/County: HANDON Sampling Date: 10/28/09
 Applicant/Owner: LOUENBERG State: OH Sampling Point: 55-2
 Investigator(s): DELAHUNTY, Colling Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVE FLAT Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.6048 Long: -83.7058 Datum: NAD 83
 Soil Map Unit Name: (pm) DELAWARE SILT CLAY LOAM NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation IV, Soil IV, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation IV, Soil IV, or Hydrology N 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks:		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>17%</u> (AB)
1. <u>ACER SACCHARUM</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. <u>ULMUS AMERICANA</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u>QUERCUS ALBA</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>2090-16</u> <u>80</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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 = <u>1.1</u>
1. <u>RUBUS OCCIDENTALIS</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>	
2. <u>CARYA OVATA</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. <u>ACER SACCHARUM</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>2090-18</u> <u>40</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0' ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>TOUARA VIRGINIANA</u>	<u>40</u>	<u>Y</u>	<u>UPL*</u>	
2. <u>HYSTRIX PATULA</u>	<u>5</u>	<u>N</u>	<u>UPL*</u>	
3. <u>AMBROSIA TRIFIDA</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
4. <u>IGNEUS FRONDOSA</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>2090-12</u> <u>60</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No ☒
1. <u>UTIS AESTIVALIS</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
<u>5</u> = Total Cover				

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

WARI01-SS2

10/28/09

SOIL

Sampling Point: SS2

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	Loc ²		
0-18	10YR 4/2	—	—	—	—	—	Silty Clay	—

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____
 Water Table Present? Yes _____ No ☒ Depth (inches): _____
 Saturation Present? Yes _____ No ☒ Depth (inches): _____
 (includes capillary fringe)

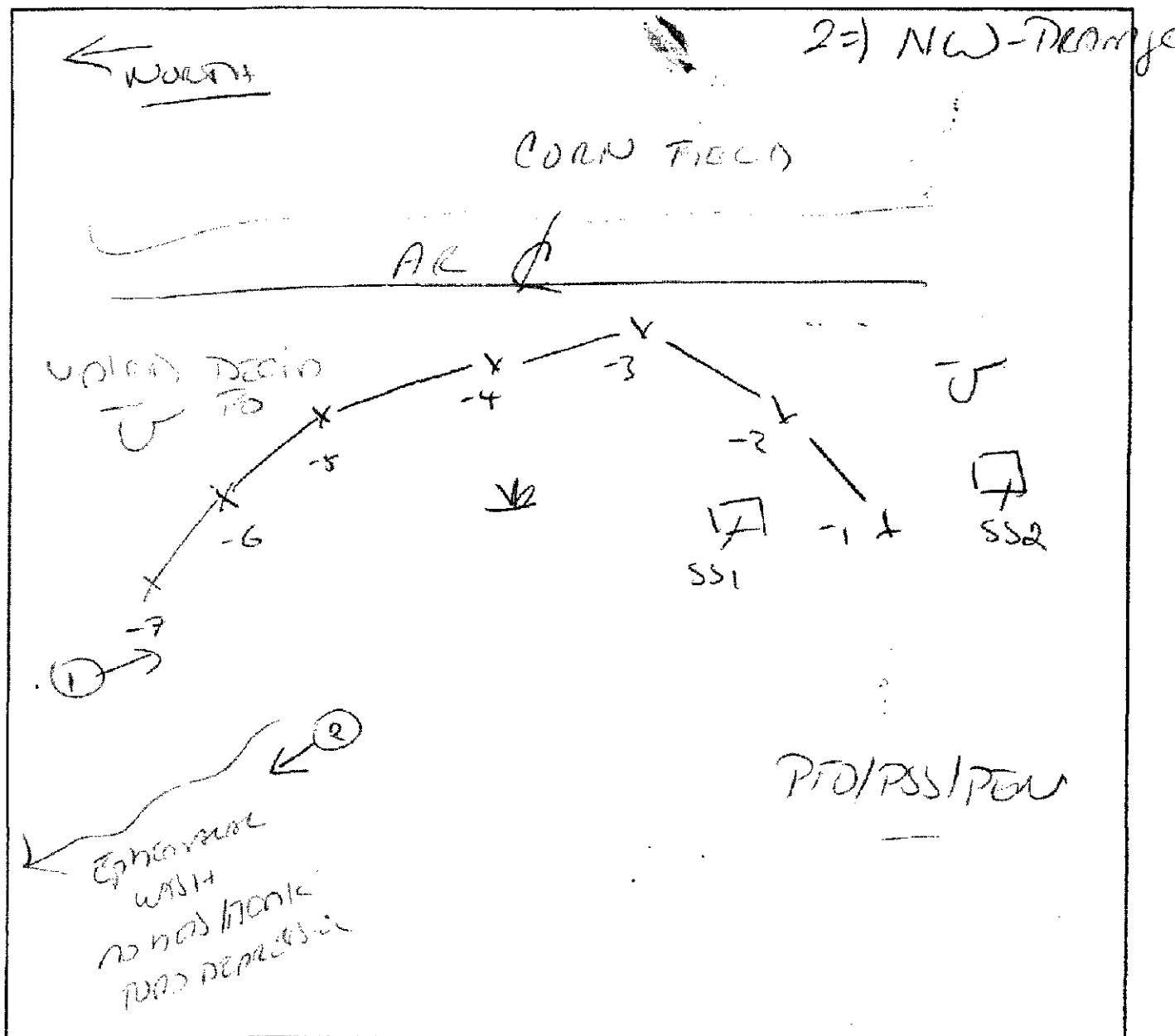
Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

WETLAND SKETCH FORM

Wetland ID/ Route #: WAR101	Date: 10/28/08	Location: ARTW 197
Initials of Delineators: [Signature] GJC	Photo ID & Direction: 1 =) < E - WOT	



Legend:

- | | | | | | |
|---|----------------------------|---|----------------|---|---------------------|
|  | Wetland |  | Sample Station |  | Perennial Stream |
|  | Upland |  | Flag |  | Intermittent Stream |
|  | Centerline |  | North Arrow |  | Culvert |
|  | Photo Location & Direction | | | | |

W02102-SSI

10/28/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Horton Woods Tract City/County: Horton Sampling Date: 10/28/09
 Applicant/Owner: INTEGR 64 State: OH Sampling Point: SSI
 Investigator(s): DELAHUNTY, COLLIN Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): DEPRESSIONAL
 Slope (%): 0 Lat: 42.6039 Long: -83.7058 Datum: NAD 83
 Soil Map Unit Name: (PM) PEWAMO SILTY CLAY (LAW) NWI classification: PEW
 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 _____
 Hydric Soil Present? Yes ☒ No _____
 Wetland Hydrology Present? Yes ☒ No _____

Is the Sampled Area
within a Wetland? Yes ☒ No _____

Remarks:

maps were in LAI - Woods on Hydric soil

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
4. _____				
5. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>0</u>)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species: <u>0</u> x 1 = <u>0</u>
3. _____				FACW species: <u>60</u> x 2 = <u>120</u>
4. _____				FAC species: <u>0</u> x 3 = <u>0</u>
5. _____				FACU species: <u>0</u> x 4 = <u>0</u>
= Total Cover				UPL species: <u>20</u> x 5 = <u>100</u>
Herb Stratum (Plot size: <u>5'</u>)				Column Totals: <u>20</u> (A) <u>220</u> (B)
1. <u>SEARIA SP.</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	Prevalence Index = B/A = <u>2.75</u>
2. <u>QAREX SP.</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	
3. _____				Hydrophytic Vegetation Indicators:
4. _____				— Dominance Test is >50% <u>no</u>
5. _____				X Prevalence Index is ≤3.0 <u>yes</u>
6. _____				— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>none</u>
7. _____				— Problematic Hydrophytic Vegetation ¹ (Explain) <u>none</u>
8. _____				
9. _____				
10. _____				
20% = 16				
Woody Vine Stratum (Plot size: <u>0</u>)				
1. _____				
2. _____				
= Total Cover				
= Total Cover				
Hydrophytic Vegetation Present? Yes ☒ No _____				

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

* NO INEVIDENCE - ASSUMED FACW
Location edge of old mapped wetland

W00102-SS1

10128109

SOIL

Sampling Point: SS1

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

Depth (Inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	6Y4/1	4/1	10Y2.5/6	2-20	C	PL	clay	Com/Fine/Disf

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

Hydric Soil Indicators:

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)	☐ Coast Prairie Redox (A16)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)	☐ Iron-Manganese Masses (F12)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)	
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)	
☐ 2 cm Muck (A10)	☒ Depleted Matrix (F3)	
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)	
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)	
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)	
☐ 5 cm Mucky Peat or Peat (S3)		

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:
Return at 12"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☒ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☒ FAC-Neutral Test (D5)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)	
☐ Sparsely Vegetated Concave Surface (B8)	☒ Other (Explain in Remarks)	

Depressional Area

Field Observations:

Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____	Wetland Hydrology Present? Yes ☒ No ☐
Water Table Present?	Yes ☒ No ☐	Depth (inches): <u>4"</u>	
Saturation Present? (includes capillary fringe)	Yes ☒ No ☐	Depth (inches): <u>11"</u>	

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

Remarks:
DEPRESSIONAL EMERGENT WETLAND AREA CONTIGUOUS TO TUNDRA WETLANDS - SAMPLE STATION COLLECTED IN PORE WATER AT 12" TO

WAL 102-SS2

10/28/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HORD'S WIND FARM City/County: HORD Sampling Date: 10/28/09
 Applicant/Owner: INDIANELECTRIC State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, COLLIN Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVE FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.6037 Long: -83.7058 Datum: NAD83
 Soil Map Unit Name: (DM) PELWAND SILT, CLAY loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation N, Soil N, or Hydrology N 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks:		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>0</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: — Dominance Test is >50% ☒ — Prevalence Index is ≤3.0' ☒ — Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) — Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>MAILUA SP</u>	<u>40</u>	<u>Y</u>	<u>UPL*</u>	
2. <u>Phytolacca americana</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>SECAIE CEREAIE</u>	<u>5</u>	<u>N</u>	<u>UPL*</u>	
4. <u>SETARIA SP</u>	<u>40</u>	<u>Y</u>	<u>UPL*</u>	
5. <u>AMORPHOSA TRIFIDA</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
6. <u>DATURA STRAMONIUM</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
7. _____				
8. _____				
9. _____				
_____ = Total Cover				
2090 → 21				
Woody Vine Stratum (Plot size: <u>0</u>)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. _____				
2. _____				
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				

WAL102-SS2

10/22/09

SOIL

Sampling Point: SS2

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 ¹	Loc ²		
0-18	7.5YR5/6	40	—	—	—	—	Clay	—
	10YR3/1	20	—	—	—	—	Silt/Clay	—
	10YR5/2	40	10YR5/8	2-20	C	DL	Clay ⁰	Contaminant

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (If observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Disturbed soil.
 Appears churned up

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

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 ☒

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

Remarks:

WAL101 \$102

10/28/09

ORAM v. 5.0 Field Form Quantitative Rating

Site: HARDY W. F. TAYLOR Rater(s): DELAHUNTY Date: 10/28/09

2 2

Metric 1. Wetland Area (size).

max 6 pts.

subtotal

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)

Assumed corrected
 based on mapped
 OVI wetlands

- DELINEATED - 0.066491
 0.061838

128829 AVE

ESTIMATED
 OVERALL
 WETLAND SIZE
 w/ 7 AVE

7
 8/2 = 4

11 13

Metric 2. Upland buffers and surrounding land use.

max 14 pts.

subtotal

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

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

8 21

Metric 3. Hydrology.

max 30 pts.

subtotal

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)

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

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

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) mapped
☐ Part of riparian or upland corridor (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 30cm (12in) (1)

Check all disturbances observed

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input
☐ point source (nonstormwater)
☐ filling/grading
☐ road bed/RR track
☐ dredging
☐ other

10.5 31.5

Metric 4. Habitat Alteration and Development.

max 20 pts.

subtotal

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

- ☐ None or none apparent (4)
☒ Recovered (3) (C PFD 1 PFD 102) of WAL101
☐ Recovering (2)
☒ Recent or no recovery (1) (C PFD 102) of WAL102

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 (8)
☒ Recovered (6)
☐ Recovering (3)
☒ Recent or no recovery (1)

Check all disturbances observed

- ☐ mowing
☐ grazing
☐ clearcutting
☐ selective cutting
☐ woody debris removal
☐ toxic pollutants
☐ shrub/sapling removal
☐ herbaceous/aquatic bed removal
☐ sedimentation
☐ dredging
☒ farming
☐ nutrient enrichment

31.5

subtotal this page

7 1/2 = 3.5

Site: Holmes Woods Farm Rater(s): DELANEY Date: 10/28/08

31.5

subtotal this page

max 10 pts. subtotal 31.5

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)

N/A

11 42.5

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
☒ Emergent
☒ Shrub
☒ Forest
☐ Mudflats
☐ Open water
☐ 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.

- ☐ Vegetated hummocks/tussocks
☒ Coarse woody debris >15cm (6in)
☐ Standing dead >25cm (10in) dbh
☐ 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

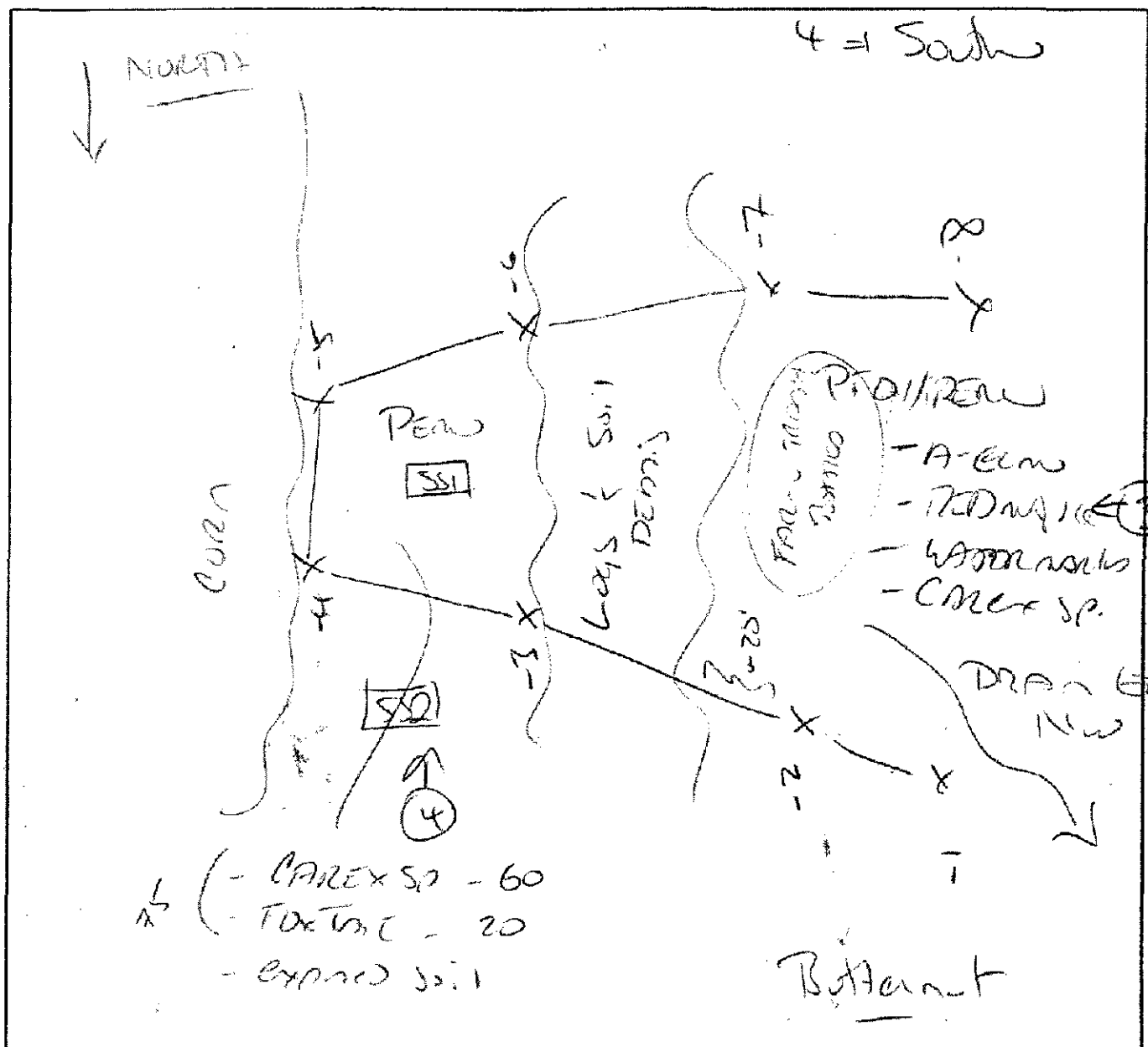
42.5 GRAND TOTAL(max 100 pts)

WAR102

10/28/09

WETLAND SKETCH FORM

Wetland ID/ Route #: WAR102	Date: 10/28/09	Location: ALTOUGH
Initials of Delineators: BD, GJC	Photo ID & Direction: 3 ⇒ East	



Legend:			
	Wetland		Sample Station
	Upland		Flag
	Centerline		North Arrow
	Photo Location & Direction		Perennial Stream
			Intermittent Stream
			Culvert

WWRB 106-SS 1

10/28/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: HARDIN WIND FARM City/County: HOLDEN Sampling Date: 10/28/09

Applicant/Owner: INVERGUY State: OH Sampling Point: SSI

Investigator(s): DELAHUNTY; COLLING Section, Township, Range: _____

Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE

Slope (%): 0 Lat: 40.6129 Long: -83.7060 Datum: NAD 83

Soil Map Unit Name: (PM) PELHAM Silty Clay loam NWI classification: PSS1PEM

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 _____
Hydric Soil Present? Yes ✓ No _____
Wetland Hydrology Present? Yes ✓ No _____

Is the Sampled Area within a Wetland? Yes ✓ No _____

Remarks: Silky Willow (Rcc) canopy stand Surrounded by corn field

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)

Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>SALIX SERICEA</u>	<u>60</u>	<u>✓</u>	<u>OBL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

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) _____

Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>PHALARIS ARUNDINACEA</u>	<u>70</u>	<u>✓</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is >3.0¹

___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Woody Vine Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____

Hydrophytic Vegetation Present? Yes ✓ No _____

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

30 - Adjacent to Turbine 1911 RADIIUS

W WTB-106-SS1

10/28/09

SOIL

Sampling Point: SS1

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 ¹	Loc ²		
0-12	10YR 4/2	—	—	—	—	—	5:1 clay	—
12-18	10YR 5/2	—	10YR 4/6	30%	C	PL	clay	many / man / pit

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

Hydric Soil Indicators:

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)	☐ Coast Prairie Redox (A16)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)	☐ Iron-Manganese Masses (F12)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1)	
☐ Stratified Layers (A5)	☐ Loamy Gleyed Matrix (F2)	
☐ 2 cm Muck (A10)	☒ Depleted Matrix (F3)	
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)	
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)	
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)	
☐ 5 cm Mucky Peat or Peat (S3)		

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ FAC-Neutral Test (D5)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)	
☐ Sparsely Vegetated Concave Surface (B8)	☒ Other (Explain in Remarks)	

Field Observations:

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 ☐

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

Marginal Hydrology

Remarks:

No inlet or outlet - 750' across

JW 106-SS2

10/28/05

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Horn's Wetland City/County: Holt Co. Sampling Date: 10/29/05
 Applicant/Owner: TRACER 67 State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, COLING Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): NONE
 Slope (%): 0 Lat: 40.6130 Long: -83.7061 Datum: NAD83
 Soil Map Unit Name: (DM) PEWAMO SILTY CLAY LOAM NWI classification: NIA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N 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>✓</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>✓</u>
Hydric Soil Present?	Yes _____ No <u>✓</u>	
Wetland Hydrology Present?	Yes _____ No <u>✓</u>	
Remarks:		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>0</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
5. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet:
1. <u>ROSAMULTIFIDAA</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of: _____ Multiply by:
2. <u>CRATAEGUS SP</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	OBL species _____ x 1 = _____
3. <u>CORNUS RACEMOSA</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	FACW species _____ x 2 = _____
4. <u>ILICUS OCCIDENTALIS</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
20 → 14.	<u>70</u>			Column Totals: _____ (A) _____ (B)
Herb Stratum (Plot size: <u>5'</u>)				Prevalence Index = B/A = _____
1. <u>PHALARIS ARUNDINACEA</u>	<u>20</u>	<u>N</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators:
2. <u>CAREX SP.</u>	<u>10</u>	<u>N</u>		___ Dominance Test is >50%
3. <u>SPARGANO ANGISSIMA</u>	<u>75</u>	<u>Y</u>	<u>FACU</u>	___ Prevalence Index is ≤3.0 ¹
4. _____				___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				___ Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
20 → 21	<u>105</u>			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: <u>0</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
= Total Cover				
Remarks: (include photo numbers here or on a separate sheet.)				

WTG-106-SS2

10/28/09

SOIL

Sampling Point: SS2

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 ¹	Loc ²		
0-14	10YR 4/1						Silt clay	
14-18	10YR 4/2	-	10YR 4/6	2-20	C	PL	clay	Coarse sand lens

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ 5 cm Mucky Peat or Peat (S3)

- ☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)

- ☐ Water-Stained Leaves (B9)
☐ Aquatic Fauna (B13)
☐ True Aquatic Plants (B14)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ Gauge or Well Data (D9)
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

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 ☒

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

Remarks:

W10106

10/28/09

ORAM v. 5.0 Field Form Quantitative Rating

Site: <u>HARSH WIND TOWN</u>	Rater(s): <u>DELAHUNTY</u>	Date: <u>10/28/09</u>
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<u>0</u>	<u>0</u>
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)

0.034166
Acres.

SMALL ISLAND
PSS/PEM
WET SURROUNDED
by corn fields

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

6/2 = 3

<u>4</u>	<u>14</u>
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)

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

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

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)

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 30cm (12in) (1)

Check all disturbances observed

- | | |
|---|---|
| ☐ ditch | ☐ point source (nonstormwater) |
| ☐ tile | ☐ filling/grading |
| ☐ dike | ☐ road bed/RR track |
| ☐ weir | ☐ dredging |
| ☐ stormwater input | ☐ other |

<u>8</u>	<u>22</u>
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

- | | |
|---|---|
| ☐ mowing | ☐ shrub/sapling removal |
| ☐ grazing | ☐ herbaceous/aquatic bed removal |
| ☐ clearcutting | ☐ sedimentation |
| ☐ selective cutting | ☐ dredging |
| ☐ woody debris removal | ☒ farming |
| ☐ toxic pollutants | ☐ nutrient enrichment |

<u>22</u>
subtotal this page

WWTG-106

ORAM v. 5.0 Field Form Quantitative Rating

Site: <u>HAGIN WIND FARM</u>	Rater(s): <u>DELAHUNTY</u>	Date: <u>10/28/09</u>
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22

subtotal this page

<u>-10</u>	<u>12</u>
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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)

<u>0</u>	<u>12</u>
----------	-----------

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ 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.

- ☐ Vegetated hummocks/mounds
- ☐ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☐ 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

*Phacelis
DOMINATES AT TOP
(NO OTHER VEGETATION)
ISOLATED
CATEGORY I*

<u>12</u>

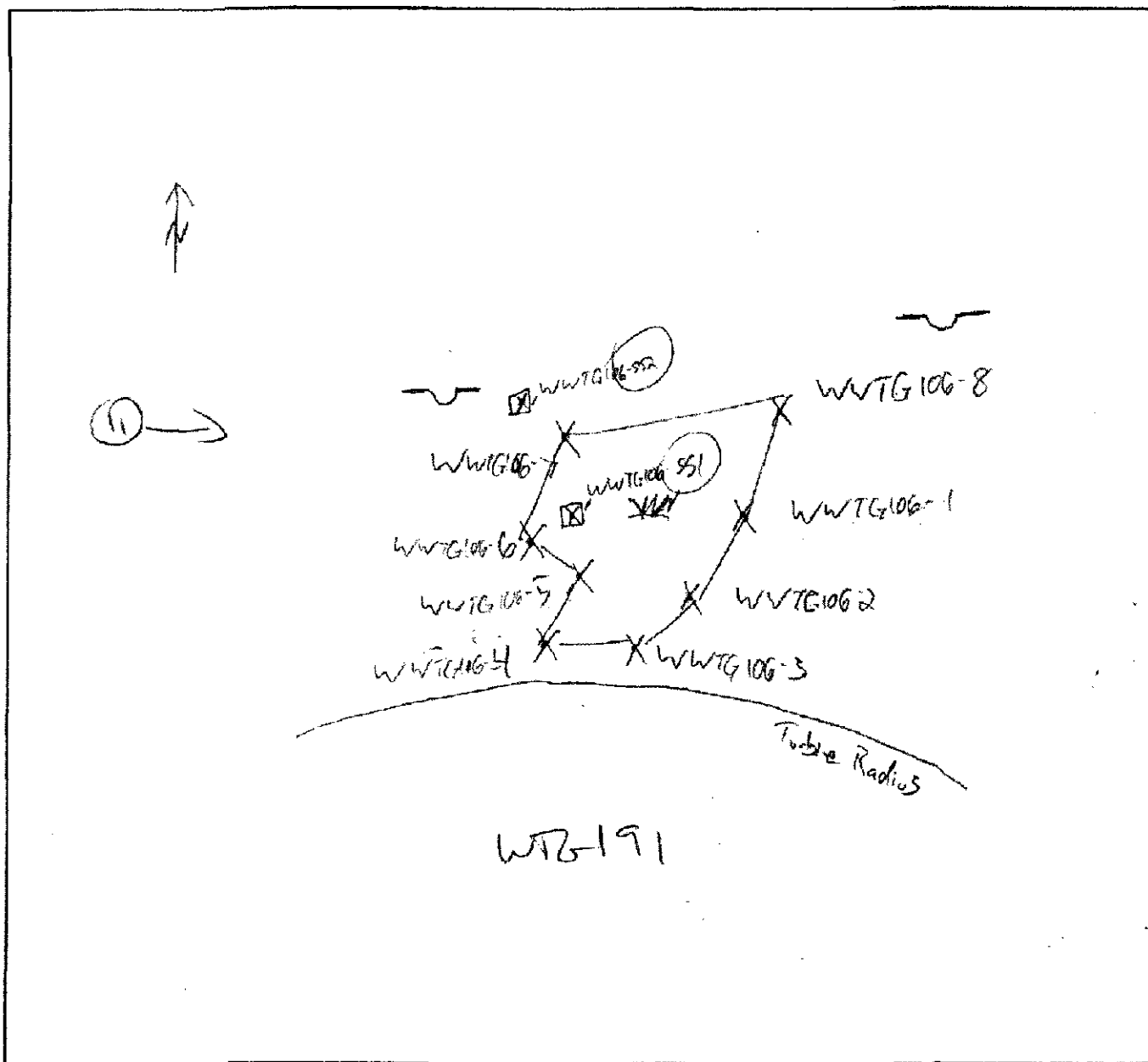
GRAND TOTAL(max 100 pts)

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

last revised 1 February 2001 jim

WETLAND SKETCH FORM

Wetland ID/ Route #: <u>WWTG-106</u>	Date: <u>10/28/09</u>	Location: <u>WTG-191</u>
Initials of Delineators: <u>RTD, GJC</u>	Photo ID & Direction: <u>11 EAST</u>	



Legend:



Wetland



Sample Station



Perennial Stream



Upland



Flag



Intermittent Stream



Centerline



North Arrow



Culvert



Photo Location & Direction

WAK107SSI

10/28/09

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Honda Wind Farm City/County: Harrison Sampling Date: 10/28/09
 Applicant/Owner: INDU ENERGY State: OH Sampling Point: SSI
 Investigator(s): DELAHUNTY, CYCINO Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): SWINA SLOPE Local relief (concave, convex, none): none
 Slope (%): 5.5 Lat: 40.6082 Long: -83.7677 Datum: NAD 83
 Soil Map Unit Name: (6A) Blunt Silty loam NWI classification: PEW
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N 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 _____
 Hydric Soil Present? Yes ✓ No _____
 Wetland Hydrology Present? Yes ✓ No _____

Is the Sampled Area
within a Wetland? Yes ✓ No _____

Remarks:

STRONG veg, marginal soil & hydric

MARSH WETLAND (NWI - PEW)

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: Ø) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Sapling/Shrub Stratum (Plot size: Ø) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 _____ = Total Cover

Herb Stratum (Plot size: 5') Absolute % Cover Dominant Species? Indicator Status
 1. ALISMA PLANTAGO-AQUATICA 5 N OBL
 2. PHALARIS ALUNDINACEA 50 Y FACW
 3. CAREX INTUMESCENT 50 Y FACW
 4. CAREX SP. 300 N _____
 5. POLYGONUM HYDROPIA 5 N OBL
 6. SPARGANO GIGANTEA 5 N FACW
 7. UNIDENTIFIED GRASS 5 N _____
 8. ASTER VIMINEUS 5 N FAC
 9. CAREX SCOPARIA 5 N FACW
 10. ZOTOF 32 160 = Total Cover

Woody Vine Stratum (Plot size: Ø) Absolute % Cover Dominant Species? Indicator Status
 1. _____
 2. _____
 _____ = 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: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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:

— Dominance Test is >50%
 — Prevalence Index is ≤3.0¹
 — Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 — Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic
Vegetation
Present?

Yes ✓ No _____

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

SOME DEAD GRASSES ALG VEGETATED AREAS

WAR107-SS1

10/28/09

SOIL

Sampling Point: SS2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	10YR 4/2	—	—	—	—	—	SILTY CLAY	
12-18	10YR 4.3/2	—	—	—	—	—	HEAVY SILTY CLAY	
								MORE COMPACT

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1) ☐ Histic Epipedon (A2) ☐ Black Histic (A3) ☐ Hydrogen Sulfide (A4) ☐ Stratified Layers (A5) ☐ 2 cm Muck (A10) ☐ Depleted Below Dark Surface (A11) ☐ Thick Dark Surface (A12) ☐ Sandy Mucky Mineral (S1) ☐ 5 cm Mucky Peat or Peat (S3)	☐ Sandy Gleyed Matrix (S4) ☐ Sandy Redox (S5) ☐ Stripped Matrix (S6) ☐ Loamy Mucky Mineral (F1) ☐ Loamy Gleyed Matrix (F2) ☒ Depleted Matrix (F3) ☐ Redox Dark Surface (F6) ☐ Depleted Dark Surface (F7) ☐ Redox Depressions (F8)

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

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No _____

Remarks:
 Spongy soil
 NO MUCK
 Mucky soil

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Sparsely Vegetated Concave Surface (B8)	☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13) ☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1) ☐ Oxidized Rhizospheres on Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Gauge or Well Data (D9) ☒ Other (Explain in Remarks) <u>LOW AREA AT EDGE OF FIELD</u>
☐ Surface Soil Cracks (B6) ☐ Drainage Patterns (B10) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☐ Geomorphic Position (D2) ☐ FAC-Neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes _____ No ☒	Depth (inches): _____
Water Table Present?	Yes _____ No ☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No ☒	Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No _____

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

Remarks:
 - Depressional Area At end of Field
 - SURFACE WATER runoff from South

WAL 107-882

10/28/29

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hardin Wood Farm City/County: Madison Sampling Date: 10/28/29
 Applicant/Owner: INDEPENDENT State: OH Sampling Point: SS2
 Investigator(s): DELAHUNTY, C. L. Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): RELATIVELY FLAT Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.6022 Long: -83.7676 Datum: NAD 83
 Soil Map Unit Name: (BDA) Blount silt loam NWI classification: NIA
 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 ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: <u>TYPE 2, EARLY SUCCESSIONAL (FACW) / TREELIN</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>30%</u> (A/B)
1. <u>ACER SACCHARUM</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>FRAXINUS AMERICANA</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u>CELANUS AMERICANA</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
4. <u>PRUNUS SEROTINA</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
5. <u>ZORUS 16</u>	<u>80</u>			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 = <u>2.4</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>ACER SACCHARUM</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. <u>PRUNUS SEROTINA</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
3. <u>ROSA MULTIFLORA</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4. <u>VIBURNUM ACERIFOLIUM</u>	<u>5</u>	<u>N</u>	<u>UPL*</u>	
5. <u>ZORUS 59</u>	<u>45</u>			Hydrophytic Vegetation Indicators: — Dominance Test is >50% — Prevalence Index is ≤3.0 ¹ — Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) — Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>SOLANUM GIGANTEA</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>ECHINOCHLOA CRASSGALLI</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
3. <u>ASTER LAMINIFOLUS</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
4. <u>CIRSIMUM DISCOLOR</u>	<u>5</u>	<u>N</u>	<u>UPL*</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. <u>ZORUS 9</u>	<u>45</u>			Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>UICIS AESTIVALIS</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
2. _____	<u>5</u>			
Remarks: (Include photo numbers here or on a separate sheet.)				

10128109

SOIL

Sampling Point: 3502

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³:

- ☐ Coast Prairie Redox (A16)
☐ Iron-Manganese Masses (F12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Loamy Soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Water-Stained Leaves (B9) |
| ☐ High Water Table (A2) | ☐ Aquatic Fauna (B13) |
| ☐ Saturation (A3) | ☐ True Aquatic Plants (B14) |
| ☐ 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) | ☐ Gauge or Well Data (D9) |
| ☐ Sparsely Vegetated Concave Surface (B8) | ☐ Other (Explain in Remarks) |

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes No ☒

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

Remarks:

WAR 107

Site: WAR 107

Rater(s): DELAHUNTY

Date: 10/28/09

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)

DELINATED AREA

0.068155 Acre

ESTIMATED SIZE 1.30 Acre

11	12
----	----

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

$$\frac{7}{3} = 2.33$$

$$\frac{1}{11} = 0.09$$

$$\frac{1}{13} = 0.08$$

7	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)

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

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

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)

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

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

Check all disturbances observed

- ☐ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input
- ☐ point source (nonstormwater)
- ☐ filling/grading
- ☐ road bed/RR track
- ☐ dredging
- ☐ other

9	28
---	----

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

- ☐ mowing
- ☐ grazing
- ☐ clearcutting
- ☐ selective cutting
- ☐ woody debris removal
- ☐ toxic pollutants
- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☒ farming (HISBAC)
- ☐ nutrient enrichment

28

subtotal this page

MANAG
WETLANDS

WAL 107

Site: HOLDEN Rater(s): DELAHUNTY Date: 10/28/09

24

subtotal this page

0 24

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)

ISOLATED
but PHAIANUS
even only
estimated AT
50% not 80%
NOT consistent
CAT I

2 30

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ 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.

- ☐ Vegetated hummocks/mounds
- ☐ Coarse woody debris >15cm (6in)
- ☐ Standing dead >25cm (10in) dbh
- ☒ 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

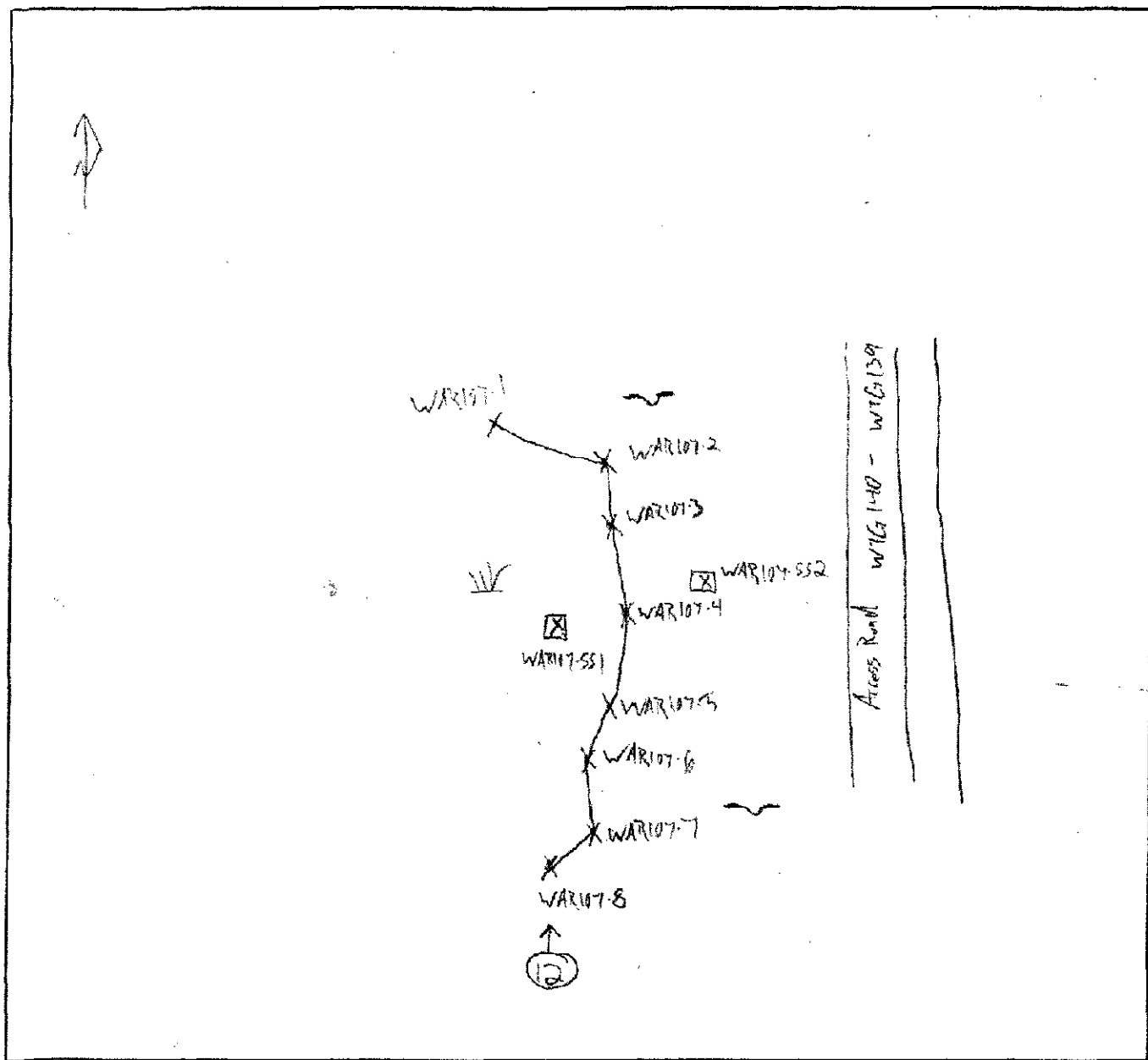
Microtopography Cover Scale

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

30 GRAND TOTAL(max 100 pts)

WETLAND SKETCH FORM

Wetland ID/ Route #: WA2107	Date: 12/28/09	Location:
Initials of Delineators: RED, GJC	Photo ID & Direction: 12 ⇒ NORTH	



Legend:			
	Wetland		Sample Station
	Upland		Flag
	Centerline		North Arrow
	Photo Location & Direction		Perennial Stream
			Intermittent Stream
			Culvert

RESPONSE TO 16 (B)

SB0001 A1B

RESPONSE TO 16(B)

10/19/09

WATERBODY CROSSING DATA FORM

PROJECT: HARDIN

DATE: 10/19/09

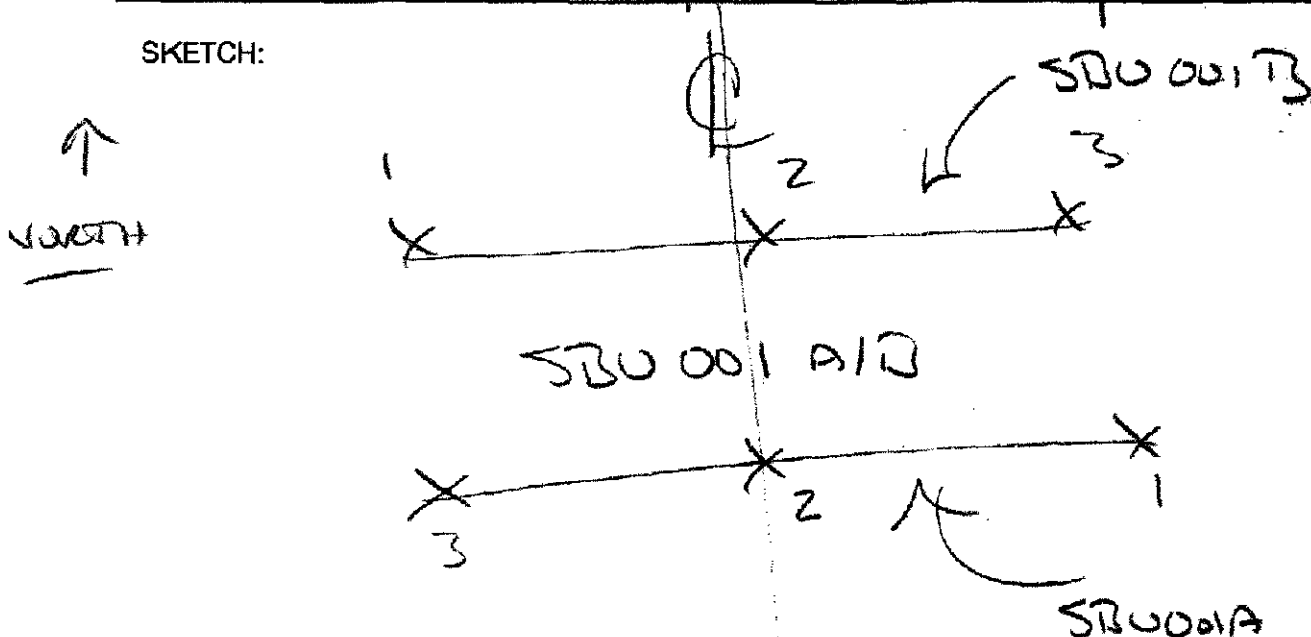
LOCATION: N of WIG 2

FIELD CREW: RD, SMS

UN-MAPPED STREAM

WATERBODY ID	SB0001 A1B	
GPS FEATURE TYPE (open/closed)/(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	Photo 4 3 WEST	
NAME (or tributary to)	UN-NAMED TRAIL to Scioto River	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent	
WIDTH (observed/OHW)	6' / 7-8'	
DEPTH (observed/OHW)	4" / 2'	
FLOW RATE (dry/stagnant/low/moderate/high)	STAGNANT	
FLOW DIRECTION	EAST (BASED on Sight top)	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt	
BANK VEGETATION (upland/wetland cover type)	FRINGE PRAIRIE & EARLY SUCCESSIONAL	

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

OBSERVED GARTER SNAKE TO NORTH WEST of
FEATURE on EDGE of AG FIELD (Soy)

NOTES:

EARLY SUCCESSIONAL VEG: TEASEL; SOLADAGO;
REED CANAL; QUEEN AN'S LACE; KNAWEEL

- NOT MAPPED

SBU 001 AID

10/19/09

OhioEPA

Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet

QHEI Score:

32

Stream & Location: UNNAMED TRIBUTARY TO SCIOTO RIVER RM: --- Date: 10/19/09

u 920' EAST OF CR 35

Scorer's Full Name & Affiliation: DELAHUNTY, SPARKS - TTECRiver Code: ---STORET #: ---Lat / Long: 40.7003 183.8388Office verified location ☐1) SUBSTRATE Check ONLY two substrate TYPE BOXES.
estimate % or note every type present

BEST TYPES		OTHER TYPES	
POOL	RIFFLE	POOL	RIFFLE
☐ BLDR / SLABS [10]	☐	☐ HARDPAN [4]	☐
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐
☐ COBBLE [8]	☐	☐ MUCK [2]	☐
☐ GRAVEL [7]	☐	☒ SILT [2]	☐
☐ SAND [6]	☐	☐ ARTIFICIAL [0]	☐
☐ BEDROCK [5]	☐		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

GLIDE Fines

Check ONE (Or 2 & average)

ORIGIN

☐ LIMESTONE [1]
☐ TILLS [1]
☐ WETLANDS [0]
☒ HARDPAN [0]
☐ SANDSTONE [0]
☐ RIP/RAP [0]
☐ LACUSTURINE [0]
☐ SHALE [1]
☐ COAL FINES [2]

SILT

EMBEDDEDNESS

QUALITY

☒ HEAVY [2]
☐ MODERATE [1]
☐ NORMAL [0]
☐ FREE [1]
☐ EXTENSIVE [2]
☐ MODERATE [1]
☐ NORMAL [0]
☐ NONE [1]

Substrate

Maximum 20

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]
☐ ROOTMATS [1]		

Comments

OVERHANGING HERBACEOUS VEG (116 REED CANARY GRASS)

AMOUNT

Check ONE (Or 2 & average)

☐ EXTENSIVE > 75% [1]
☒ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover Maximum 20

8

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☒ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

STRAIGHT CHANNEL GLIDE NO EROSION / SCOUR

Channel Maximum 20

8

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]	☐ CONSERVATION TILLAGE [1]		
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]		
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]		
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]			
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]			

Comments

* EARLY SUCCESSIONAL VEG N/A

Indicate predominant land use(s) past 100m riparian.

Riparian Maximum 10

8

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ SLOW [1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]
☐ 0.2-0.4m [1]		☐ FAST [1]
☒ < 0.2m [0]		☐ MODERATE [1]
		☐ INTERSTITIAL [1]
		☐ INTERMITTENT [2]
		☐ EDDIES [1]

Comments

4 INCHES DEEP - N/A GLIDE

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Pool / Current Maximum 12

0

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average)

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [1]

Comments

NO RIFFLES / RUN PRESENT

Riffle / Run Maximum 8

0

6) GRADIENT

DRAINAGE AREA

☐ VERY LOW - LOW [2-4]
☒ MODERATE [6-10]
☐ HIGH - VERY HIGH [10-8]

% POOL:

% GLIDE:

% RUN:

% RIFFLE:

Gradient Maximum 10

6

EPA 4520

08/18/08

unbrakes w/ Linder

STREAM

width 8' (965 → 960 → 6,583' 5' / 1.25mi = 4' / mi Gradient)

STREAM width 6-8'

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L. LINE ☐ NORMAL ☐
- ☒ OTHER ** ☐ FLOW ☐
- DISTANCE ☐ DRY ☐

CLARITY

- 1st --sample pass-- 2nd
- ☐ < 20 cm ☐
- ☐ 20-40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

- ☒ > 85% OPEN ☐
- ☐ 55%-85% ☐
- ☐ 30%-55% ☐
- ☐ 10%-30% ☐
- ☐ < 10% - CLOSED ☐

CJ RECREATION

POOL: ☐ > 100 ft ☐ > 3 ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE ☐
- ☐ INVASIVE MACROPHYTES ☐
- ☐ EXCESS TURBIDITY ☐
- ☐ DISCOLORATION ☐
- ☐ FOAM/ SCUM ☐
- ☐ OIL SHEEN ☐
- ☐ TRASH/ LITTER ☐
- ☐ NUISANCE ODOR ☐
- ☐ SLUDGE DEPOSITS ☐
- ☐ CSOs/SSOs/OUTFALLS ☐

DJ MAINTENANCE

- PUBLIC/PRIVATE BOTH / NA
- ACTIVE / HISTORIC BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMORED / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICATED
- FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- $\bar{x}$ width 6'
- $\bar{x}$ depth 4'
- max. depth 7.8'
- $\bar{x}$ bankfull width 2'
- bankfull $\bar{x}$ depth 2'
- W/D ratio
- bankfull max. depth
- floodprone $\bar{x}$ width
- entrench. ratio
- Legacy Tree:

Stream Drawing:

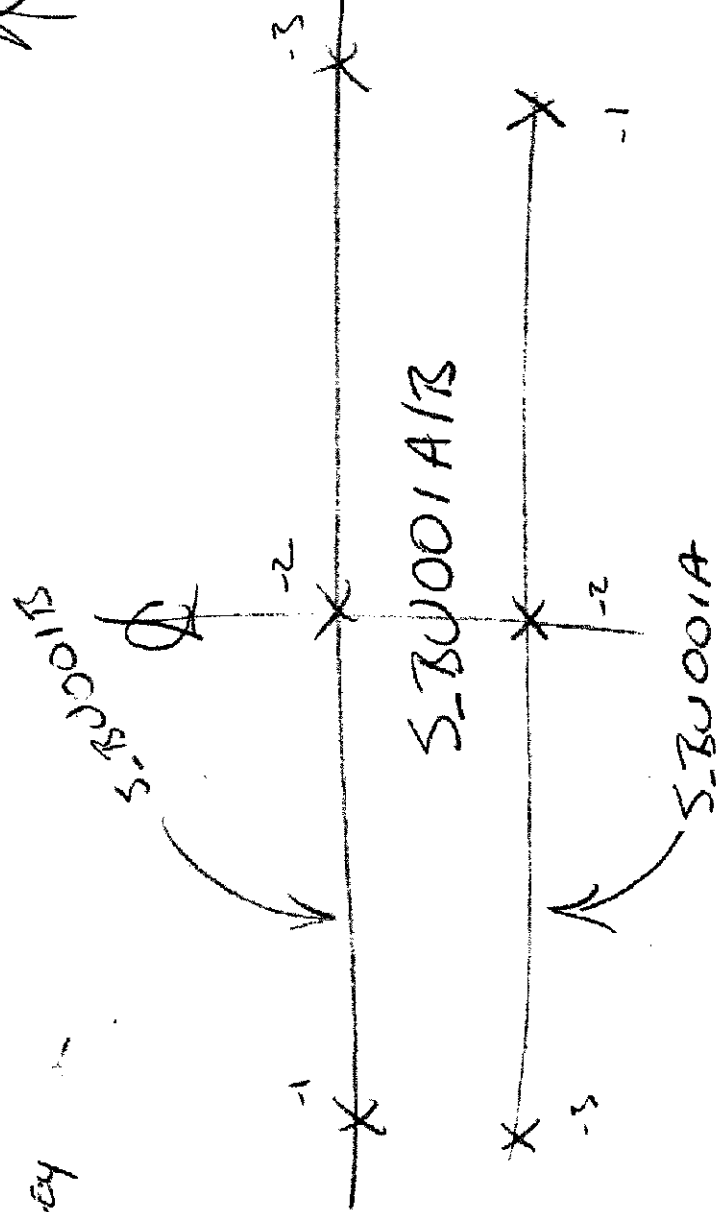
N/A

AGRICULTURE

* NO TREES OR SHRUBS
∴ OPEN

** STREAM BANK SURVEY

↑ NORTH



3BU001A13

10/19/09



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

52

SITE NAME/LOCATION HARDIN WIND FARM - 925' EAST OF CR35
 SITE NUMBER RIVER BASIN Scioto River DRAINAGE AREA (mi²)
 LENGTH OF STREAM REACH (ft) 2,600 LAT 40.7003 LONG 83.8388 RIVER CODE RIVER MILE
 DATE 10/19/09 SCORER AKS/MS COMMENTS 40' ROW CROSSING GR BUND ELEV

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for instructions LINE

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

UN-NAMED TRAIL TO SCIO RIVER - AG DITCH

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS [16 pts]	0%	☒ SILT [3 pt]	100%
☐ BOULDER (>256 mm) [16 pts]	0%	☐ LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ BEDROCK [16 pt]	0%	☐ FINE DETRITUS [3 pts]	0%
☐ COBBLE (65-256 mm) [12 pts]	0%	☐ CLAY or HARDPAN [0 pt]	0%
☐ GRAVEL (2-64 mm) [9 pts]	0%	☐ MUCK [0 pts]	0%
☐ SAND (<2 mm) [8 pts]	0%	☐ ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00%

(A)

Substrate Percentages Check 0%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 06

TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40

A + B

Pool Depth Max = 30

25

Bankfull Width Max=30

20

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]	☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5 pts]
☒ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS GLIDE

MAXIMUM POOL DEPTH (centimeters): 10.6

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
☒ 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS STRAIGHT AG DITCH

AVERAGE BANKFULL WIDTH (meters): 2.3

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L	R	(Per Bank)
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☐	☐	Narrow <5m
☒	☒	None

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
☐	☐	Mature Forest, Wetland
☒	☒	Immature Forest, Shrub or Old Field
☐	☐	Residential, Park, New Field
☐	☐	Fenced Pasture

L	R	
☐	☐	Conservation Tillage
☐	☐	Urban or Industrial
☒	☒	Open Pasture/Row Crop
☐	☐	Mining or Construction

COMMENTS EARLY SUCCESSIONAL - SUBSIDER SILE THEN SOY FIELD

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

☐ Stream Flowing	☒ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (Ephemeral)

COMMENTS STAGNANT

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☒ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

SB0001 AIR

10/19/09

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☒ Yes ☐ No QHEI Score 36 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S) NOT KNOWN

☐ WWH Name:		Distance from Evaluated Stream	
☐ CWH Name:		Distance from Evaluated Stream	
☐ EWH Name:		Distance from Evaluated Stream	

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Wyandot NRCS Soil Map Page: HARDIN NRCS Soil Map Stream Order: 1

County: Wyandot Township / City: HARDIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 0.00 Quantity: 0.00

Photograph Information: Photo 4 => WEST

Elevated Turbidity? (Y/N): Y Canopy (% open): 0% 100%

Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream? (Y/N): Y If not, please explain: N/A

Additional comments/description of pollution impacts:

POTENTIAL PEST / HERB / FERT. Proximity to ACTIVE AG FIELDS & TILED DRAINAGE

BIOTIC EVALUATION

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

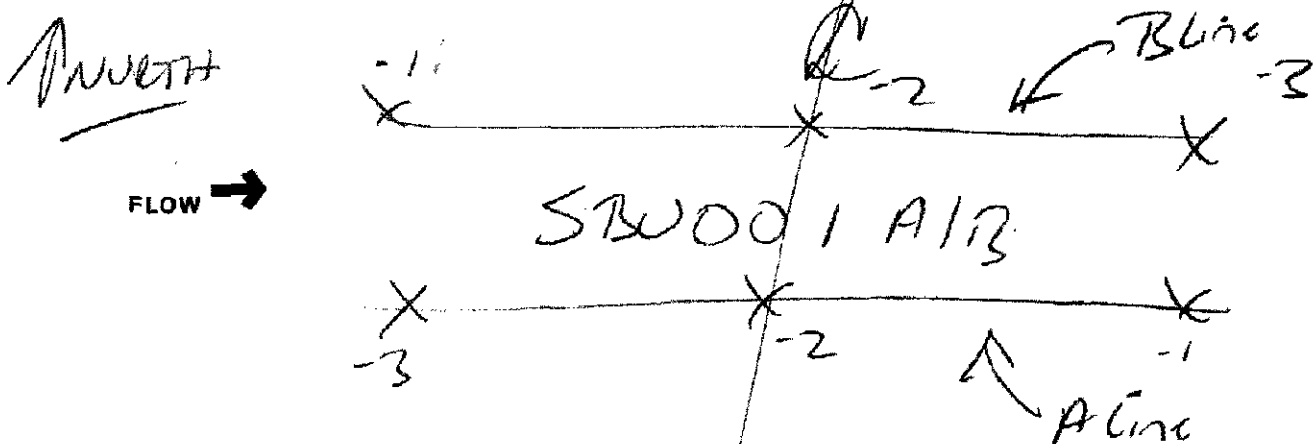
Fish Observed? (Y/N): Y Voucher? (Y/N): Y Salamanders Observed? (Y/N): Y Voucher? (Y/N): Y

Frogs or Tadpoles Observed? (Y/N): Y Voucher? (Y/N): Y Aquatic Macroinvertebrates Observed? (Y/N): Y Voucher? (Y/N): Y

Comments Regarding Biology: OBSERVED GARTER SNAKE in AG FIELD TO NORTH WEST OF CROSSING

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SB0002A/B

10/19/09

WATERBODY CROSSING DATA FORM

PROJECT: HARDIN WOOD FARM DATE: 10/19/09

LOCATION: 30 EAST OF WTS FIELD CREW: DELANNOY / SPARKS

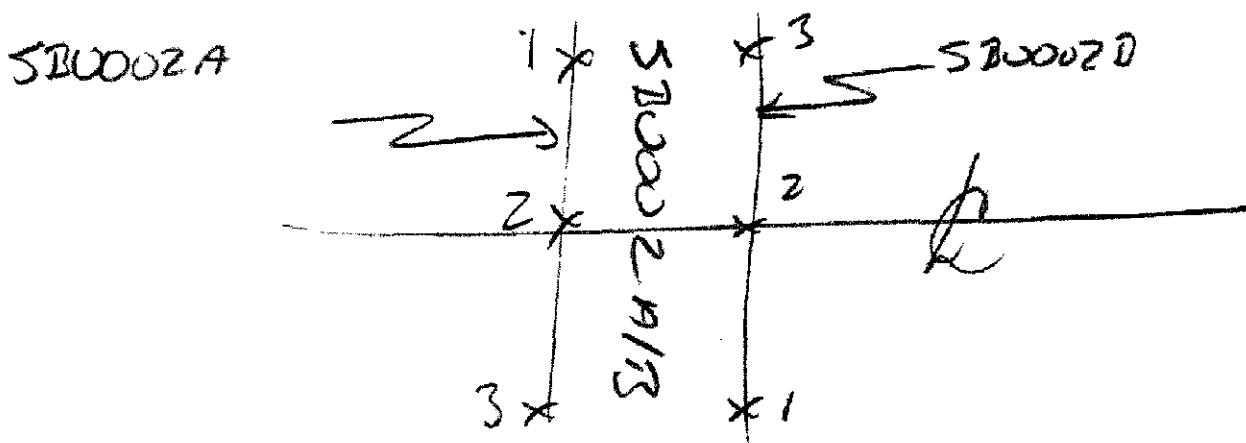
mapped stream

WATERBODY ID	SB0002A/B	
GPS FEATURE TYPE (open/closed)/(line/polygon)	Line A/B 1-3	
PHOTO ID and DIRECTION	Photo 6 $\Rightarrow$ South	
NAME (or tributary to)	UNNAMED Trib to Scioto River	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent	
WIDTH (observed/OHW)	4' / 7'	
DEPTH (observed/OHW)	4" / 3"	
FLOW RATE (dry/stagnant/low/moderate/high)	STAGNANT	
FLOW DIRECTION	South - based on topo	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt	
BANK VEGETATION (upland/wetland cover type)	Early Successional	

SKETCH:

Reeds across from

NORTH
↓



FISH AND WILDLIFE OBSERVATIONS:

NOTES:

- mapped as intermittent

SBU002 A/B

10/19/09



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

29

Stream & Location: UNNAMED TRIBUTARY TO SCOTTS RIVER RM: --- Date: 10/19/09~900' NORTH OF TR100 Scorers Full Name & Affiliation: DELAHAY, SPARKS - TTECRiver Code: --- STORET #: --- Lat./Long.: 40.6919 183.8246Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR /SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☒ HEAVY [-2]	☐ MODERATE [-1]	Substrate 2 Maximum 20
☐ BOULDER [9]	☐ POOL RIFFLE	☐ DETRITUS [3]	☐ POOL RIFFLE	☐ SILT [1]	☐ MODERATE [-1]	☐ NORMAL [0]	
☐ COBBLE [8]	☐ POOL RIFFLE	☐ MUCK [2]	☐ POOL RIFFLE	☐ WETLANDS [0]	☐ MODERATE [-1]	☐ FREE [1]	
☐ GRAVEL [7]	☐ POOL RIFFLE	☒ SILT [2]	☐ POOL RIFFLE	☒ HARDPAN [0]	☐ MODERATE [-1]	☐ EXTENSIVE [-2]	
☐ SAND [6]	☐ POOL RIFFLE	☐ ARTIFICIAL [0]	☐ POOL RIFFLE	☐ SANDSTONE [0]	☐ MODERATE [-1]	☐ NORMAL [0]	
☐ BEDROCK [5]	☐ POOL RIFFLE			☐ RIP/RAP [0]	☐ MODERATE [-1]	☐ NONE [1]	

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments: SLUDGE FROM POINT-SOURCES

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☒ EXTENSIVE > 75% [1]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☒ MODERATE 25-75% [7]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 5% [1]

Comments

HERBACEOUSCover
Maximum
20

8

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [0]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☒ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

GLIDEChannel
Maximum
20

7

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH*		FLOOD PLAIN QUALITY	
☐ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [1]	☐ CONSERVATION TILLAGE [1]		
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB / OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]		
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]		
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]			
	☒ NONE [0]	☒ OPEN PASTURE / ROWCROP [0]			

Comments

* N/A NOT FORESTEDUSDA BUREAU OF LAND MANAGEMENTIndicate predominant land use(s)
past 100m riparian.Riparian
Maximum
10

6

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ONE (Or 2 & average)	Check ALL that apply	Check ONE (Or 2 & average)	Check ONE (Or 2 & average)	
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☐ SLOW [1]	☐ NONE [2]	Pool / Current Maximum 12	
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]	☐ LOW [1]		
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☐ INTERMITTENT [-2]	☐ MODERATE [0]		
☐ 0.2-0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]	☐ EXTENSIVE [-1]		
☒ < 0.2m [0]		Indicate for reach - pools and riffles.				

Comments

LOW GLIDE

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments

NO RIFFLE OR RUN

6) GRADIENT DRAINAGE AREA

(ft/mi)	☐ VERY LOW - LOW [2-4]
(mi ²)	☒ MODERATE [8-10]
	☐ HIGH - VERY HIGH [10-6]

% POOL:

% GLIDE:

Gradient
Maximum
10

% RUN:

% RIFFLE:

10

EPA 4520

08/16/08

GRADIENT: 965 → 960 ⇒ 6,583'5' / 0.25mi = 4' / mi gradientSTREAM WIDTH ~ 7'

ST0002A/B

10/19/09



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

1 (S2)

SITE NAME/LOCATION HARDIN WOOD FARM - 900' DOWNSTREAM TR102
 SITE NUMBER RIVER BASIN Scioto River DRAINAGE AREA (mi²)
 LENGTH OF STREAM REACH (ft) 12,000 LAT 40.6919 LONG 83.8326 RIVER CODE RIVER MILE
 DATE 10/19/09 SCORER BSD/Smj COMMENTS 40' Row Crossing on 2nd Elect

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

UNNAMED Ditch to Scioto River - Ag Ditch

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS [16 pts]	0%	☒ SILT [3 pt]	100%
☐ BOULDER (>256 mm) [16 pts]	0%	☐ LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ BEDROCK [16 pt]	0%	☐ FINE DETRITUS [3 pts]	0%
☐ COBBLE (65-256 mm) [12 pts]	0%	☐ CLAY or HARDPAN [0 pt]	0%
☐ GRAVEL (2-64 mm) [9 pts]	0%	☐ MUCK [0 pts]	0%
☐ SAND (<2 mm) [6 pts]	0%	☐ ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% 0.00% (A)

Substrate Percentage Check 0% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0.6

TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☒ > 30 centimeters [20 pts]	☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS GLIDE

MAXIMUM POOL DEPTH (centimeters): 10.4

Pool Depth Max = 30

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☒ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐ ≤ 1.0 m (<= 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS STRAIGHT AG Ditch

AVERAGE BANKFULL WIDTH (meters): 2.1

Bankfull Width Max=30

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L	R	(Per Bank)
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☐	☐	Narrow <5m
☒	☒	None

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
☐	☐	Mature Forest, Wetland
☒	☒	Immature Forest, Shrub or Old Field
☐	☐	Residential, Park, New Field
☐	☐	Fenced Pasture

L	R	
☐	☐	Conservation Tillage
☐	☐	Urban or Industrial
☒	☒	Open Pasture, Row Crop
☐	☐	Mining or Construction

COMMENTS 50' EARLY SUCCESSIONAL BUSH SINES THEN SOY

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☐ Stream Flowing	☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Intermittent)	☐ Dry channel, no water (Ephemeral)

COMMENTS STAGNANT

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☒ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 m/100 ft) ☐ Flat to Moderate ☐ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (10 m/100 ft)

10/19/09

QHEI PERFORMED? - ☒ Yes ☐ No QHEI Score 25 (If Yes, Attach Completed QHEI Form)

WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWI Name:	Distance from Evaluated Stream

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Wyandot 140003 Township / City: _____

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: Photo 6 - S 300m

Elevated Turbidity? (Y/N): Y/N Canopy (% open): 0% 100% open

Were samples collected for water chemistry? (Y/N): Y/N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: N/A

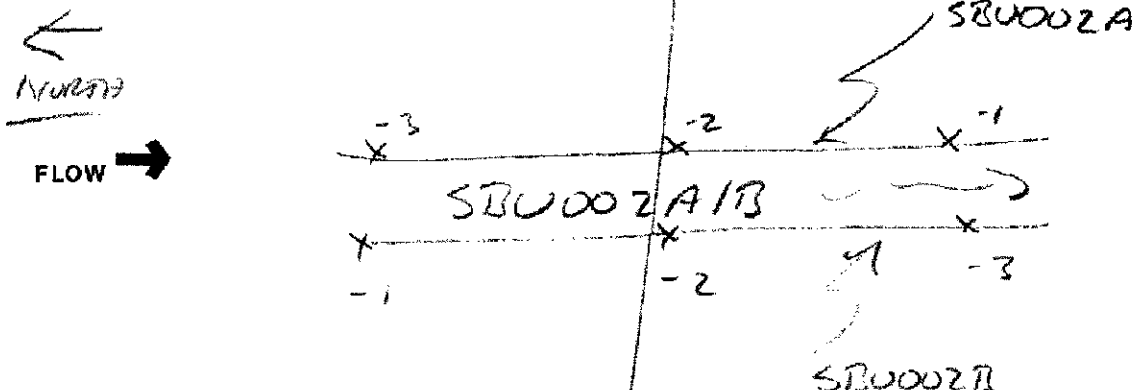
BIOTIC EVALUATION MAY CONTAIN PESTICIDES / HERBICIDES / FERTILIZERS DUE TO PROXIMITY TO ACTIVE AGRICULTURAL FIELDS

Performed? (Y/N): ☒ Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ☒ Y Voucher? (Y/N) ☒ Y Salamanders Observed? (Y/N) ☒ Y Voucher? (Y/N) ☒ Y
 Frogs or Tadpoles Observed? (Y/N) ☒ Y Voucher? (Y/N) ☒ Y Aquatic Macroinvertebrates Observed? (Y/N) ☒ Y Voucher? (Y/N) ☒ Y

Comments Regarding Biology: N/A Wildlife Observed

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SBU003 A/B

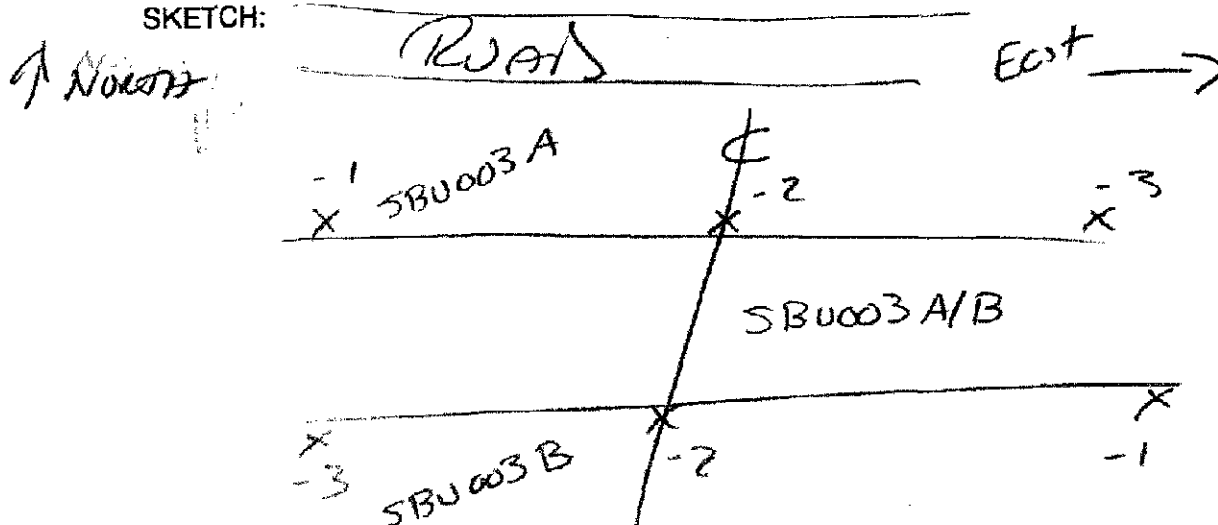
10/19/09

WATERBODY CROSSING DATA FORM

PROJECT: Hardin Wind FarmDATE: 10/19/09LOCATION: Hardin County, OHFIELD CREW: DeMunnig, Sparks

WATERBODY ID	SBU003 A/B		
GPS FEATURE TYPE (open/closed)/(line/polygon)	Line A/B 1-3		
PHOTO ID and DIRECTION	photo 8 $\Rightarrow$ East		
NAME (or tributary to)	9 $\Rightarrow$ AT SUNSTRAND 10 $\Rightarrow$ AT BIVALES		
WATERBODY TYPE (stream/pond/ditch/culvert)	AG/Road ditch		
FLOW REGIME (perennial/intermittent/ephemeral)	Perennial		
WIDTH (observed/OHW)	8' / 10'		
DEPTH (observed/OHW)	6" / 2.5'		
FLOW RATE (dry/stagnant/low/moderate/high)	Low		
FLOW DIRECTION	East		
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	S.I.T.S		
BANK VEGETATION (upland/wetland cover type)	Early Successional		

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

Potential crayfish, minnows, bivalves

NOTES:

Disturbance water milfoil- normal as intermittent



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **33**

Stream & Location: UNNAMED TRIBUTARY to Sand River RM Date: 10/19/09

W 1/2 South of TR100

Scorer's Full Name & Affiliation: DELAHUNTY, SPARKS - TBC

River Code: - STORET #: -

Lat / Long: 40.6893 183.8299

Office verified location ☐

1) SUBSTRATE

Check ONLY Two substrate TYPE BOXES: estimate % or note every type present

BEST TYPES	POOL RIFFLE	OTHER TYPES	POOL RIFFLE
☐ BLDR / SLABS [10]	☐	☐ HARDPAN [4]	☐
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐
☐ COBBLE [8]	☐	☐ MUCK [2]	☐
☐ GRAVEL [7]	☐	☒ SILT [2]	☐
☐ SAND [6]	☐	☐ ARTIFICIAL [0]	☐
☐ BEDROCK [5]	☐		

Check ONE (Or 2 & average)

ORIGIN	QUALITY
☐ LIMESTONE [1]	☐ HEAVY [-2]
☐ TILLS [1]	☒ MODERATE [-1]
☐ WETLANDS [0]	☐ NORMAL [0]
☒ HARDPAN [0]	☐ FREE [1]
☐ SANDSTONE [0]	☐ EXTENSIVE [-2]
☐ RIP/RAP [0]	☐ MODERATE [-1]
☐ LACUSTURINE [0]	☐ NORMAL [0]
☐ SHALE [-1]	☐ NONE [1]
☐ COAL FINES [-2]	

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

GLIDE / SILT OVER CLAY

2) INSTREAM COVER

Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☒ OXBOWS, BACKWATERS [1]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☒ AQUATIC MACROPHYTES [1]
☒ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]
☐ ROOTMATS [1]		

Check ONE (Or 2 & average)

☐ EXTENSIVE >75% [1]
☒ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT <5% [1]

Comments

HERTHEROGENE UEG

3) CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

GLIDE HOBBIT

4) BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]

Comments N-15-20' EALLY SUCCESSIONAL / 12' ROWS / 15' S
S-30' EALLY SUCCESSIONAL / 10' FARM ACRE / 15' S

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☒ SLOW [1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]
☐ 0.2-0.4m [1]		☐ FAST [1]
☒ < 0.2m [0]		☐ MODERATE [1]
		☐ INTERSTITIAL [-1]
		☐ INTERMITTENT [-2]
		☐ EDDIES [1]

Comments

6" DEEP, LOW FLOW, BIVALVES & MINnows

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments

6) GRADIENT

DRAINAGE AREA 18.50' mi² 6 % POOL: 0 % GLIDE: 100 % RUN: 0 % RIFFLE: 0

965' -> 955' = 18.50'
STREAM WIDTH 10'
0.44 mi² = 2.9' / mi² gradient

SRU003A13

10/19/09



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

☒ 32

SITE NAME/LOCATION: Hardin Wind Farm - 15' South of TR100
 SITE NUMBER: RIVER BASIN: Scioto River DRAINAGE AREA (mi²):
 LENGTH OF STREAM REACH (ft): 46,000 LAT: 40.6893 LONG: 83.8299 RIVER CODE: RIVER MILE:
 DATE: 10/19/09 SCORER: RAJ Sm COMMENTS: 40' Road crossing for River Elect

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

unnamed trib to Scioto River - AG / ROAD Ditch

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS [16 pts]	<u>0%</u>	☒ SILT [3 pt]	<u>100%</u>
☐ BOULDER (>256 mm) [16 pts]	<u>0%</u>	☐ LEAF PACK/WOODY DEBRIS [3 pts]	<u>0%</u>
☐ BEDROCK [16 pt]	<u>0%</u>	☐ FINE DETRITUS [3 pts]	<u>0%</u>
☐ COBBLE (65-256 mm) [12 pts]	<u>0%</u>	☐ CLAY or HARDPAN [0 pt]	<u>0%</u>
☐ GRAVEL (2-64 mm) [9 pts]	<u>0%</u>	☐ MUCK [0 pts]	<u>0%</u>
☐ SAND (<2 mm) [6 pts]	<u>0%</u>	☐ ARTIFICIAL [3 pts]	<u>0%</u>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00%

(A)

Substrate Percentages Check 0%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 06

TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40

17

A + B

Pool Depth Max = 30

06

Bankfull Width Max = 30

20

2. Maximum Pool Depth (Measure the maximum pool depth within the 81 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]	☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5 pts]
☒ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: GLIDE

MAXIMUM POOL DEPTH (centimeters): 152

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐ < 1.0 m (< 3' 3") [5 pts]
☒ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS: STRAIGHT AG / ROADSIDE Ditch

AVERAGE BANKFULL WIDTH (meters): 3.0

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L	R	(Per Bank)
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☐	☐	Narrow <5m
☐	☐	None

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
☐	☐	Mature Forest, Wetland
☒	☒	Immature Forest, Shrub or Old Field
☐	☐	Residential, Park, New Field
☐	☐	Fenced Pasture

L	R	
☐	☐	Conservation Tillage
☐	☐	Urban or Industrial
☒	☒	Open Pasture / Row Crop
☐	☐	Mining or Construction

COMMENTS: Early Successional, Road, 32

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

☒ Stream Flowing	☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial)	☐ Dry channel, no water (Ephemeral)

COMMENTS: LOW FLOW

SINUOSITY (Number of bends per 81 m (200 ft) of channel) (Check ONLY one box):

☒ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

To South Row Crops near

10/19/09

QHEI PERFORMED? - ☒ Yes ☐ No QHEI Score 29 (If Yes, Attach Completed QHEI Form)

☐	WWH Name:		Distance from Evaluated Stream
☐	CWH Name:		Distance from Evaluated Stream
☐	EWH Name:		Distance from Evaluated Stream

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Wyandot Hardin Township / City: _____

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: Photo 8 ⇒ EAST

Elevated Turbidity? (Y/N): YN Canopy (% open): 0% 100%

Were samples collected for water chemistry? (Y/N): YN (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N): Y If not, please explain: N/A

Additional comments/description of pollution impacts: Drain next to road and agricultural

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ☒ Voucher? (Y/N) ☒ Salamanders Observed? (Y/N) ☒ Voucher? (Y/N) ☒
Frogs or Tadpoles Observed? (Y/N) ☒ Voucher? (Y/N) ☒ Aquatic Macroinvertebrates Observed? (Y/N) ☒ Voucher? (Y/N) ☒

Comments Regarding Biology:

MEADOWS & RIVULES & AQUATIC PLANTS

LEMMA: ALGAE

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW 
East

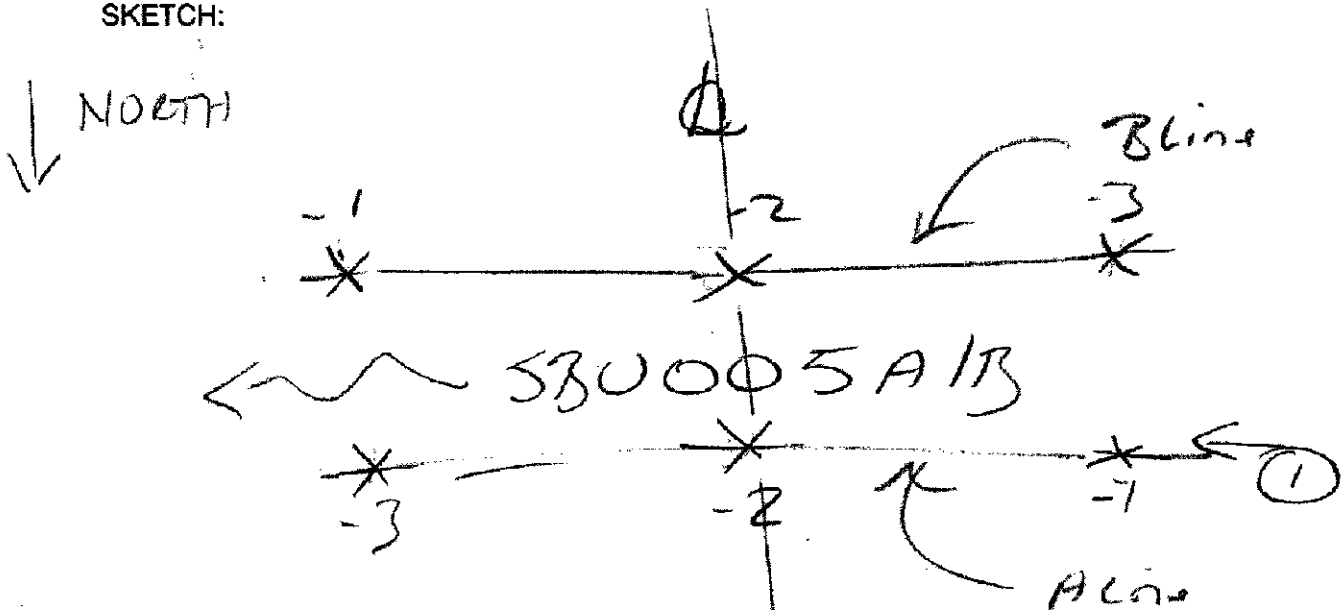
COLLECTS
BRYANNE SNELL

WATERBODY CROSSING DATA FORM

PROJECT: HAWIN (WIND) FARM DATE: 10/20/09
 LOCATION: N of WTS 40 FIELD CREW: STJ, SMS
OB TR100

WATERBODY ID	<u>SB0005A1B</u>
GPS FEATURE TYPE (open/closed)(line/polygon)	<u>Line (1-3)</u>
PHOTO ID and DIRECTION	<u>1 → EAST</u>
NAME (or tributary to)	<u>UNNAMED TRAIL to SCOTTS RIVER</u>
WATERBODY TYPE (stream/pond/ditch/culvert)	<u>AG/ROSSING DITCH</u>
FLOW REGIME (perennial/intermittent/ephemeral)	<u>PERENNIAL</u>
WIDTH (observed/OHW)	<u>20' / 24'</u>
DEPTH (observed/OHW)	<u>1' + / 4' +</u>
FLOW RATE (dry/stagnant/low/moderate/high)	<u>SLOW (VERY)</u>
FLOW DIRECTION	<u>EAST</u>
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	<u>SILT</u>
BANK VEGETATION (upland/wetland cover type)	<u>DEM FR. ODR E & EARLY SUCCESSIONAL</u>

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

no wildlife visible

NOTES:

WATER VERY TURBID in 1-2" depth visible
mapped as intermittent

STB0005 A13

10/20/09



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

35

Stream & Location: UNNAMED TRAIL TO SCUBA RIVER RM: --- Date: 10/29/09

W15' South of TR100

Scorers Full Name & Affiliation: DELAHAYE/SPARKS - TTECRiver Code: ---STORET #: ---Lat./Long.: 40.6894 183.7950Office verified location ☐

1) SUBSTRATE

Check ONLY two substrate TYPE BOXES; estimate % or note every type present

- BEST TYPES**
- ☐ BLDR/SLABS [10] ☐ POOL RIFFLE
- ☐ BOULDER [9] ☐ OTHER TYPES
- ☐ COBBLE [8] ☐ HARDPAN [4] ☐ POOL RIFFLE
- ☐ GRAVEL [7] ☐ DETRITUS [3] ☐ LIMESTONE [1]
- ☐ SAND [6] ☐ MUCK [2] ☐ TILLS [1]
- ☐ BEDROCK [5] ☐ SILT [2] ☐ WETLANDS [0]
- ☐ ARTIFICIAL [0] ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

NUMBER OF BEST TYPES: ☒ 4 or more [2]☒ 3 or less [0]

Comments

Check ONE (Or 2 & average)

ORIGIN

QUALITY

- ☒ SILT
- ☒ EMBEDDEDNESS
- ☒ HEAVY [-2]
- ☒ MODERATE [-1]
- ☒ NORMAL [0]
- ☒ FREE [1]
- ☒ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☒ NORMAL [0]
- ☒ NONE [1]

Substrate
Maximum
20
3

2) INSTREAM COVER

Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

UNDERCUT BANKS [1]

OVERHANGING VEGETATION [1]

SHALLOWS (IN SLOW WATER) [1]

ROOTMATS [1]

POOLS > 70cm [2]

ROOTWADS [1]

BOULDERS [1]

OXBOWS, BACKWATERS [1]

AQUATIC MACROPHYTES [1]

LOGS OR WOODY DEBRIS [1]

AMOUNT

Check ONE (Or 2 & average)

☐ EXTENSIVE >75% [11]☒ MODERATE 25-75% [7]☐ SPARSE 5-25% [3]☐ NEARLY ABSENT <5% [1]Cover
Maximum
20
8

Comments

3) CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY

DEVELOPMENT

CHANNELIZATION

STABILITY

- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☐ LOW [2]
- ☒ NONE [1]

- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

- ☐ NONE [5]
- ☐ RECOVERED [4]
- ☒ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Comments

Channel
Maximum
20
7

4) BANK EROSION AND RIPARIAN ZONE

River right looking downstream

EROSION

- ☒ NONE / LITTLE [3]
- ☐ MODERATE [2]
- ☐ HEAVY / SEVERE [1]

- ☐ WIDE > 80m [4]
- ☐ MODERATE 10-50m [3]
- ☐ NARROW 5-10m [2]
- ☐ VERY NARROW < 5m [1]
- ☒ NONE [0]

FLOOD PLAIN QUALITY

- ☐ FOREST, SWAMP [3]
- ☒ SHRUB OR OLD FIELD [2]
- ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- ☐ FENCED PASTURE [1]
- ☒ OPEN PASTURE, ROWCROP [0]

- ☐ CONSERVATION TILLAGE [1]
- ☐ URBAN OR INDUSTRIAL [0]
- ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian
Maximum
10
7

Comments

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check ONE (ONLY)

- ☐ > 1m [5]
- ☐ 0.7-1m [4]
- ☐ 0.4-0.7m [2]
- ☒ 0.2-0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

- ☐ TORRENTIAL [-1]
- ☒ SLOW [1]
- ☐ VERY FAST [1]
- ☐ INTERSTITIAL [-1]
- ☐ FAST [1]
- ☐ INTERMITTENT [-2]
- ☐ MODERATE [1]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential

Primary Contact

Secondary Contact

(circle one and comment on back)

Pool /
Current
Maximum
12
2

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

RIFFLE DEPTH

- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH

- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE

- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS

- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle /
Run
Maximum
8
0

Comments

6) GRADIENT

DRAINAGE AREA

- ☐ VERY LOW - LOW [2-4]
- ☒ MODERATE [5-10]
- ☐ HIGH - VERY HIGH [10-50]

% POOL: 0% GLIDE: 100% RUN: 0% RIFFLE: 0Gradient
Maximum
10
8

EPA 4520

965 -> 955 = 10' / 3.44 mi = 2.9 / mi gradient

06/16/08

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L. LINE ☐ NORMAL ☐
- ☒ OTHER ☒ LOW ☐
- ☐ DRY ☐

DISTANCE

- ☐ 0.5 Km ☐
- ☐ 0.2 Km ☐
- ☐ 0.15 Km ☐
- ☐ 0.12 Km ☐
- ☒ OTHER ☐

CLARITY

- 1st sample pass-- 2nd
- ☒ < 20 cm ☐
- ☐ 20-40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

- ☒ > 85% - OPEN ☐
- ☐ 55%-85% ☐
- ☐ 30%-55% ☐
- ☐ 10%-30% ☐
- ☐ < 10% - CLOSED ☐

CJ RECREATION

POOL: ☐ > 100 M ☐ > 3ft

BJAESTHETICS

- ☐ NUISANCE ALGAE ☐
- ☐ INVASIVE MACROPHYTES ☐
- ☒ EXCESS TURBIDITY ☐
- ☐ DISCOLORATION ☐
- ☐ FOAM / SCUM ☐
- ☐ OIL SHEEN ☐
- ☐ TRASH / LITTER ☐
- ☐ NUISANCE ODOR ☐
- ☐ SLUDGE DEPOSITS ☐
- ☐ CSO / SSO / OUTFALLS ☐

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE (BOTH) / NA ☐
- ☐ ACTIVE / HISTORIC (BOTH) / NA ☐
- ☐ YOUNG-SUCCESSION-OLD ☐
- ☐ SPRAY / SNAG / REMOVED ☐
- ☐ MODIFIED / DIPPED OUT / NA ☐
- ☐ LEVEED / ONE SIDED ☐
- ☐ RELOCATED / CUTOFFS ☐
- ☐ MOVING-BEDLOAD-STABLE ☐
- ☐ ARMoured / SLUMPS ☐
- ☐ ISLANDS / SCoured ☐
- ☐ IMPOUNDED / DESICATED ☐
- ☐ FLOOD CONTROL / DRAINAGE ☐

Circle some & COMMENT

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY ☐
- HARDENED / URBAN / DIRT & GRIME ☐
- CONTAMINATED / LANDFILL ☐
- BMPs-CONSTRUCTION-SEDIMENT ☐
- LOGGING / IRRIGATION / COOLING ☐
- BANK EROSION / SURFACE ☐
- FALSE BANK / MANURE / LAGOON ☐
- WASH H₂O / TILE / H₂O TABLE ☐
- ACID / MINE / QUARRY / FLOW ☐
- NATURAL / WETLAND / STAGNANT ☐
- PARK / GOLF / LAWN / HOME ☐
- ATMOSPHERE / DATA PAUCITY ☐

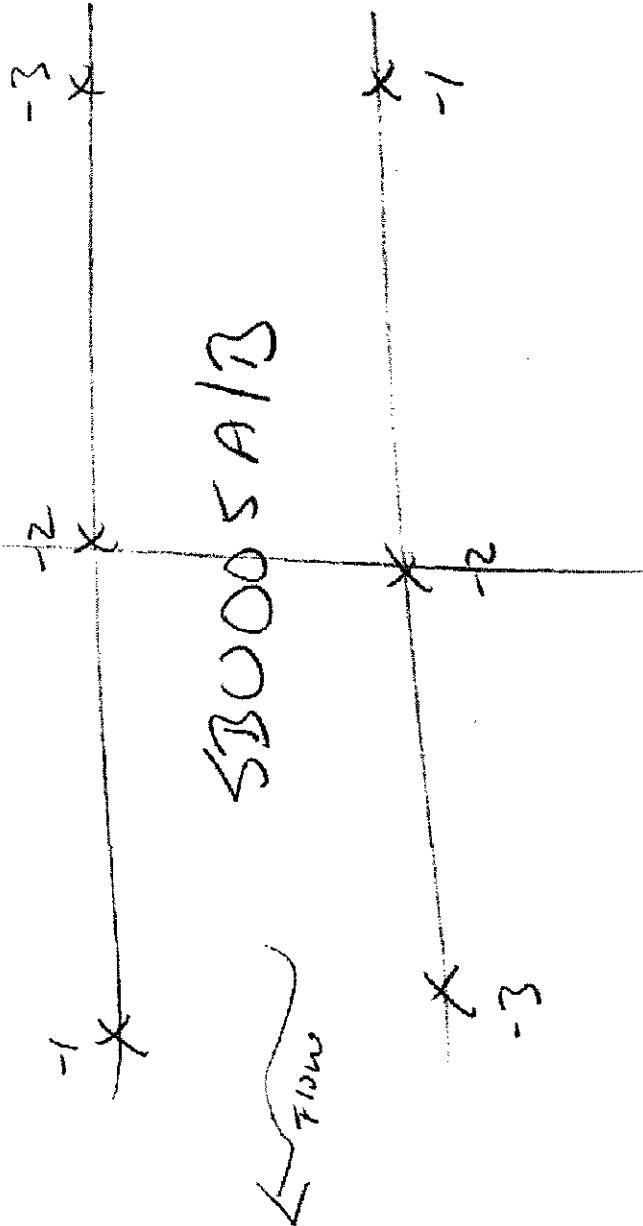
FJ MEASUREMENTS

- $\bar{x}$ width 20' ☐
- $\bar{x}$ depth 1+ ☐
- max. depth -- ☐
- $\bar{x}$ bankfull width 24' ☐
- bankfull $\bar{x}$ depth 44' ☐
- W/D ratio ☐
- bankfull max. depth ☐
- floodprone $\bar{x}$ width ☐
- entrench. ratio ☐
- Legacy Tree: ☐

Stream Drawing:

- WALLER'S Banks
- HEARNE'S U.S.A.

↓ INVERT



5BU005 AIR

10/20/09



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

57

SITE NAME/LOCATION HARDIN WIND FARM
 5BU005 AIR SITE NUMBER RIVER BASIN Scioto River DRAINAGE AREA (mi²)
 LENGTH OF STREAM REACH (ft) 46,000 LAT 40.6894 LONG 83.7950 RIVER CODE RIVER MILE
 DATE 10/20/09 SCORER DAI SMS COMMENTS 40' ROW crossing over Buried CULVERT

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

unnamed trib to Scioto River - AG-1 ROAD Ditch

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS [16 pts]	<u>0%</u>	☒ SILT [3 pt]	<u>100%</u>
☐ BOULDER (>256 mm) [16 pts]	<u>0%</u>	☐ LEAF PACK/WOODY DEBRIS [3 pts]	<u>0%</u>
☐ BEDROCK [16 pt]	<u>0%</u>	☐ FINE DETRITUS [3 pts]	<u>0%</u>
☐ COBBLE (65-256 mm) [12 pts]	<u>0%</u>	☐ CLAY or HARDPAN [0 pt]	<u>0%</u>
☐ GRAVEL (2-64 mm) [9 pts]	<u>0%</u>	☐ MUCK [0 pts]	<u>0%</u>
☐ SAND (<2 mm) [6 pts]	<u>0%</u>	☐ ARTIFICIAL [3 pts]	<u>0%</u>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00%

(A) Substrate Parameter Check 0%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 06

TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40

17

A + B

Pool Depth Max = 30

20

Bankfull Width Max=30

30

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

- ☒ > 30 centimeters [20 pts] 112'
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS MAXIMUM POOL DEPTH (centimeters): 30

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

- ☒ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ < 1.0 m (<= 3' 3") [5 pts]

COMMENTS 112' AVERAGE BANKFULL WIDTH (meters): 7.3

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☒	☒	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☒	☒	Open Pasture, Row Crop
☒	☒	None	☐	☐	Fenced Pasture	☒	☒	Mining or Construction

COMMENTS 110' from top of bank - early succession

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

- ☒ Stream Flowing VEG
☐ Subsurface flow with isolated pools (Intermittent)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS LOW FLOW TO EAST

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☒ None 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

- ☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

TO South
Road to
NORTH

SBU005 A1B

10/20/09

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☒ Yes ☐ No QHEI Score 21 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name:		Distance from Evaluated Stream	
☐ CWH Name:		Distance from Evaluated Stream	
☐ EWH Name:		Distance from Evaluated Stream	

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

 USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:
 County: Wyandot HARDIN Township / City:

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: Quantity: 0.00Photograph Information: Photo 1 = EASTElevated Turbidity? (Y/N): Y Canopy (% open): 0% 100% OPEN - HERBACEOUSWere samples collected for water chemistry? (Y/N): YN (Note lab sample no. or id. and attach results) Lab Number: N/AField Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/AIs the sampling reach representative of the stream (Y/N): Y If not, please explain: N/A

Additional comments/description of pollution impacts:

ADJACENT TO AG FIELDS & TOWN ROAD

BIOTIC EVALUATION

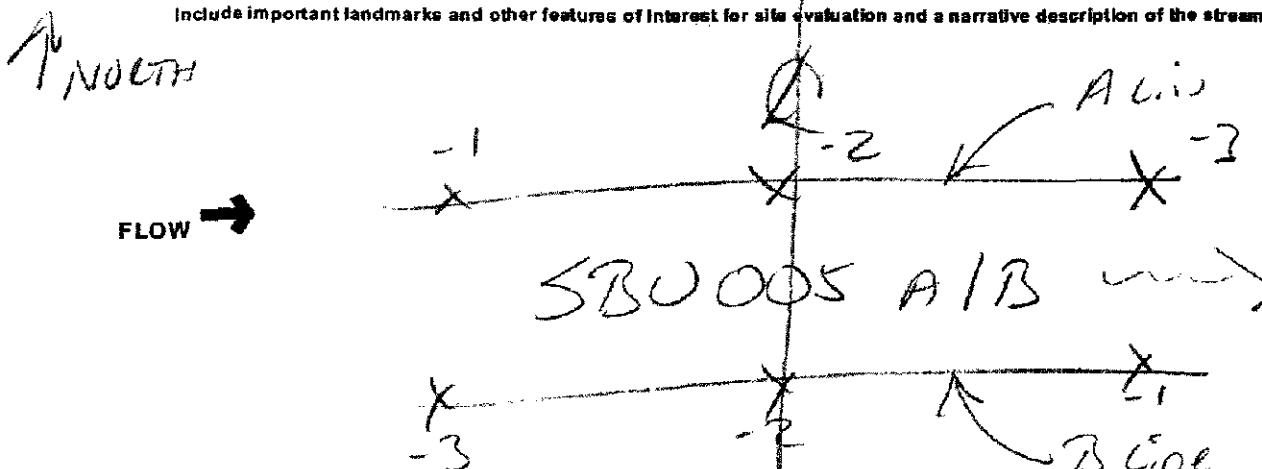
POTENTIAL PEST/HERBIVOREPerformed? (Y/N): Y (If Yes, Record all observations. Voucher collection optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
 Fish Observed? (Y/N): YN Voucher? (Y/N): YN Salamanders Observed? (Y/N): YN Voucher? (Y/N): YN
 Frogs or Tadpoles Observed? (Y/N): YN Voucher? (Y/N): YN Aquatic Macroinvertebrates Observed? (Y/N): YN Voucher? (Y/N): YN

Comments Regarding Biology:

VERY TURBID

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SRU006A1B

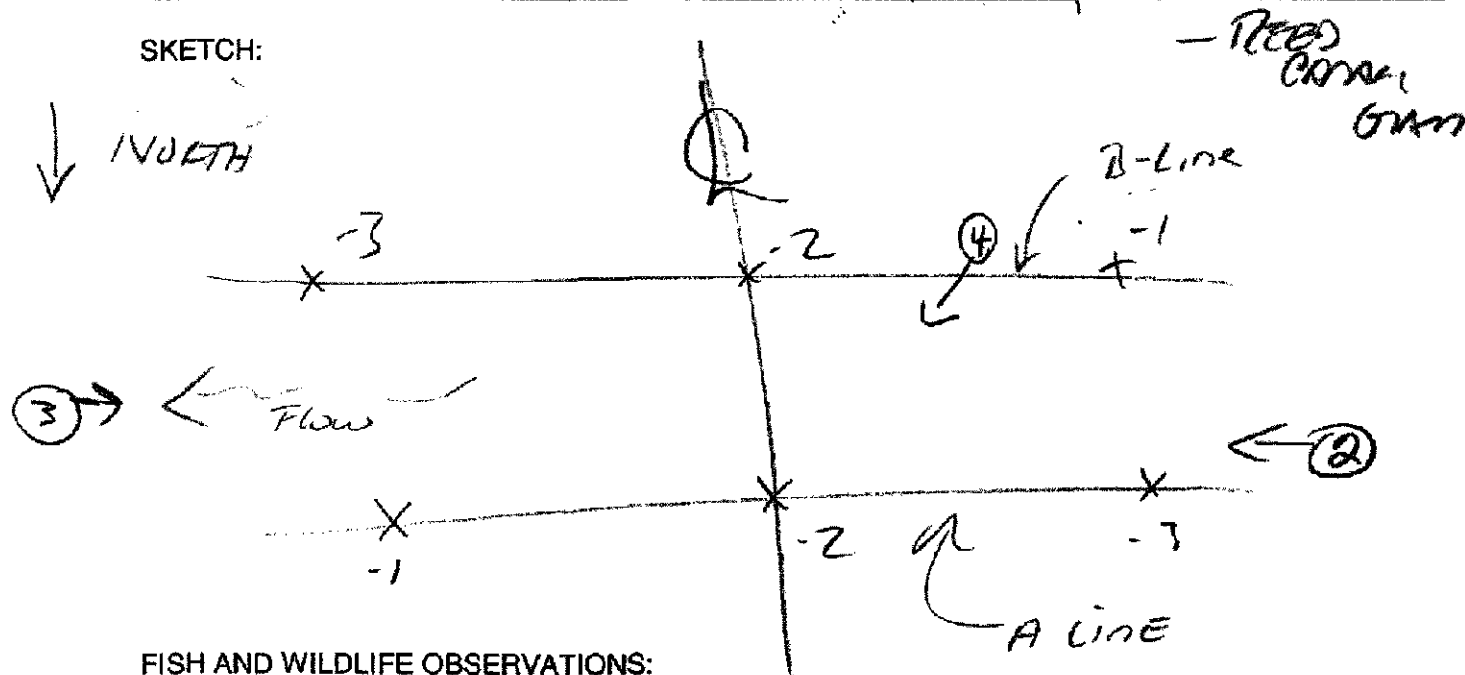
10/20/09

WATERBODY CROSSING DATA FORM

PROJECT: Hardin Wild Farm DATE: 10/20/09
 LOCATION: Blue Turbines FIELD CREW: RJD, SMS
WTR 44 & 45

WATERBODY ID	SRU006A1B
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)
PHOTO ID and DIRECTION	Photo 2 → EAST 3 → WEST 4 → NORTH EAST
NAME (or tributary to)	Trib 6 Scrub River
WATERBODY TYPE (stream/pond/ditch/culvert)	AG / Roadside ditch
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent
WIDTH (observed/OHW)	5' / 8'
DEPTH (observed/OHW)	14' / 3+'
FLOW RATE (dry/stagnant/low/moderate/high)	LOW (LEMNA)
FLOW DIRECTION	EAST (changes on slight turn & bent veg)
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt
BANK VEGETATION (upland/wetland cover type)	Perm Fringing / Early Successional

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

NONE OBSERVED

NOTES:

- LEMNA
- Small stand of phragmites to North of crossing
- Old wood bridge to South

S10006 AIRB

10/20/09

OhioEPA

Qualitative Habitat Evaluation Index
and Use Assessment Field SheetQHEI Score: **31**Stream & Location: unnamed Snicks Run Trib RM: --- Date: 10/20/09

u10'south of CR110

Scorer's Full Name & Affiliation: DELOACH, J. SPARKS - TTECRiver Code: --- STORET #: --- Lat/Long: 40.6746 183.7944 Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
	POOL RIFFLE		POOL RIFFLE				
☐ BLDR / SLABS [10]	☐	☐ HARDPAN [4]	☐	☐ LIMESTONE [1]	☐	☐ HEAVY [-2]	Substrate 3 Maximum 20
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐	☐ TILLS [1]	☐	☒ MODERATE [-1]	
☐ COBBLE [8]	☐	☐ MUCK [2]	☐	☐ WETLANDS [0]	☐	☐ NORMAL [0]	
☐ GRAVEL [7]	☐	☒ SILT [2]	☐	☐ HARDPAN [0]	☐	☐ FREE [1]	
☐ SAND [6]	☐	☐ ARTIFICIAL [0]	☐	☐ SANDSTONE [0]	☐	☐ EXTENSIVE [-2]	
☐ BEDROCK [5]	☐			☐ RIP/RAP [0]	☐	☐ MODERATE [-1]	
(Score natural substrates; ignore sludge from point-sources)				☐ LACUSTURINE [0]	☐	☐ NORMAL [0]	
NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]				☐ SHALE [-1]	☐	☐ NONE [1]	
Comments				☐ COAL FINES [-2]			

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☒ EXTENSIVE > 75% [1]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☒ MODERATE 25-75% [7]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 5% [1]
Comments			Cover Maximum 20 8

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	
Comments			Channel Maximum 20 7

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [1]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 6-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]
Comments		Indicate predominant land use(s) past 100m riparian. Riparian Maximum 10 7

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY):	Check ONE (Or 2 & average):	Check ALL that apply:	Primary Contact
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1] ☒ SLOW [1]	Secondary Contact
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1] ☐ INTERSTITIAL [-1]	(circle one and comment on back)
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1] ☐ INTERMITTENT [-2]	
☒ 0.2-0.4m [1]		☐ MODERATE [1] ☐ EDDIES [1]	
☐ < 0.2m [0]		Indicate for reach - pools and riffles.	Pool / Current Maximum 12 2
Comments			

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
Comments			Riffle / Run Maximum 8 0

6) GRADIENT

DRAINAGE AREA

2.5 ft/mi)	☒ VERY LOW - LOW [2-4]	% POOL: 0	% GLIDE: 100%	Gradient Maximum 10 4
8' mi ²)	☐ MODERATE [6-10]	% RUN: 0	% RIFFLE: 0	

EPA 4520

08/18/06

960' → 955' → 10,420' → 5/1.97 mi → 2.54 %/mi gradient

width in 8'

AJ SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
☐ WADE
☐ L. LINE
☒ OTHER
 DISTANCE ☒ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☒ OTHER
 CLARITY ☒ 1st sample pass
☐ 2nd sample pass
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/CTB
☐ SECCHI DEPTH
 CANOPY ☒ > 85% OPEN
☐ 55%-85%
☐ 30%-55%
☐ 10%-30%
☐ < 10% - CLOSED

STAGE

- ☐ HIGH
☐ UP
☒ NORMAL
☐ FLOW
☐ DRY
 DISTANCE ☒ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☒ OTHER
 CLARITY ☒ 1st sample pass
☐ 2nd sample pass
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/CTB
☐ SECCHI DEPTH
 CANOPY ☒ > 85% OPEN
☐ 55%-85%
☐ 30%-55%
☐ 10%-30%
☐ < 10% - CLOSED

CL RECREATION

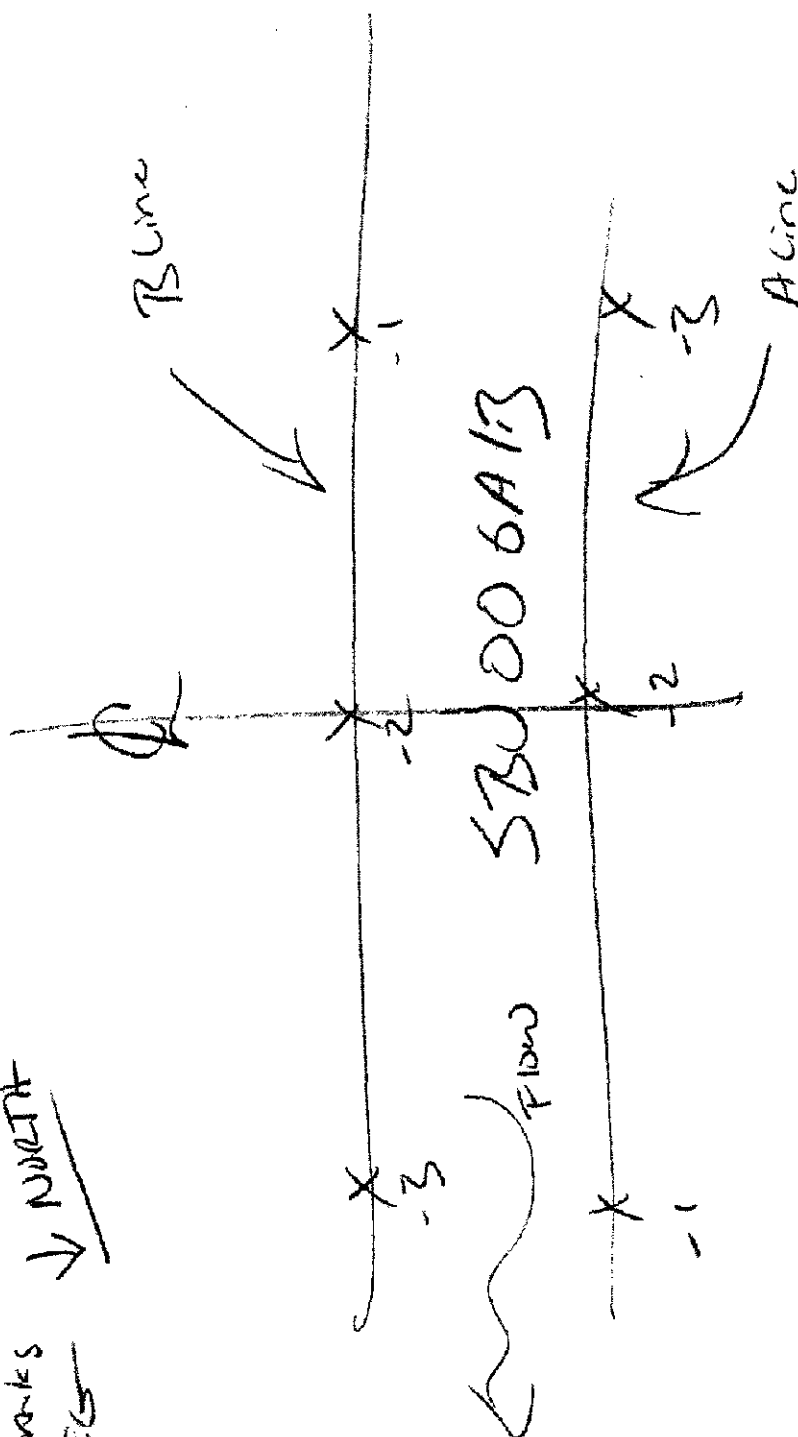
- ☐ POOL: ☐ > 100m² ☐ > 3ft
☐ POOL: ☐ > 100m² ☐ > 3ft

Stream Drawing:

SURVEYED FROM BANKS
 MEANWATER VEG
 Slight L. Robin
 LEMNA

Comment RE: Reach consistency/ Is reach typical of stream? , Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

DJ MAINTENANCE	EJ ISSUES	FJ MEASUREMENTS
PUBLIC / PRIVATE (BOTH) NA ACTIVE / HISTORIC (BOTH) NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMoured / SLUMPS ISLANDS / SCoured IMPOUND / DESICCATED FLOOD CONTROL / DRAINAGE	WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT / CRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H ₂ O / TILE / H ₂ O TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	x width 5' x depth 14' max. depth 8' x bankfull width 34' bankfull x depth 34' W/D ratio bankfull max. depth floodprone x width entrench. ratio Legacy Tree:



530006A13

10/20/09



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

47

SITE NAME/LOCATION HARDIN WIND FARM - 10' South of CR 110

SITE NUMBER

RIVER BASIN Scioto RiverDRAINAGE AREA (mi²)LENGTH OF STREAM REACH (ft) 40' LAT. 40.6746 LONG. 83.7944 RIVER CODE 10 RIVER MILE 10DATE 10/20/09 SCORER RTS, Sms COMMENTS 40' Reach crossing for Banded Electric Line

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERYAG / Roadside Ditch - Tributary Scioto River

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS [16 pts]	<u>0%</u>	☒ SILT [3 pt]	<u>100%</u>
☐ BOULDER (>256 mm) [16 pts]	<u>0%</u>	☐ LEAF PACK/WOODY DEBRIS [3 pts]	<u>0%</u>
☐ BEDROCK [16 pt]	<u>0%</u>	☐ FINE DETRITUS [3 pts]	<u>0%</u>
☐ COBBLE (65-256 mm) [12 pts]	<u>0%</u>	☐ CLAY or HARDPAN [0 pt]	<u>0%</u>
☐ GRAVEL (2-64 mm) [9 pts]	<u>0%</u>	☐ MUCK [0 pts]	<u>0%</u>
☐ SAND (<2 mm) [6 pts]	<u>0%</u>	☐ ARTIFICIAL [3 pts]	<u>0%</u>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00%

(A)

Substrate Percentage Check 0%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40

17

A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

- ☒ > 30 centimeters [20 pts] 12' +
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): 30

Pool Depth Max = 30

0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

- ☒ > 4.0 meters (> 13') [30 pts] 8'
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [26 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS

AVERAGE BANKFULL WIDTH (meters): 2.4

Bankfull Width Max = 30

0

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

- L R (Per Bank)
- ☐ Wide >10m
- ☐ Moderate 5-10m
- ☐ Narrow <5m
- ☒ None

- L R (Most Predominant per Bank)
- ☐ Mature Forest, Wetland
- ☒ Immature Forest, Shrub or Old Field
- ☐ Residential, Park, New Field
- ☐ Fenced Pasture

- L R
- ☐ Conservation Tillage
- ☐ Urban or Industrial
- ☒ Open Pasture, Row Crop
- ☐ Mining or Construction

COMMENTS

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (Intermittent)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS Low Flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☒ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

- ☒ Flat (0.5 ft/100 ft)
- ☐ Flat to Moderate
- ☐ Moderate (2 ft/100 ft)
- ☐ Moderate to Severe
- ☐ Severe (10 ft/100 ft)

10/20/23

QHEI PERFORMED? - ☒ Yes ☐ No QHEI Score 29 (If Yes, Attach Completed QHEI Form)

WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream

USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order:
County: Wyandot HARDIN Township / City:

Base Flow Conditions? (Y/N): y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: Photo 2 => EAST

Elevated Turbidity? (Y/N): N/V Canopy (% open): 0% 100% HERBACEOUS

Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp ($^{\circ}\text{C}$): N/A Dissolved Oxygen (mg/l): N/A pH (S.U.): N/A Conductivity ($\mu\text{mhos/cm}$): N/A

Is the sampling reach representative of the stream (Y/N): (y) If not, please explain:

Additional comments/description of pollution impacts: ADDITIONAL TO AIR FIELD NO. 2 & ROAD
HORN PEST / FERT PESTICIDE

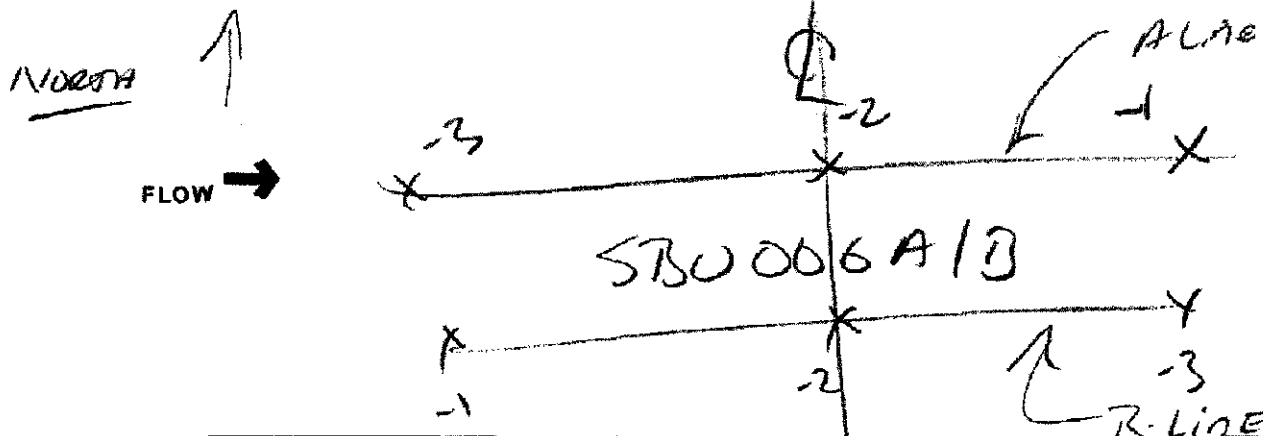
Performed? (Y/N) ☒ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ☒ Voucher? (Y/N) ☒ Salamanders Observed? (Y/N) ☒ Voucher? (Y/N) ☒

Frogs or Tadpoles Observed? (Y/N) ☒ Voucher? (Y/N) ☒ Aquatic Macroinvertebrates Observed? (Y/N) ☒ Voucher? (Y/N) ☒

Comments Regarding Biology: NONE OBSERVED

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

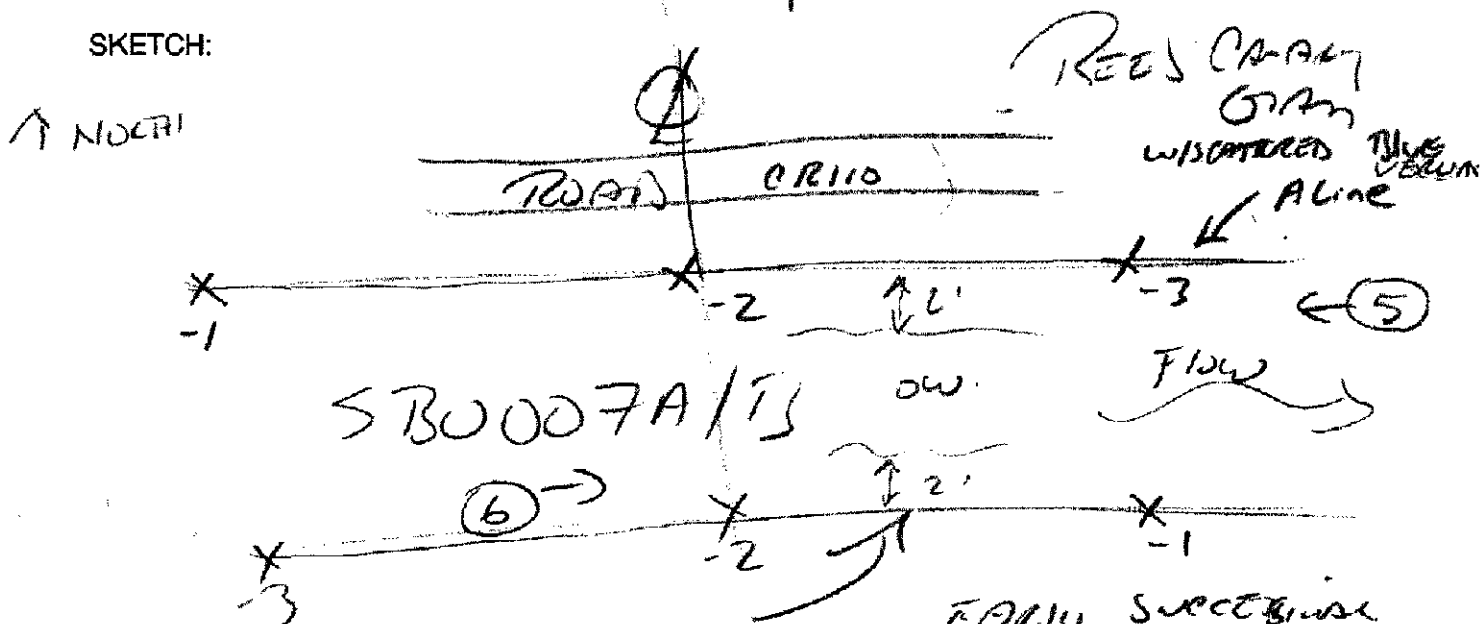


WATERBODY CROSSING DATA FORM

PROJECT: HARDIN WIND FARM DATE: 10/20/09
 LOCATION: South of Rutine 16 FIELD CREW: ARTIS SMS

WATERBODY ID	SB0007A/B	
GPS FEATURE TYPE (open/closed)/(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	Photo 5 ⇒ WEST	
NAME (or tributary to)	Photo 6 ⇒ EAST	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG/Roadside Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent	
WIDTH (observed/OHW)	6' / 10' (FLATLANDS veg, South bank)	
DEPTH (observed/OHW)	1' / 2'	
FLOW RATE (dry/stagnant/low/moderate/high)	Low Flow	
FLOW DIRECTION	EAST	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt	
BANK VEGETATION (upland/wetland cover type)	Pern / Early Successional	

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

3-Line

- EARLY Successional
- Reed canal
 - Emergent sp
 - Fox tail grass
 - Grass sp

NOTES:

MODERATELY TURBID

LG Rocks on northern bank between -2 & -3

-NOT marked

ST80007 A113

10/20/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet**

QHEI Score:

32Stream & Location: Unnamed Scioto TribRM: _____ Date: 10/20/09W 1/2' South of R11DScorers Full Name & Affiliation: DELAHUNTY/SPARKS -TTEC

River Code: _____

STORET #: _____

Lat/Long: 40.6745183, 82.07Office verified location ☐**1) SUBSTRATE** Check ONLY Two substrate TYPE BOXES:
estimate % or note every type present

Check ONE (Or 2 & average)

- BEST TYPES**
- ☐ BLDR/SLABS [10] ☐ POOL ☐ RIFFLE
- ☐ BOULDER [9] ☐ ☐ ☐
- ☐ COBBLE [8] ☐ ☐ ☐
- ☐ GRAVEL [7] ☐ ☐ ☐
- ☐ SAND [6] ☐ ☐ ☐
- ☐ BEDROCK [5] ☐ ☐ ☐

- OTHER TYPES**
- ☐ HARDPAN [4] ☐ POOL ☐ RIFFLE
- ☐ DETRITUS [3] ☐ ☐ ☐
- ☐ MUCK [2] ☐ ☐ ☐
- ☒ SILT [2] ☐ ☐ ☐
- ☐ ARTIFICIAL [0] ☐ ☐ ☐

- ORIGIN**
- ☐ LIMESTONE [1] ☐ ☐ ☐
- ☐ TILLS [1] ☐ ☐ ☐
- ☐ WETLANDS [0] ☐ ☐ ☐
- ☒ HARDPAN [0] ☐ ☐ ☐
- ☐ SANDSTONE [0] ☐ ☐ ☐
- ☐ RIP/RAP [0] ☐ ☐ ☐
- ☐ LACUSTURINE [0] ☐ ☐ ☐
- ☐ SHALE [-1] ☐ ☐ ☐
- ☐ COAL FINES [-2] ☐ ☐ ☐

- QUALITY**
- ☐ HEAVY [-2] ☐ ☐ ☐
- ☒ MODERATE [-1] ☐ ☐ ☐
- ☐ NORMAL [0] ☐ ☐ ☐
- ☐ FREE [1] ☐ ☐ ☐
- ☐ EXTENSIVE [-2] ☐ ☐ ☐
- ☐ MODERATE [-1] ☐ ☐ ☐
- ☐ NORMAL [0] ☐ ☐ ☐
- ☐ NONE [1] ☐ ☐ ☐

Substrate
Maximum
20
3NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.)

AMOUNT

Check ONE (Or 2 & average)

- ☒ UNDERCUT BANKS [1]
- ☒ OVERHANGING VEGETATION [1]
- ☐ SHALLOWS (IN SLOW WATER) [1]
- ☐ ROOTMATS [1]

- ☐ POOLS > 70cm [2]
- ☐ ROOTWADS [1]
- ☐ BOULDERS [1]

- ☐ OXBOWS, BACKWATERS [1]
- ☐ AQUATIC MACROPHYTES [1]
- ☐ LOGS OR WOODY DEBRIS [1]

- ☐ EXTENSIVE >75% [1]
- ☒ MODERATE 25-75% [7]
- ☐ SPARSE 5-25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover
Maximum
20
8**3) CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

- SINUOSITY**
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☐ LOW [2]
- ☒ NONE [1]

- DEVELOPMENT**
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

- CHANNELIZATION**
- ☐ NONE [6]
- ☐ RECOVERED [4]
- ☒ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

- STABILITY**
- ☐ HIGH [3]
- ☐ MODERATE [2]
- ☒ LOW [1]

Comments

Channel
Maximum
20
7**4) BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

RIPARIAN WIDTH

FLOOD PLAIN QUALITY

- ☒ EROSION
- ☒ NONE / LITTLE [3]
- ☐ MODERATE [2]
- ☐ HEAVY / SEVERE [1]

- ☐ WIDE > 50m [4]
- ☐ MODERATE 10-50m [3]
- ☐ NARROW 5-10m [2]
- ☒ VERY NARROW < 5m [1]
- ☒ NONE [0]

- ☐ FOREST, SWAMP [3]
- ☒ SHRUB OR OLD FIELD [2]
- ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- ☐ FENCED PASTURE [1]
- ☒ OPEN PASTURE, ROWCROP [0]

- ☐ CONSERVATION TILLAGE [1]
- ☐ URBAN OR INDUSTRIAL [0]
- ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s)
past 100m riparian.

Comments

Riparian
Maximum
10
8**5) POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY!)

Check ONE (Or 2 & average)

Check ALL that apply

- ☐ > 1m [6]
- ☐ 0.7-1m [4]
- ☐ 0.4-0.7m [2]
- ☒ 0.2-0.4m [1]
- ☐ < 0.2m [0]

- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

- ☐ TORRENTIAL [-1]
- ☒ SLOW [1]
- ☐ VERY FAST [1]
- ☐ INTERSTITIAL [-1]
- ☐ FAST [1]
- ☐ INTERMITTENT [-2]
- ☐ MODERATE [1]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Comments

Pool /
Current
Maximum
12
2

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE (metric=0)

RIFFLE DEPTH

RUN DEPTH

RIFFLE / RUN SUBSTRATE

RIFFLE / RUN EMBEDDEDNESS

- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle /
Run
Maximum
8
0

Comments

6) GRADIENT

DRAINAGE AREA

ft²

VERY LOW - LOW [2-4]

MODERATE [8-10]

HIGH - VERY HIGH [10-6]

% POOL: **0**% GLIDE: **100**% RUN: **0**% RIFFLE: **0**Gradient
Maximum
10
4

EPA 4520

960 → 955 = 10,420'

5 / 1.97 mi = 2.5 % mi gradient

06/16/06

Stream width 12' wide

Stream width 12' wide

AJ SAMPLED REACH

Check ALL that apply

METHOD

- STAGE
- 1st sample pass- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L-LINE ☐ NORMAL ☐
- ☒ OTHER ☒ FLOW ☐
- DISTANCE ☐ DRY ☐

CLARITY

- ☐ 0.5 Km ☐
- ☐ 0.2 Km ☐
- ☐ 0.15 Km ☐
- ☐ 0.12 Km ☐
- ☒ OTHER ☐
- ☒ 1st sample pass- 2nd
- ☒ < 20 cm ☐
- ☐ 20-40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

- ☒ > 85% - OPEN ☐
- ☐ 55%-85% ☐
- ☐ 30%-55% ☐
- ☐ 10%-30% ☐
- ☐ <10% - CLOSED ☐

CJ RECREATION

AREA DEPTH

POOL: ☐ >100m ☐ >3ft

BJAESTHETICS

- ☐ NUISANCE ALGAE ☐
- ☐ INVASIVE MACROPHYTES ☐
- ☒ EXCESS TURBIDITY ☐
- ☒ DISCOLORATION ☐
- ☒ FOAM/SCUM ☐
- ☐ OIL SHEEN ☐
- ☐ TRASH/LITTER ☐
- ☐ NUISANCE ODOR ☐
- ☐ SLUDGE DEPOSITS ☐
- ☐ CSOs/SSOs/OUTFALLS ☐

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG-SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BEDLOAD-STABLE
- ☐ ARMOURD / SLUMPS
- ☐ ISLANDS / SCOURED
- ☐ IMPOUNDED / DESIGNATED
- ☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT/GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- $\bar{x}$ width 6'
- $\bar{x}$ depth 1'
- max. depth 10'
- $\bar{x}$ bankfull width 10'
- bankfull $\bar{x}$ depth 2'
- W/D ratio
- bankfull max. depth
- floodprone $\bar{x}$ width
- entrrench. ratio
- Legacy Tree:

Stream Drawing:

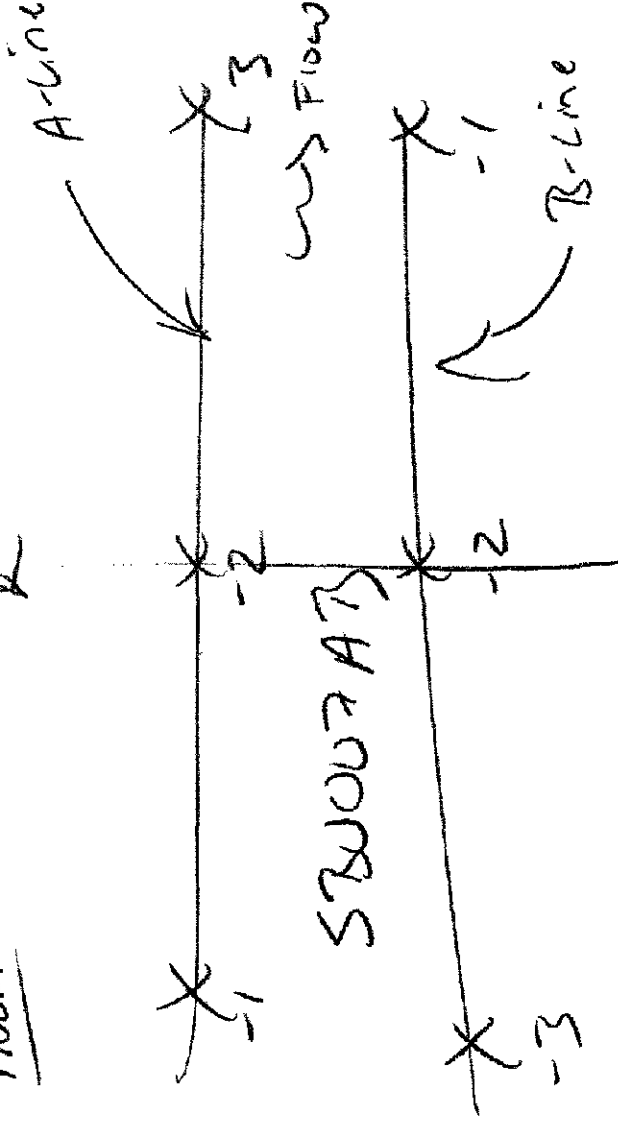
Bank Survey

Moderate Turbidity

HEALTHY VEG

Moderate

ANALYST



SIS0007 AIR

10/20/09



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

47

SITE NAME/LOCATION HALDIN WOOD FARM ~ 12 feet south of ORIO
 SITE NUMBER RIVER BASIN Scioto River DRAINAGE AREA (mi²)
 LENGTH OF STREAM REACH (ft) LAT 40.6748 LONG 83.8257 RIVER CODE RIVER MILE
 DATE 10/20/09 SCORER RTD COMMENTS 47 Pts for Dug Electric Line

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

AG / ROADSIDE DITCH - Scioto River trib

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS [16 pts]	☐ 0%	☒ SILT [3 pt]	☒ 100%
☐ BOULDER (>256 mm) [16 pts]	☐ 0%	☐ LEAF PACK/WOODY DEBRIS [3 pts]	☐ 0%
☐ BEDROCK [16 pt]	☐ 0%	☐ FINE DETRITUS [3 pts]	☐ 0%
☐ COBBLE (65-256 mm) [12 pts]	☐ 0%	☐ CLAY or HARDPAN [0 pt]	☐ 0%
☐ GRAVEL (2-64 mm) [9 pts]	☐ 0%	☐ MUCK [0 pts]	☐ 0%
☐ SAND (<2 mm) [8 pts]	☐ 0%	☐ ARTIFICIAL [3 pts]	☐ 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00%

(A) Substrate Percentage Score 0%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0

TOTAL NUMBER OF SUBSTRATE TYPES: 1

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☒ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] ☐ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS MAXIMUM POOL DEPTH (centimeters): 30

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☒ > 4.0 meters (> 13') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ ≤ 1.0 m (<= 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]

COMMENTS AVERAGE BANKFULL WIDTH (meters): 3.0

HHEI Metric Points

Substrate Max = 40

A + B

Pool Depth Max = 30

Bankfull Width Max = 30

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH

L R (Per Bank)
☐ Wide >10m
☐ Moderate 5-10m
☐ Narrow <5m
☒ None

COMMENTS:

FLOODPLAIN QUALITY

L R (Most Predominant per Bank)
☐ Mature Forest, Wetland
☒ Immature Forest, Shrub or Old Field
☐ Residential, Park, New Field
☐ Fenced Pasture

L R
☐ Conservation Tillage
☐ Urban or Industrial
☒ Open Pasture, Row Crop
☐ Mining or Construction

South
Roads to North

- FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

☒ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)

COMMENTS: Low Flow to East

- SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☒ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

SBU007 A13

10/20/09

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☒ Yes ☐ No QHEI Score 30 (If Yes, Attach Completed QHEI Form)DOWNSTREAM DESIGNATED USE(S) NOT DETERMINED

☐ WWH Name:		Distance from Evaluated Stream	
☐ CWH Name:		Distance from Evaluated Stream	
☐ EWH Name:		Distance from Evaluated Stream	

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order: County: Wyandot HARDIN Township / City:

MISCELLANEOUS

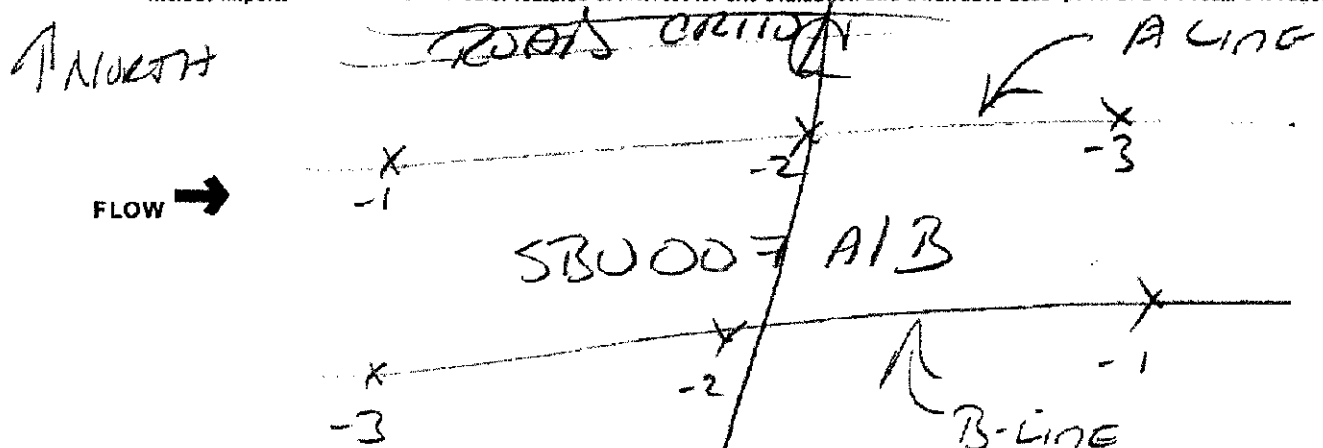
Base Flow Conditions? (Y/N): Y Date of last precipitation: Quantity: 0.00Photograph Information: Photo S = WEST / Photo 6 = EASTElevated Turbidity? (Y/N): Y Canopy (% open): 0% 00% - HERBACEOUSWere samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: 01AField Measures: Temp (°C) 01A Dissolved Oxygen (mg/l) 01A pH (S.U.) 01A Conductivity (µmhos/cm) 01AIs the sampling reach representative of the stream (Y/N): Y If not, please explain: Additional comments/description of pollution impacts: Proximal to Road & ActiveAG Field HERB / PEST / PEST POTENTIAL

BIOTIC EVALUATION

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N): Y Voucher? (Y/N): Y Salamanders Observed? (Y/N): Y Voucher? (Y/N): YFrogs or Tadpoles Observed? (Y/N): Y Voucher? (Y/N): Y Aquatic Macroinvertebrates Observed? (Y/N): Y Voucher? (Y/N): YComments Regarding Biology: NO WILDLIFE OBSERVED

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

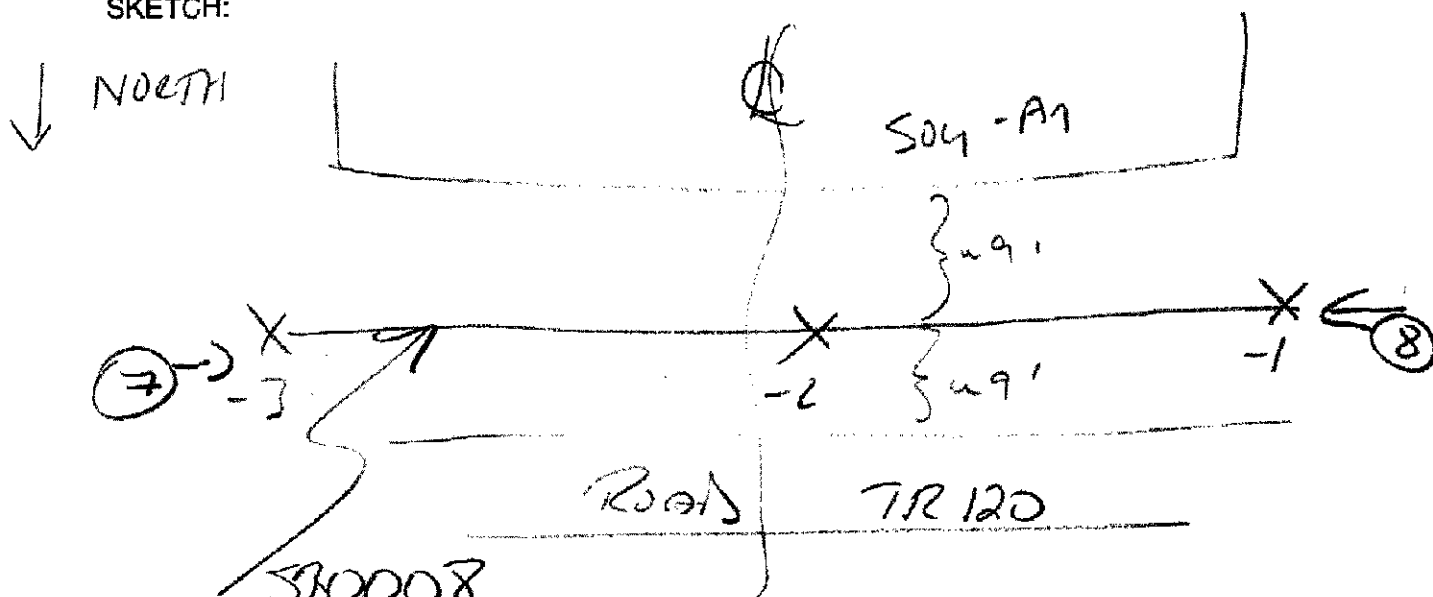


WATERBODY CROSSING DATA FORM

PROJECT: Hanlon Wing Farm DATE: 10/20/09
 LOCATION: N of CRG 25 FIELD CREW: RAS, SMS

WATERBODY ID	380008
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)
PHOTO ID and DIRECTION	7 → WEST 8 → EAST
NAME (or tributary to)	NOT DETERMINED
WATERBODY TYPE (stream/pond/ditch/culvert)	ROADSIDE Ditch
FLOW REGIME (perennial/intermittent/ephemeral)	EPHEMERAL
WIDTH (observed/OHW)	— 12'
DEPTH (observed/OHW)	— 11'
FLOW RATE (dry/stagnant/low/moderate/high)	DRY
FLOW DIRECTION	EAST - BASED ON SLIGHT TPA & BENT VEG
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt w/ PERM VEG
BANK VEGETATION (upland/wetland cover type)	Early Successional

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

NONE OBSERVED

NOTES:

DRY VEGETATED ROADSIDE Ditch

NOT MARKED.

570008

10/20/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet**QHEI Score: **38**Stream & Location: UNNAMED Roadside Ditch RM: --- Date: 10/20/09u10' south of 72120 Scorers Full Name & Affiliation: DELAHUNTY / SPARKS - TTRRiver Code: --- STORET #: --- Lat./Long.: 40.660183, 83.34 Office verified location ☐1) **SUBSTRATE** Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☒ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	Substrate 8 Maximum 20
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐	☐ TILLS [1]	☐	☐ MODERATE [-1]	
☐ COBBLE [8]	☐	☐ MUCK [2]	☐	☐ WETLANDS [0]	☐	☐ NORMAL [0]	
☐ GRAVEL [7]	☐	☐ SILT [2]	☐	☒ HARDPAN [0]	☐	☐ FREE [1]	
☐ SAND [6]	☐	☐ ARTIFICIAL [0]	☐	☐ SANDSTONE [0]	☐	☐ EXTENSIVE [-2]	
☐ BEDROCK [5]	☐		☐	☐ RIP/RAP [0]	☐	☐ MODERATE [-1]	
NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]				Check ONE (Or 2 & average)		☐ NORMAL [0]	
Comments: <u>SILT, CLAY & VEG</u>				☐ SHALE [-1]		☐ NONE [1]	
				☐ COAL FINES [-2]			

2) **INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT	
☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]
☐ ROOTMATS [1]	☐ OXBOWS, BACKWATERS [1]
	☐ AQUATIC MACROPHYTES [1]
	☐ LOGS OR WOODY DEBRIS [1]

Comments: Plum Vegetated Channel3) **CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: main road side drain 3 ways to west4) **BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☐ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☒ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]

Comments: TO South5) **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY):	Check ONE (Or 2 & average):	Check ALL that apply:	Primary Contact
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	Secondary Contact
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ SLOW [1]	(circle one and comment on back)
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]	
☐ 0.2-0.4m [1]		☐ FAST [1]	
☒ < 0.2m [0]		☐ MODERATE [1]	
Comments: <u>DRY line</u>		☐ EDDIES [1]	
		Indicate for reach - pools and riffles.	Pool / Current Maximum 12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
Comments: <u>no Riffle / Run</u>			☐ EXTENSIVE [-1]

6) **GRADIENT** (ft/mi) 17.9 ☐ VERY LOW - LOW [2-4] ☒ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-5]

EPA 4520

08/16/08

975 → 970 = 1480' 5' / 1000 = 17.86' / mi - 47 arc sec

AJ SAMPLED REACH

Check ALL that apply

METHOD

- STAGE
- 1st - sample pass-- 2nd
- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☒ OTHER
- ☐ NORMAL
- ☐ LOW
- ☐ DRY

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☒ OTHER

CLARITY

- 1st - sample pass-- 2nd
- ☐ < 20 cm
- ☐ 20-40 cm
- ☐ 40-70 cm
- ☐ > 70 cm/CTB
- ☐ SECCHI DEPTH

30 meters

CANOPY

- ☒ > 85% - OPEN
- ☐ 55%-85%
- ☐ 30%-55%
- ☐ 10%-30%
- ☐ <10% - CLOSED

CJ RECREATION

POOL: ☐ >100ft ☐ >3ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG-SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BEDLOAD-STABLE
- ☐ ARMOURD / SLUMPS
- ☐ ISLANDS / SCOURD
- ☐ IMPOUNDED / DESICCATED
- ☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRIAL
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- ☐ width
- ☐ depth
- ☐ max. depth
- ☐ bankfull width
- ☐ bankfull x depth
- ☐ W/D ratio
- ☐ bankfull max. depth
- ☐ floodprone x² width
- ☐ entrench. ratio
- Legacy Tree:

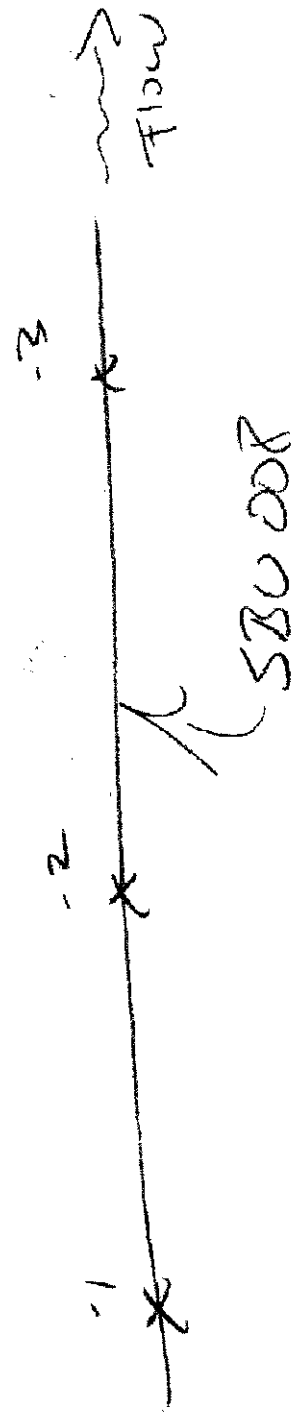
Stream Drawing:

Bank Survey

Heterogeneous veg in channel in banks

↑ NOBERT

Revers

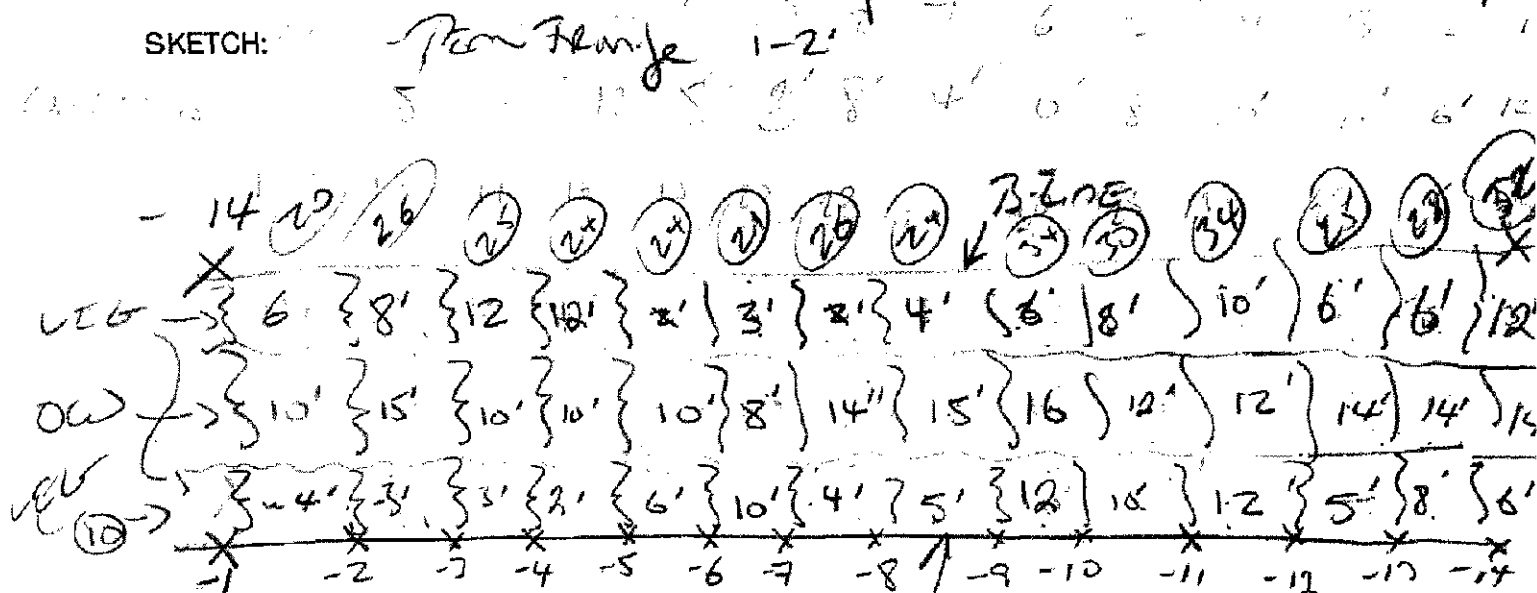


WATERBODY CROSSING DATA FORM

PROJECT: Hardin Wood Farm DATE: 10/20/09
 LOCATION: BU NORTH of 106 FIELD CREW: RTS, SMS
48

WATERBODY ID	530009 A13
GPS FEATURE TYPE (open/closed)/(line/polygon)	Line (1-14)
PHOTO ID and DIRECTION	10 → EAST 11 → SWEST From bridge
NAME (or tributary to)	Scioto River
WATERBODY TYPE (stream/pond/ditch/culvert)	Stream
FLOW REGIME (perennial/intermittent/ephemeral)	Perennial
WIDTH (observed/OHW)	8-15 / 20'-34'
DEPTH (observed/OHW)	1' / 4'
FLOW RATE (dry/stagnant/low/moderate/high)	Low
FLOW DIRECTION	EAST
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt / Sand mix
BANK VEGETATION (upland/wetland cover type)	Dec / Early Successional Some Aquatic veg

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

minnow
toads

NOTES:

Observed Diver at A-5

MAPPED AS PERENNIAL

STUDY AREA

10/20/09

OhioEPA

Qualitative Habitat Evaluation Index
and Use Assessment Field SheetQHEI Score: **45**Stream & Location: SPIND RIVER / 1,300' NE RM: --- Date: 10/20/09OF SR195/TR120 THREAT Scorers Full Name & Affiliation: DELAWARE / SPARKS - TEECRiver Code: --- STORET #: --- Lat./Long.: 40.6623 183.7947 Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES, estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
POOL	RIFFLE	POOL	RIFFLE				
☐ BLDR / SLABS [10]	☐	☐ HARDPAN [4]	☐	☐ LIMESTONE [1]	☐	☐ HEAVY [-2]	Substrate 7 Maximum 20
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐	☐ TILLS [1]	☐	☒ MODERATE [-1]	
☐ COBBLE [8]	☐	☐ MUCK [2]	☐	☐ WETLANDS [0]	☐	☐ NORMAL [0]	
☐ GRAVEL [7]	☐	☒ SILT [2]	☐	☒ HARDPAN [0]	☐	☐ FREE [1]	
☒ SAND [6]	☐	☐ ARTIFICIAL [0]	☐	☐ SANDSTONE [0]	☐	☐ EXTENSIVE [-2]	
☐ BEDROCK [5]	☐			☐ RIP/RAP [0]	☐	☐ MODERATE [-1]	
NUMBER OF BEST TYPES: ☐ 4 or more ☒ 3 or less ☐ 2 or less ☐ 1 or less				☐ LACUSTURINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]		☐ NONE [1]	

Comments: ---

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1] (FEW)	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☒ MODERATE 25-75% [7]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [8]	☐ SPARSE 5-25% [3]
☒ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ NEARLY ABSENT <5% [1]
☐ ROOTMATS [1]			

Comments: HERNANDO

Cover
Maximum
20
10

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [8]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☐ LOW [2]	☒ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: ---

Channel
Maximum
20
9

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY	CONSERVATION TILLAGE [1]
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]	☐ URBAN OR INDUSTRIAL [0] (RWA)
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☐ MINING / CONSTRUCTION [0]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]	
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]	

Comments: ROAD TO NORTH 2 TO SOUTH

Indicate predominant land use(s) past 100m riparian.
Riparian
Maximum
10
7

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY):	Check ONE (Or 2 & average):	Check ALL that apply:
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☒ SLOW [1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]
☒ 0.2-0.4m [1]		☐ FAST [1]
☐ < 0.2m [0]		☐ MODERATE [1]
		☐ EDDIES [1]

Comments: 12'4" = 13048 meters

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)Pool /
Current
Maximum
12
2

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average):

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 6-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: NIO RIFFLE

Riffle /
Run
Maximum
8
0

6) GRADIENT

DRAINAGE AREA

☐ VERY LOW - LOW [2-4]	% POOL: 10	% GLIDE: 90
☒ MODERATE [4-10]	% RUN: 0	% RIFFLE: 0
☐ HIGH - VERY HIGH [10-6]		

Gradient
Maximum
10
10

EPA 4520

06/16/06

STREAM WIDTH 34'

955 -> 950 = 21,200'

5 / 4.0 mile = 1.256 ft/mi Gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ LINE ☐ NORMAL ☐
- ☒ OTHER ☐ LOW ☐
- ☐ DRY ☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☒ OTHER

CLARITY

- 1st sample pass-- 2nd
- ☒ < 20 cm
- ☐ 20-40 cm
- ☐ 40-70 cm
- ☐ > 70 cm/CTB
- ☐ SECCHI DEPTH

CANOPY

- ☒ > 85% OPEN
- ☐ 55%-85%
- ☐ 30%-55%
- ☐ 10%-30%
- ☐ < 10% CLOSED

CJ RECREATION

POOL: ☐ > 100M² ☐ > 3R

BJAESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☒ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM/SCUM
- ☐ OIL SHEEN
- ☐ TRASH/LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BEDLOAD-STABLE
- ☐ ARMOURD / SLUMPS
- ☐ ISLANDS / SCoured
- ☐ IMPOUNDED / DESICCATED
- ☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

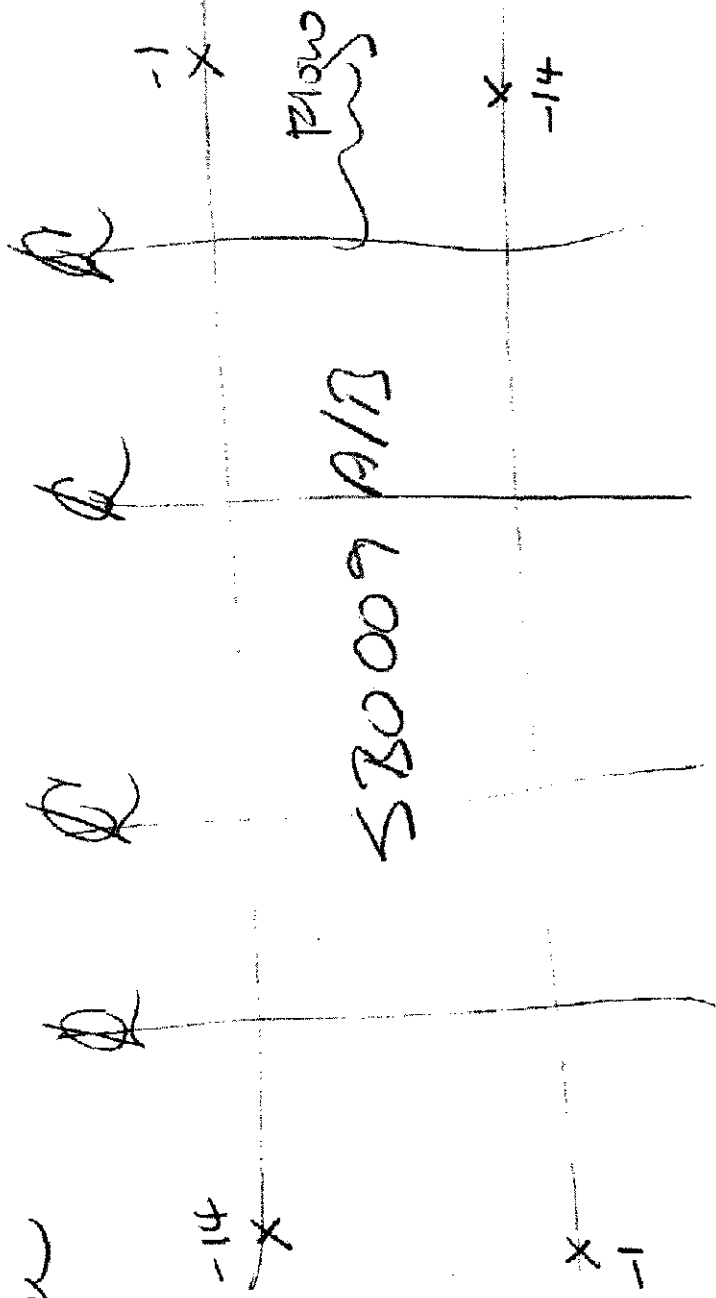
- $\bar{x}$ width 8'-15'
- $\bar{x}$ depth 1'
- max. depth 1'
- $\bar{x}$ bankfull width 14'-30'
- bankfull $\bar{x}$ depth 4'
- W/D ratio
- bankfull max. depth
- floodprone $\bar{x}^2$ width
- entrench. ratio
- Legacy Tree:

Stream Drawing:

Bank Survey

Harbours Cove

1/1/2007



5BU010 A113

10/20/09

WATERBODY CROSSING DATA FORM

PROJECT: HARDIN WIND FARM DATE: 10/20/09

LOCATION: BU BUCKS FLAT FIELD CREW: ANT, SMS
BRANCH AT CR75

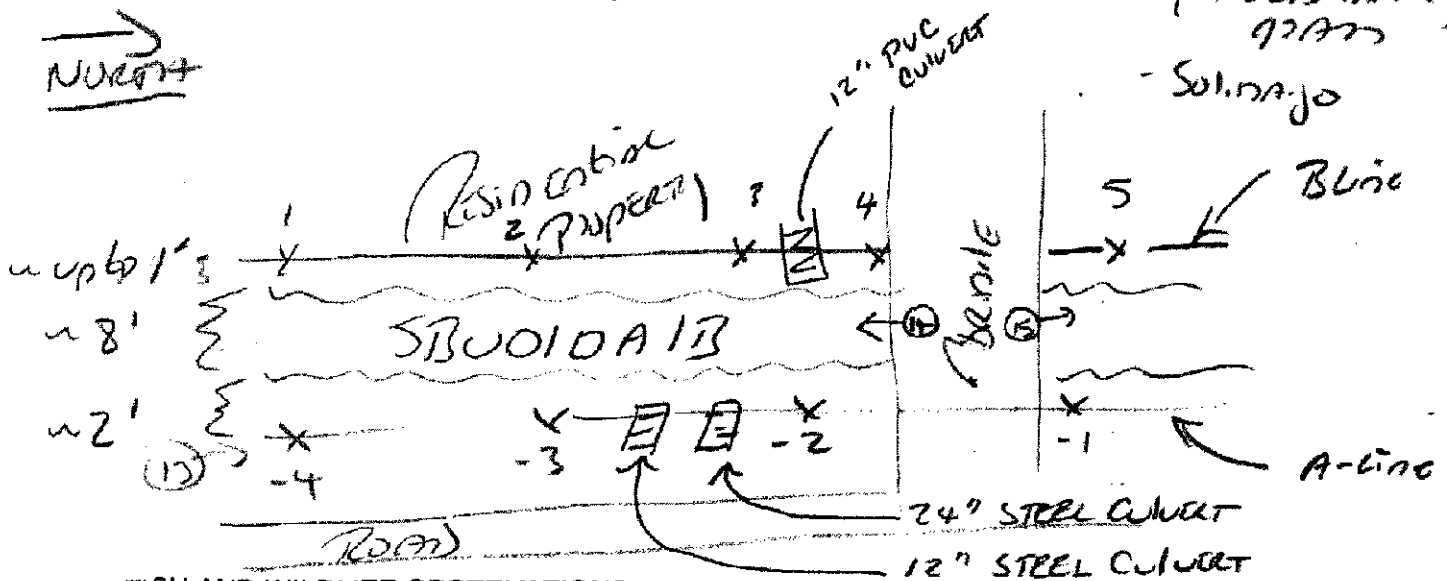
WATERBODY ID	5BU010		
GPS FEATURE TYPE (open/closed)/(line/polygon)	Line (1-4) ? (1-5)		
PHOTO ID and DIRECTION	Photo 15 => NORTH / 14 => South		
NAME (or tributary to)	FLAT BRANCH	15 => NORTH	Branch
WATERBODY TYPE (stream/pond/ditch/culvert)	ROADSIDE Ditch		
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent		
WIDTH (observed/OHW)	8' / 11'		
DEPTH (observed/OHW)	1' + / 3' +		
FLOW RATE (dry/stagnant/low/moderate/high)	STAGNANT		
FLOW DIRECTION	South		
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt / Sand / Boulders		
BANK VEGETATION (upland/wetland cover type)	Pan Fringing w/		

SKETCH:

Early Successional

- (REED) CARRY
927M

- Sol. na-jo



FISH AND WILDLIFE OBSERVATIONS:

LARGE BIVALVE SHELLS UNDER BRIDGE

NOTES:

Litter

STBU 010 #13

10/20/09



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **39**

Stream & Location: FIAT BRANCH

RM: _____ Date: 10/20/09

CR110 & CR 75 INTERSECT

Scorers Full Name & Affiliation: DELAWARE / SPARKS-TRIC

River Code: _____ STORET #: _____

Lat./ Long.: 40.6745183, 77.16

Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES	POOL RIFFLE	OTHER TYPES	POOL RIFFLE	ORIGIN	QUALITY
☐ BLDG/SLABS [10]	☐	☐ HARDPAN [4]	☐	☐ LIMESTONE [1]	☐ HEAVY [-2]
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐	☐ TILLS [1]	☒ MODERATE [-1]
☐ COBBLE [8]	☐	☐ MUCK [2]	☐	☐ WETLANDS [0]	☐ NORMAL [0]
☐ GRAVEL [7]	☐	☒ SILT [2]	☐	☒ HARDPAN [0]	☐ FREE [1]
☐ SAND [6]	☐	☐ ARTIFICIAL [0]	☐	☐ SANDSTONE [0]	☐ EXTENSIVE [-2]
☒ BEDROCK [5]	☐		☐	☐ RIP/RAP [0]	☐ MODERATE [-1]
(Score natural substrates; ignore sludge from point-sources)				☐ LACUSTURINE [0]	☐ NORMAL [0]
				☐ SHALE [-1]	☐ NONE [1]
				☐ COAL FINES [-2]	

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments: Few boulders from bridge construction

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☒ EXTENSIVE > 75% [1]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☒ AQUATIC MACROPHYTES [1]	☒ MODERATE 25-75% [7]
☐ SHALLOWS (IN SLOW WATER) [1]	☒ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 5% [1]

Comments: HERBALEOUS

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [0]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: _____

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY	CONSERVATION TILLAGE
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]	☐ NONE [0]
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☒ URBAN OR INDUSTRIAL [0] (LWN)
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☒ RESIDENTIAL, PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	
	☒ NONE [0]	☐ OPEN PASTURE, ROWCROP [0]	

Comments: _____

WEST / ROAD to EAST

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY)

Check ONE (Or 2 & average)

Check ALL that apply

☐ > 1m [8]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☐ SLOW [1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☒ INTERMITTENT [-2]
☒ 0.2-0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]
☐ < 0.2m [0]		Indicate for reach - pools and riffles.	

Comments: _____

12' x 13 meters

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Pool / Current Maximum 12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: _____

NO RIFFLE

6) GRADIENT

DRAINAGE AREA

f/mi

☐ VERY LOW - LOW [2-4]

% POOL: 0

% GLIDE: 100

Gradient Maximum 10

☒ MODERATE [6-10]

% RUN: 0

% RIFFLE: 0

Maximum 10

☐ HIGH - VERY HIGH [10-6]

EPA 4520

965 > 955 = 6,900'

10'

06/16/08

11' WIDE STRAW

10' / 1.91 mi = 7.63 ft/mi gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- ☐ BOAT
☐ WADE
☐ LINE
☒ OTHER
☐ DISTANCE
☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☐ OTHER
☒ CLARITY
☐ 1st sample pass
☐ 2nd sample pass
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm / CTB
☐ SECCHI DEPTH
☐ meters
☒ CANOPY
☐ > 85% - OPEN
☐ 55% - 85%
☐ 30% - 55%
☐ 10% - 30%
☐ < 10% - CLOSED

CJ RECREATION

AREA DEPTH
 POOL: ☐ > 100ft ☐ > 3ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☒ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☒ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSOs / SSOs / OUTFALLS

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE / BOTH / NA
☐ ACTIVE / HISTORIC / BOTH / NA
☐ YOUNG-SUCCESSION-OLD
☐ SPRAY / SNAG / REMOVED
☐ MODIFIED / DIPPED OUT / NA
☐ LEVEED / ONE SIDED
☐ RELOCATED / CUTOFFS
☐ MOVING-BEDLOAD-STABLE
☐ ARMOURD / SLUMPS
☐ ISLANDS / SCOURED
☐ IMPOUNDED / DESICCATED
☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
 HARDENED / URBAN / DIRT & GRIME
 CONTAMINATED / LANDFILL
 BMPs - CONSTRUCTION-SEDIMENT
 LOGGING / IRRIGATION / COOLING
 BANK EROSION / SURFACE
 FALSE BANK / MANURE / LAGOON
 WASH H₂O / TILE / H₂O TABLE
 ACID / MINE / QUARRY / FLOW
 NATURAL / WETLAND / STAGNANT
 PARK / GOLF / LAWN / HOME
 ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

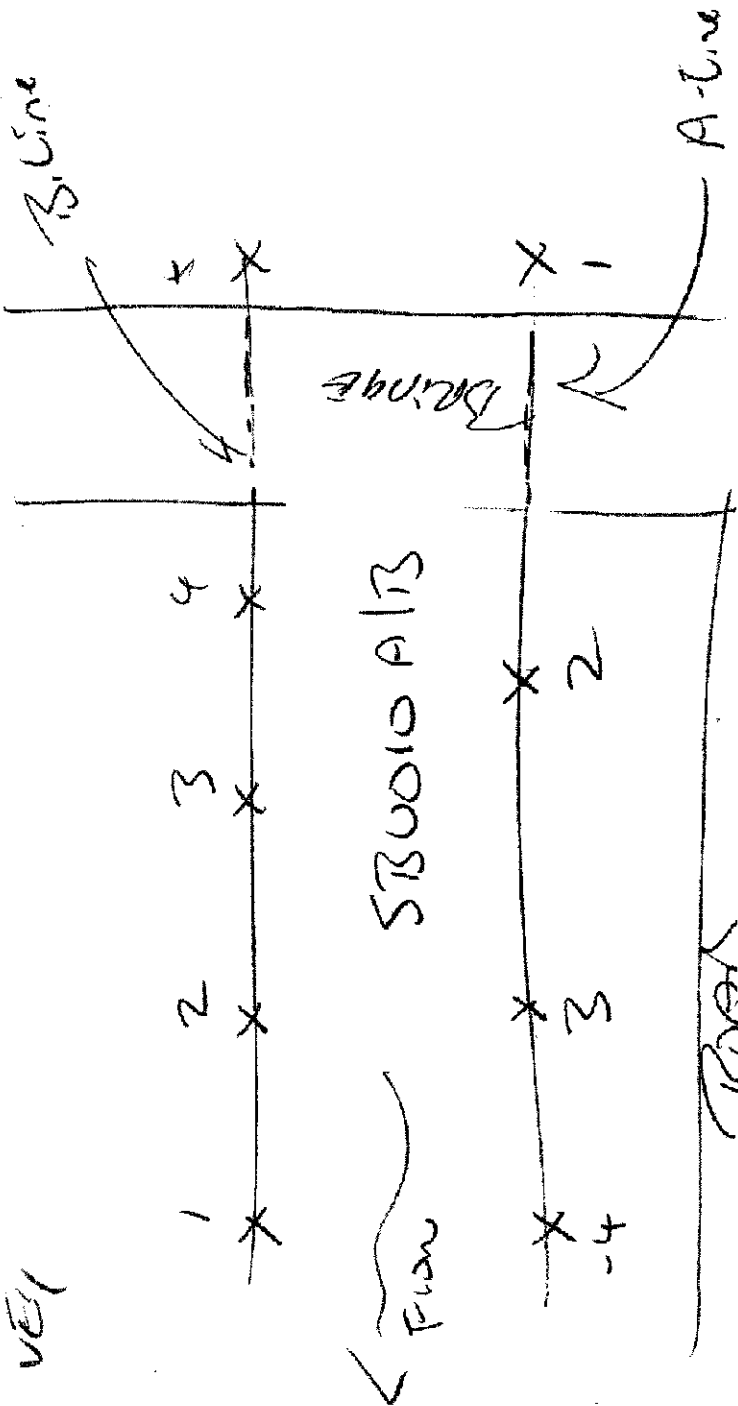
- W width 8'
 D depth 1'
 max. depth 1'
 bankfull width 11'
 bankfull D depth 34'
 W/D ratio
 bankfull max. depth
 floodprone x² width
 entrench. ratio
 Legacy Tree:

Stream Drawing:

Bank Survey

HEALTHY VEGETATION

→ NORTH



SBU011A13 & SBU012A13

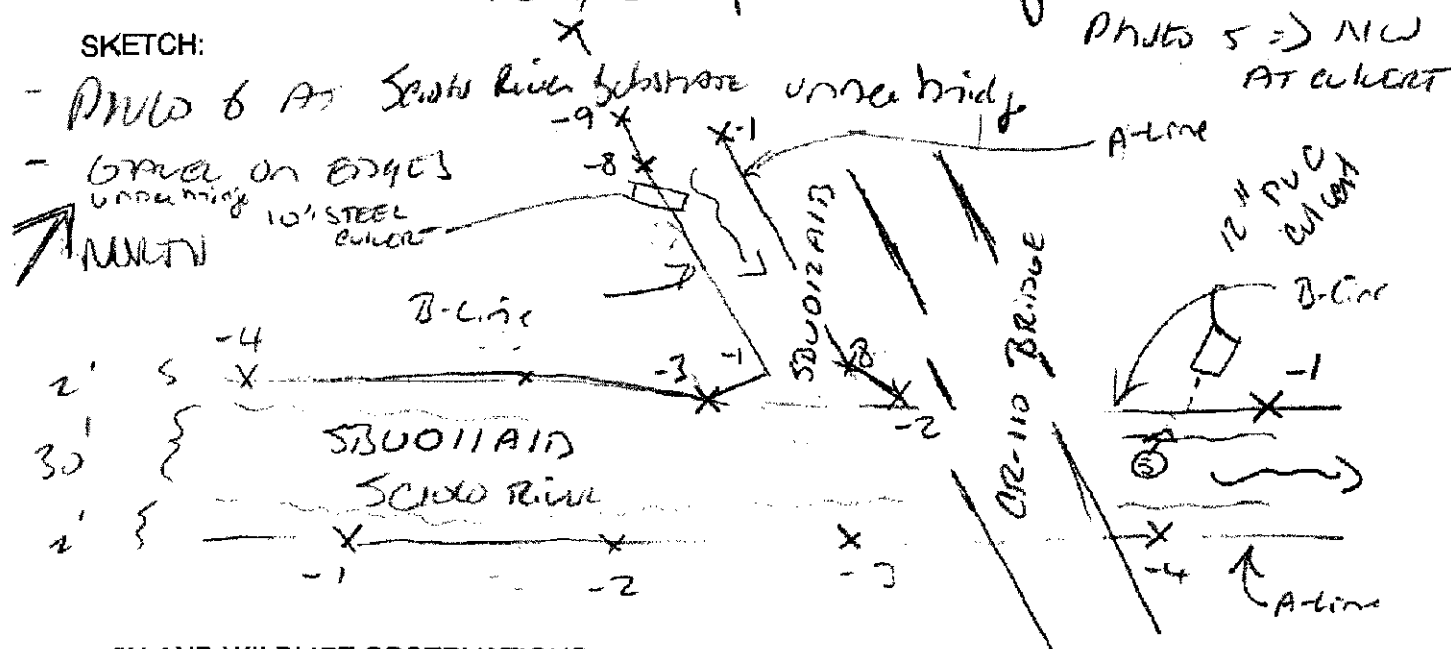
10/21/09

WATERBODY CROSSING DATA FORM

PROJECT: HARDIN WIND TUNNELDATE: 10/21/09LOCATION: CR-110FIELD CREW: RD, SMS

WATERBODY ID	SBU011A13	SBU012A13	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-4)	Line (1-8+1-9)	
PHOTO ID and DIRECTION	3 => SW 4 => NE	2 => N WEST	
NAME (or tributary to)	Sciow River	TRIBUT Sciow River	
WATERBODY TYPE (stream/pond/ditch/culvert)	Stream	Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	PERENNIAL	Intermittent	
WIDTH (observed/OHW)	30' / 34'	6' / 10'	
DEPTH (observed/OHW)	1' / 4'	8" / 3'	
FLOW RATE (dry/stagnant/low/moderate/high)	Low	Low	
FLOW DIRECTION	NE	EAST	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt & sand	Silt	
BANK VEGETATION (upland/wetland cover type)	Pem / Torrey	Pem / Torrey	

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

- 1 mangle shell "3" elongated under bridge

NOTES:

STEEL RAILROAD

Sciow mays PERENNIAL
TRIBUT NOT NAME'S

STUDIAIRB

10/21/09

OhioEPA

Qualitative Habitat Evaluation Index
and Use Assessment Field SheetQHEI Score: **40**Stream & Location: Scoto RiverRM: _____ Date: 10/21/09

CR110 BRIDGE

Scorers Full Name & Affiliation: DELAHURTY / SPARKS - TPC

River Code: _____ STORET #: _____

Lat./Long.: 40.6745 183.7763Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES, estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY	
☐ BLDR /SLABS [10]	☐	☐	☐	☐ HARDPAN [4]	☐	☐	☐	☐ LIMESTONE [1]	☐	☐ HEAVY [-2]	Substrate 7 Maximum 20
☐ BOULDER [9]	☐	☐	☐	☐ DETRITUS [3]	☐	☐	☐	☐ TILLS [1]	☐	☒ MODERATE [-1]	
☐ COBBLE [8]	☐	☐	☐	☐ MUCK [2]	☐	☐	☐	☐ WETLANDS [0]	☐	☐ NORMAL [0]	
☐ GRAVEL [7]	☐	☐	☐	☒ SILT [2]	☐	☐	☒	☐ HARDPAN [0]	☐	☐ FREE [1]	
☒ SAND [6]	☐	☐	☐	☐ ARTIFICIAL [0]	☐	☐	☐	☐ SANDSTONE [0]	☐	☐ EXTENSIVE [-2]	
☐ BEDROCK [5]	☐	☐	☐	(Score natural substrates; ignore sludge from point-sources)				☐ RIPRAP [0]	☐	☐ MODERATE [-1]	
NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]								☐ LACUSTURINE [0]	☐	☐ NORMAL [0]	
Comments								☐ SHALE [-1]	☐	☐ NONE [1]	
								☐ COAL FINES [-2]	☐		

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☒ EXTENSIVE > 75% [11]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☐ MODERATE 25-75% [7]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 5% [1]

Comments: HEAVY LOGS

Cover Maximum **8**

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [8]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: GLIDE

Channel Maximum **7**

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE	
☐ NONE / LITTLE [3]	☐ WIDE > 80m [4]	☐ FOREST, SWAMP [3]	☐	☐	☐	☐	☐
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☐	☐	☐	☐	☐
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL PARK, NEW FIELD [1]	☐	☐	☐	☐	☐
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	☐	☐	☐	☐	☐
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]	☐	☐	☐	☐	☐

Comments: 141

Indicate predominant land use(s) past 100m riparian.

Riparian Maximum **6**

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply	Primary Contact
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	Secondary Contact
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☒ SLOW [1]	(circle one and comment on back)
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]	
☒ 0.2-0.4m [1]	<u>none</u>	☐ FAST [1]	
☐ < 0.2m [0]		☐ MODERATE [1]	
		☐ INTERSTITIAL [-1]	
		☐ INTERMITTENT [-2]	
		☐ EDDIES [1]	
		Indicate for reach - pools and riffles.	

Comments: GLIDE 12" depth = 30 meter

Pool / Current Maximum **2**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: NO RIFFLES

Riffle / Run Maximum **0**

6) GRADIENT (1.25 ft/mi)

DRAINAGE AREA

%POOL: 0 %GLIDE: 100
%RUN: 0 %RIFFLE: 0Gradient Maximum **10**

EPA 4520

03/16/06

955 -> 950 = 521,200'

5' / 4m = 1.25 ft/m gradient

- STREAM WIDTH 741

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L. LINE ☐ NORMAL ☐
- ☒ OTHER ☒ LOW ☐
- DISTANCE ☐ DRY ☐

CLARITY

- ☐ 0.5 Km ☐ 1st sample pass 2nd
- ☐ 0.2 Km ☐ < 20 cm
- ☐ 0.15 Km ☐ 20-40 cm
- ☐ 0.12 Km ☐ 40-70 cm
- ☒ OTHER ☐ > 70 cm/CTB
- ☐ SECCHI DEPTH ☐

50 meters

CANOPY

- ☒ > 85% - OPEN
- ☐ 55% - 85%
- ☐ 30% - 55%
- ☐ 10% - 30%
- ☐ < 10% - CLOSED

CJ RECREATION

POOL: ☐ > 100m² ☐ > 3ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☒ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☒ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSO / SSO / OUTFALLS

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE / BOTH NA
- ☐ ACTIVE / HISTORIC / BOTH NA
- ☐ YOUNG SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BED LOAD-STABLE
- ☐ ARMORED / SLUMPS
- ☒ ISLANDS / SCOUR
- ☐ IMPOUNDED / DESTABILIZED
- ☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs - CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

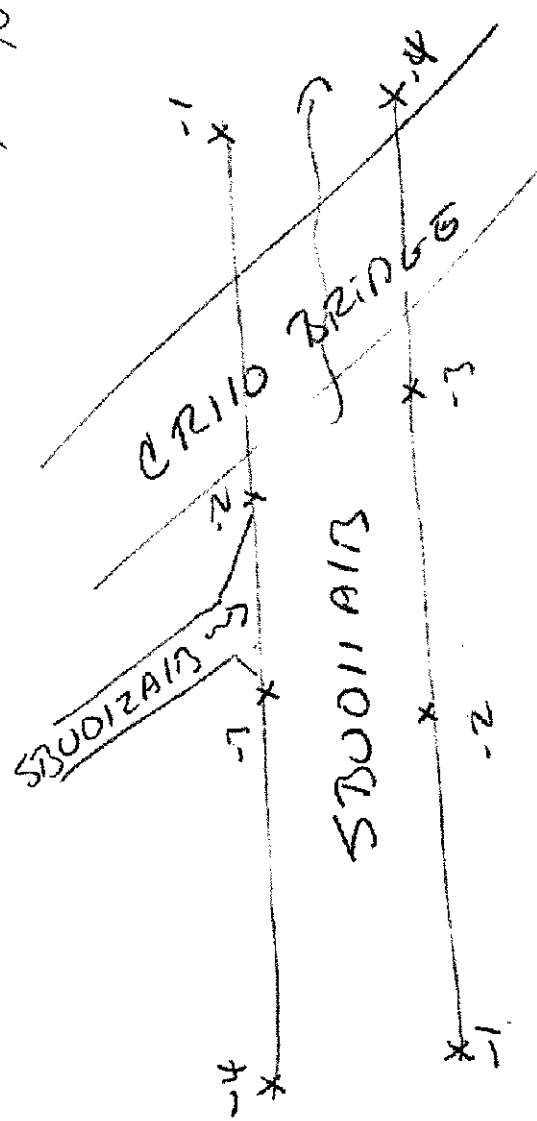
- $\bar{x}$ width 30'
- $\bar{x}$ depth 1'
- max. depth
- $\bar{x}$ bankfull width 34'
- bankfull $\bar{x}$ depth 4'
- W/D ratio
- bankfull max. depth
- floodprone $\bar{x}^2$ width
- entrench. ratio
- Legacy Tree:

Stream Drawing:

Bank Survey

Herbaceous

moderate turbidity



SB0012A1B

10/21/09



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **29**

Stream & Location: Scioto River TRB RM: Date: 10/21/09
Ohio Bridge
 River Code: STORET #: Lat./Long.: 40.6746 183.7768 Office verified location ☐

1) **SUBSTRATE** Check ONLY two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL RIFFLE	OTHER TYPES	POOL RIFFLE	ORIGIN	QUALITY
☐ BLDG / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ HEAVY [-2]
☐ BOULDER [9]	☐ POOL RIFFLE	☐ DETRITUS [3]	☐ POOL RIFFLE	☐ TILLS [1]	☒ MODERATE [-1]
☐ COBBLE [8]	☐ POOL RIFFLE	☐ MUCK [2]	☐ POOL RIFFLE	☐ WETLANDS [0]	☐ NORMAL [0]
☐ GRAVEL [7]	☐ POOL RIFFLE	☒ SILT [2]	☐ POOL RIFFLE	☒ HARDPAN [0]	☐ FREE [1]
☐ SAND [6]	☐ POOL RIFFLE	☒ ARTIFICIAL [0]	☐ POOL RIFFLE	☐ SANDSTONE [0]	☐ EXTENSIVE [-2]
☐ BEDROCK [5]	☐ POOL RIFFLE		☐ POOL RIFFLE	☐ RIP/RAP [0]	☐ MODERATE [-1]

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments:

2) **INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

UNDERCUT BANKS [1]	POOLS > 70cm [2]	OXBOWS, BACKWATERS [1]	AMOUNT
☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	Check ONE (Or 2 & average)
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☐ EXTENSIVE > 75% [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☒ MODERATE 25-75% [7]
☐ ROOTMATS [1]			☐ SPARSE 5-25% [3]
			☐ NEARLY ABSENT < 5% [1]

Comments: INTERFERED

3) **CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [8]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☒ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: 6 FIDR

4) **BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☐ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [0]
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]
☒ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]

Comments: Road to North South

5) **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply
☐ > 1m [8]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☒ SLOW [1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]
☒ 0.2-0.4m [1]		☐ FAST [1]
☐ < 0.2m [0]		☐ MODERATE [1]

Comments: 8" = 120 meters

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: minor riffle at confluence

6) **GRADIENT** (2.5 f/mil) ☒ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-5]

DRAINAGE AREA 10' ☐ POOL: 2 ☐ GLIDE: 100 ☐ RIFFLE: 5

Comments: Stream width 10'

EPA 4520 08/16/06

960 + 955 = 10,420 = 5 / 1.97m = 2.54 ft/mi gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st-sample pass- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L. LINE ☐ NORMAL ☐
- ☒ OTHER ☐ BELOW ☐
- DISTANCE** ☐ DRY ☐

- CLARITY**
- ☐ 0.5 Km ☐
- ☐ 0.2 Km ☐
- ☐ 0.15 Km ☐
- ☐ 0.12 Km ☐
- ☒ OTHER ☐
- ☐ < 20 cm ☐
- ☐ 20-40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/CTB ☐
- ☐ SECCHI DEPTH ☐

- CANOPY** 1st ☐ cm 2nd ☐
- ☒ > 85% - OPEN ☐
- ☐ 55%-85% ☐
- ☐ 30%-55% ☐
- ☐ 10%-30% ☐
- ☐ < 10% - CLOSED ☐

- CJ RECREATION** AREA DEPTH ☐ > 100ft ☐ > 3ft

- BJ AESTHETICS**
- ☐ NUISANCE ALGAE ☐
- ☐ INVASIVE MACROPHYTES ☐
- ☒ EXCESS TURBIDITY ☐
- ☐ DISCOLORATION ☐
- ☐ FOAM / SCUM ☐
- ☐ OIL SHEEN ☐
- ☐ TRASH / LITTER ☐
- ☐ NUISANCE ODOR ☐
- ☐ SLUDGE DEPOSITS ☐
- ☐ CSOs/SSOs/OUTFALLS ☐

- DJ MAINTENANCE**
- ☐ PUBLIC / PRIVATE / BOTH / NA ☐
- ☐ ACTIVE / HISTORIC / BOTH / NA ☐
- ☐ YOUNG-SUCCESSION-OLD ☐
- ☐ SPRAY / SNAG / REMOVED ☐
- ☐ MODIFIED / DIPPED OUT / NA ☐
- ☐ LEVEED / ONE SIDED ☐
- ☐ RELOCATED / CUTOFFS ☐
- ☐ MOVING-BEDLOAD-STABLE ☐
- ☐ ARMORED / SLUMPS ☐
- ☒ ISLANDS - SCOURED ☐
- ☐ IMPOUNDED / DESICCATED ☐
- ☐ FLOOD CONTROL / DRAINAGE ☐

Circle some & COMMENT

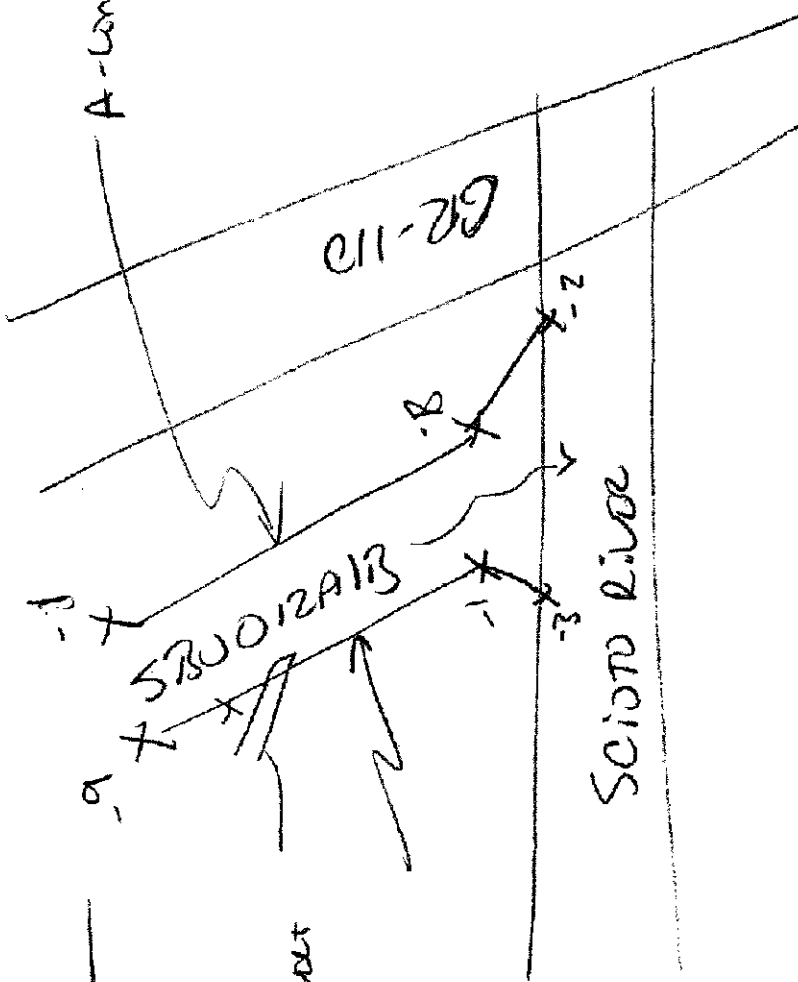
- EJ ISSUES**
- WWTP / CSO / NPDES / INDUSTRY ☐
- HARDENED / URBAN / DIRT & GRIME ☐
- CONTAMINATED / LANDFILL ☐
- BMPs - CONSTRUCTION / SEDIMENT ☐
- LOGGING / IRRIGATION / COOLING ☐
- BANK EROSION / SURFACE ☐
- FALSE BANK / MANURE / LAGOON ☐
- WASH H₂O / TILE / H₂O TABLE ☐
- ACID / MINE / QUARRY / FLOW ☐
- NATURAL / WETLAND / STAGNANT ☐
- PARK / GOLF / LAWN / HOME ☐
- ATMOSPHERE / DATA PAUCITY ☐
- FJ MEASUREMENTS**
- $\bar{x}$ width 6' ☐
- $\bar{x}$ depth 8' ☐
- max. depth 10' ☐
- $\bar{x}$ bankfull width 10' ☐
- bankfull $\bar{x}$ depth 3' ☐
- W/D ratio ☐
- bankfull max. depth ☐
- floodprone $\bar{x}^2$ width ☐
- entrrench, ratio ☐
- Legacy Tree: ☐

Stream Drawing:

Bank Survey
Hearings VEC
invertebrate turbid

10' steel culvert

B-Lin



WATERBODY CROSSING DATA FORM

PROJECT:

Holm Wood Farm

DATE:

10/2/09

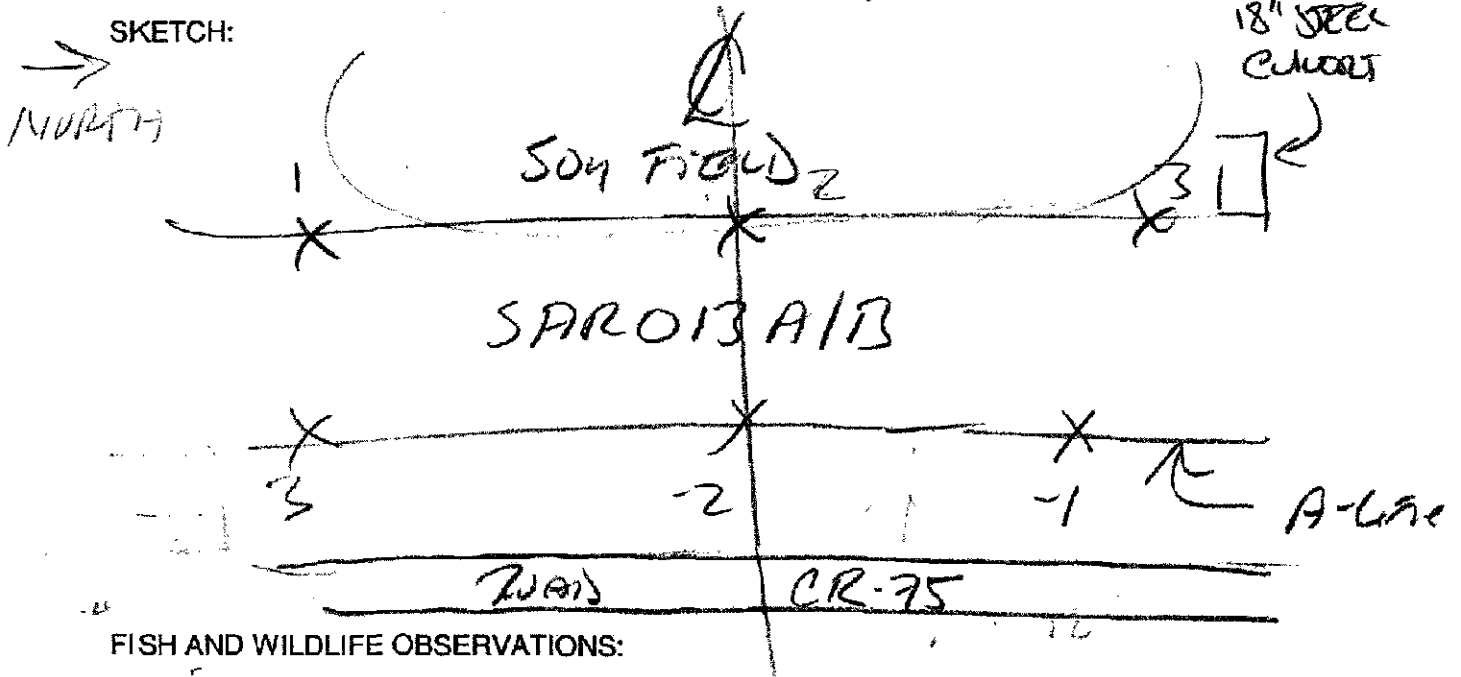
LOCATION:

FIELD CREW:

RTS / JMS

WATERBODY ID	SAR013A1B	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-	
PHOTO ID and DIRECTION	Photo 7 $\Rightarrow$ South	
NAME (or tributary to)	FIAT BRANCH	
WATERBODY TYPE (stream/pond/ditch/culvert)	STREAM	
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent	
WIDTH (observed/OHW)	6' / 10'	
DEPTH (observed/OHW)	6" / 2.5'	
FLOW RATE (dry/stagnant/low/moderate/high)	STAGNANT	
FLOW DIRECTION	NORTH	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt	
BANK VEGETATION (upland/wetland cover type)	PER / CORK / SUCCESSIONAL	

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

minnows

ONE FROGADIS PONDIC

NOTES:

ALBARE

MADE AS INTERMITTENT

SAR013 AID

10/21/09

OhioEPA

Qualitative Habitat Evaluation Index
and Use Assessment Field SheetQHEI Score: **33**Stream & Location: FLAT BRANCHRM: _____ Date: 10/21/09River Code: 20' WEST OF CR75

STORET #: _____

Scorer's Full Name & Affiliation: DELAHUNTY / SPACES - TFCLat./Long.: 40.6623 183.7695Office verified location ☐

1) SUBSTRATE Check ONLY two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		OTHER TYPES	
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐
☐ COBBLE [8]	☐	☐ MUCK [2]	☐
☐ GRAVEL [7]	☐	☒ SILT [2]	☐
☐ SAND [6]	☐	☐ ARTIFICIAL [0]	☐
☐ BEDROCK [5]	☐	(Score natural substrates; ignore sludge from point-sources)	

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments _____

Check ONE (Or 2 & average)

ORIGIN	QUALITY
☐ LIMESTONE [1]	☐ HEAVY [-2]
☐ TILLS [1]	☒ MODERATE [-1]
☐ WETLANDS [0]	☐ NORMAL [0]
☒ HARDPAN [0]	☐ FREE [1]
☐ SANDSTONE [0]	☐ EXTENSIVE [-2]
☐ RIP/RAP [0]	☐ MODERATE [-1]
☐ LAGUSTURINE [0]	☐ NORMAL [0]
☐ SHALE [-1]	☐ NONE [1]
☐ COAL FINES [-2]	

SILT

EMBEDDEDNESS

Substrate
3
Maximum
20

2) INSTREAM COVER Indicate presence 0 to 3. 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT	
☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]
☐ ROOTMATS [1]	☐ OXBOWS, BACKWATERS [1]
	☐ AQUATIC MACROPHYTES [1]
	☐ LOGS OR WOODY DEBRIS [1]

Comments _____

HERRINGCheck ONE (Or 2 & average)
☐ EXTENSIVE >75% [11]
☒ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT <5% [1]Cover
Maximum
20 **8**

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments _____

GLIDEChannel
Maximum
20 **7**

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☐ OPEN PASTURE, ROWCROP [0]

Comments _____

SOY TO WEST (ROAD) TO EASTIndicate predominant land use(s) past 100m riparian.
Riparian
Maximum
10 **7**

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ SLOW [1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]
☐ 0.2-0.4m [1]		☐ FAST [1]
☒ < 0.2m [0]		☐ MODERATE [1]
		☐ INTERSTITIAL [-1]
		☐ INTERMITTENT [-2]
		☐ EDDIES [1]

Comments _____

GLIDE 6" DEEP = 0.152 METER

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments _____

NO RIFFLES6) GRADIENT (ft/mi) 10

DRAINAGE AREA

☐ VERY LOW - LOW [2-4]	% POOL: <u>0</u>	% GLIDE: <u>100</u>
☒ MODERATE [8-10]	% RUN: <u>0</u>	% RIFFLE: <u>0</u>
☐ HIGH - VERY HIGH [10-6]		

Gradient
Maximum
10 **10**

EPA 4520

965-955 = 6,900'

10' / 1.31 mi = 7.63 ft/mi gradient

06/16/06

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

1st - sample pass - 2nd

- ☐ BOAT
☐ WADE
☐ L. LINE
☐ OTHER
☒ DISTANCE
☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☐ OTHER
☐ CLARITY
☒ 1st - sample pass - 2nd
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/CTB
☐ SECCHI DEPTH
☐ meters
☒ CANOPY
☐ > 95% - OPEN
☐ 55%-85%
☐ 30%-55%
☐ 10%-30%
☐ < 10% - CLOSED

CJ RECREATION

POOL: ☐ > 100ft ☐ > 3ft

BJ AESTHETICS

- ☒ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☐ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSO/SSO/OUTFALLS

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE / BOTH / NA
☐ ACTIVE / HISTORIC / BOTH / NA
☐ YOUNG-SUCCESSION-OLD
☐ SPRAY / SNAG / REMOVED
☐ MODIFIED / DIPPED OUT / NA
☐ LEVEED / ONE SIDED
☐ RELOCATED / CUTOFFS
☐ MOVING-BEDLOAD-STABLE
☐ ARMORED / SLUMPS
☐ ISLANDS / SCoured
☐ IMPOUNDED / DESICCATED
☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- ☐ WWTP / CSO / NPDES / INDUSTRY
☐ HARDENED / URBAN / DIRT & GRIME
☐ CONTAMINATED / LANDFILL
☐ BMPs-CONSTRUCTION / SEDIMENT
☐ LOGGING / IRRIGATION / COOLING
☐ BANK / EROSION / SURFACE
☐ FALSE BANK / MANURE / LAGOON
☐ WASH H₂O / TILE / H₂O TABLE
☐ ACID / MINE / QUARRY / FLOW
☐ NATURAL / WETLAND / STAGNANT
☐ PARK / GOLF / LAWN / HOME
☐ ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

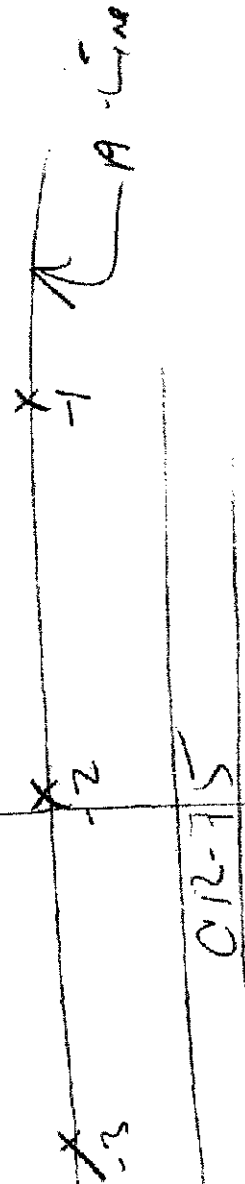
- ☐ width 6' 11"
☐ depth 6' 11"
☐ max. depth 10'
☐ bankfull width 2.5'
☐ bankfull x depth 2.5'
☐ WD ratio
☐ bankfull max. depth
☐ floodprone x² width
☐ entrench. ratio
☐ Legacy Tree:

Stream Drawing:

Bank Survey
 HEARNEYS BANK VEG
 WEAR WATER
 STAGNANT

NOV 11

Say Tired



STB0014A13

10/21/09

WATERBODY CROSSING DATA FORM

PROJECT: Hardin Wood Pkwy

DATE: 10/21/09

LOCATION: Turbine 54

FIELD CREW: RTD, SMS

WATERBODY ID	STB0014A13		
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)		
PHOTO ID and DIRECTION	8 → North		
NAME (or tributary to)	Flat Branch		
WATERBODY TYPE (stream/pond/ditch/culvert)	Stream / Ditch		
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent		
WIDTH (observed/OHW)	6' / 10'		
DEPTH (observed/OHW)	6" / 2.5'		
FLOW RATE (dry/stagnant/low/moderate/high)	STAGNANT		
FLOW DIRECTION	NORTH TOWARDS on bent Veg (mineral)		
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt		
BANK VEGETATION (upland/wetland cover type)	PERM / E-ALBY Sycamore		

SKETCH:

NORTH

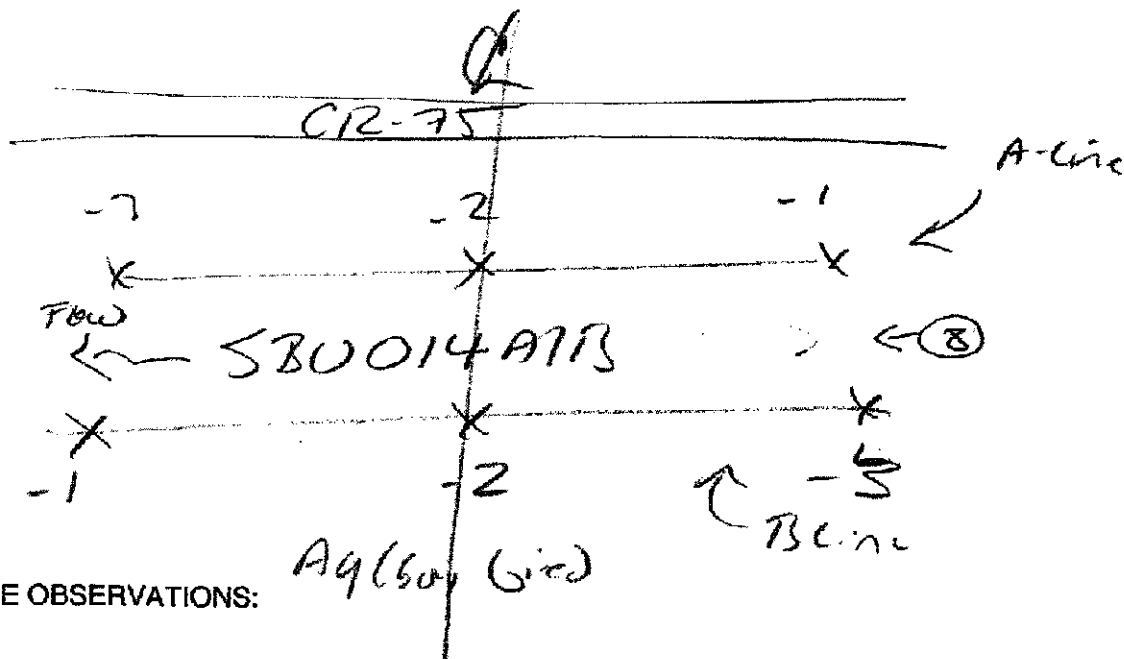


- Perm
- ELEOCHARIS
- Rice cut grass
- Reed canary
- Juncus sp (large)

- Early
- Reed canary
- ORPHEUS GRASS
- THISTLE
- TOXIC GRASS

FISH AND WILDLIFE OBSERVATIONS:

MINnows



NOTES:

A16A1E

MAKES A1 INTERMITTENT

SB0014A 1B

10/21/09

OhioEPA

Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet

QHEI Score:

34

Stream & Location: FIAT BRANCHRM: _____ Date: 10/21/0920' WEST OF CR75Scorer's Full Name & Affiliation: DELAHUNTY, J. DOUGLAS - TTEC

River Code: _____

STORET #: _____

Lat/Long: 40.6605 182.7392Office verified location ☐1) SUBSTRATE Check ONLY Two substrate TYPE BOXES;
estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
	POOL RIFFLE		POOL RIFFLE				
☐ BLDR / SLABS [10]		☐ HARDPAN [4]		☐ LIMESTONE [1]		☐ HEAVY [-2]	Substrate 3 Maximum 20
☐ BOULDER [9]		☐ DETRITUS [3]		☐ TILLS [1]		☒ MODERATE [-1]	
☐ COBBLE [8]		☐ MUCK [2]		☐ WETLANDS [0]		☐ NORMAL [0]	
☐ GRAVEL [7]		☒ SILT [2]		☒ HARDPAN [0]		☐ FREE [1]	
☐ SAND [6]		☒ ARTIFICIAL [0]		☐ SANDSTONE [0]		☐ EXTENSIVE [-2]	
☐ BEDROCK [5]		(Score natural substrates; ignore sludge from point-sources)		☐ RIP/RAP [0]		☐ MODERATE [-1]	
NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]				☐ LACUSTURINE [0]		☐ NORMAL [0]	
Comments				☐ SHALE [-1]		☐ NONE [1]	
				☐ COAL FINES [-2]			

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☒ OXBOWS, BACKWATERS [1]	☒ EXTENSIVE > 75% [11]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☐ MODERATE 25-75% [7]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 6-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 6% [1]

Comments

HERPACEOUS

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

6TIDE

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]

Comments

N/A 50y to WEST ROAD to EAST

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ SLOW [1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]
☐ 0.2-0.4m [1]		☐ FAST [1]
☒ < 0.2m [0]		☐ MODERATE [1]
		☒ EDDIES [1]

Comments

GLIDE 6" DEEP OR D.I.S.R. METAL

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average)

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments

6) GRADIENT (7.6 ft/mi)

DRAINAGE AREA

(mi²)

☐ VERY LOW - LOW [2-4]
☒ MODERATE [8-10]
☐ HIGH - VERY HIGH [10-6]

%POOL: 0%GLIDE: 100%RUN: 0%RIFFLE: 0

Gradient

Maximum

10

960 - 955 = 6900'

10'

4.91 mi

= 7.63 ft/mi

(marked)

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L LINE ☐
- ☒ OTHER ☐ NORMAL ☐
- ☐ DISTANCE ☐ FLOW ☐
- ☐ DRY ☐

CLARITY

- 1st sample pass-- 2nd
- ☐ < 20 cm ☐
- ☐ 20-40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

- ☒ > 85%- OPEN ☐
- ☐ 55%-85% ☐
- ☐ 30%-55% ☐
- ☐ 10%-30% ☐
- ☐ <10%- CLOSED ☐

CJ RECREATION

POOL: ☐ >100R2 ☐ >3R

BJ AESTHETICS

- ☐ NUISANCE ALGAE ☐
- ☐ INVASIVE MACROPHYTES ☐
- ☐ EXCESS TURBIDITY ☐
- ☐ DISCOLORATION ☐
- ☐ FOAM / SCUM ☐
- ☐ OIL SHEEN ☐
- ☐ TRASH / LITTER ☐
- ☐ NUISANCE ODOR ☐
- ☐ SLUDGE DEPOSITS ☐
- ☐ CSO / ISSUES / CUTOFFS ☐

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE / BOTH / NA ☐
- ☐ ACTIVE / HISTORIC / BOTH / NA ☐
- ☐ YOUNG SUCCESSION-OLD ☐
- ☐ SPRAY / SNAG / REMOVED ☐
- ☐ MODIFIED / DIPPED OUT / NA ☐
- ☐ LEVEED / ONE SIDED ☐
- ☐ RELOCATED / CUTOFFS ☐
- ☐ MOVING-BEDLOAD-STABLE ☐
- ☐ ARMORED / SLUMPS ☐
- ☐ ISLANDS / SCOURED ☐
- ☐ IMPOUNDED / DESICCATED ☐
- ☐ FLOOD CONTROL / DRAINAGE ☐

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY ☐
- HARDENED / URBAN / DIRT & GRIME ☐
- CONTAMINATED / LANDFILL ☐
- BMPs-CONSTRUCTION / SEDIMENT ☐
- LOGGING / IRRIGATION / COOLING ☐
- BANK / EROSION / SURFACE ☐
- FALSE BANK / MANURE / LAGOON ☐
- WASH H₂O / TILE / H₂O TABLE ☐
- ACID / MINE / QUARRY / FLOW ☐
- NATURAL / WETLAND / STAGNANT ☐
- PARK / GOLF / LAWN / HOME ☐
- ATMOSPHERE / DATA PAUCITY ☐

FJ MEASUREMENTS

- $\bar{x}$ width 6' ☐
- $\bar{x}$ depth 6' ☐
- max. depth -- ☐
- $\bar{x}$ bankfull width 10' ☐
- bankfull $\bar{x}$ depth 2.5' ☐
- W/D ratio ☐
- bankfull max. depth ☐
- floodprone $\bar{x}^2$ width ☐
- entrench. ratio ☐
- Legacy Tree: ☐

Stream Drawing:

Bank Survey

Herbaceous Veg

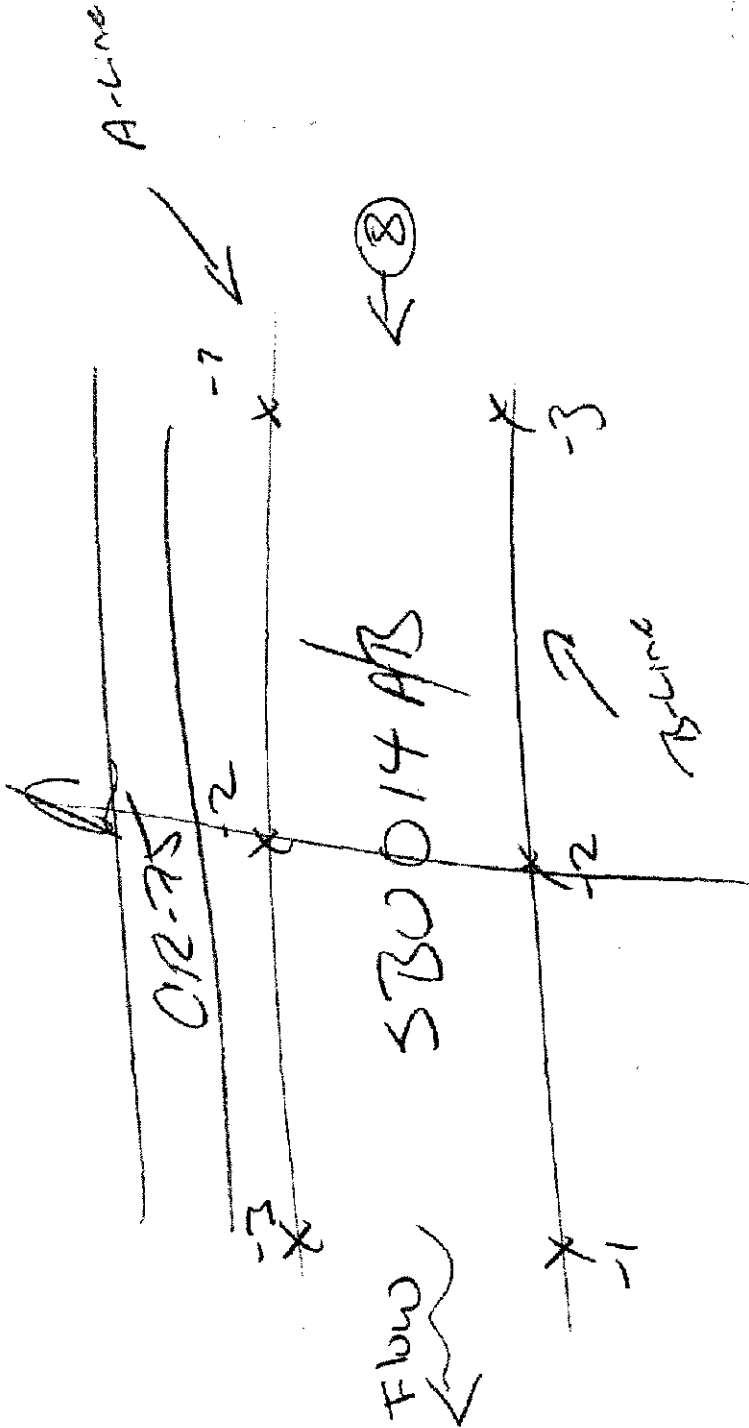
Shrub

Tree

Algae

manure

← NORTH



Comment RE: Reach consistency/Is reach typical of stream?; Recreation/ Observed - Inferred; Other/ Sampling observations, Concerns, Access directions, etc.

SB0015 A

10/21/09

WATERBODY CROSSING DATA FORM

PROJECT: Hardin Wildlife Area DATE: 10/21/09
 LOCATION: 20 NORTH of WB-60 FIELD CREW: (ATT) / SMS

WATERBODY ID	SB0015 A	SB0016
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-8)	Line (1-
PHOTO ID and DIRECTION	9 → EAST 11 → WEST 12 → E	10 → South
NAME (or tributary to)	Scioto River	Trin to Scioto
WATERBODY TYPE (stream/pond/ditch/culvert)	STREAM	WASH
FLOW REGIME (perennial/intermittent/ephemeral)	PERENNIAL	EPHEMERAL
WIDTH (observed/OHW)	36' / 50'	- / 2'
DEPTH (observed/OHW)	3' + 19'	- / 2'
FLOW RATE (dry/stagnant/low/moderate/high)	LOW	DRY
FLOW DIRECTION	EAST	NORTH
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt & clay	Silt / clay
BANK VEGETATION (upland/wetland cover type)	Upland Forest	Upland FS.

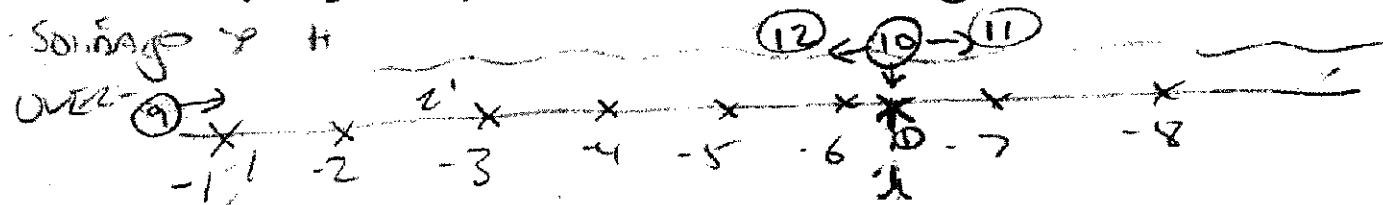
SKETCH: ↑ NORTH

- Banks ~ 6' High
From top of water

TO: VEG

- Honey Locust T/S
- Bitterwood T
- Grass stems / Dogwood S
- Golfie myrtle H 36'
- Sourwood Y H

SB0015 A / B



FISH AND WILDLIFE OBSERVATIONS:

Frog - Vocalizations
 Frog - observed

NOTES:

- Turbid ~ 2' visibility
- Can not see substrate
- Scioto mapped as perennial
- Trin - not marked
- Bank 1:1/2:1 (SS90)
- not much erosion

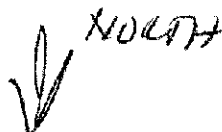
WATERBODY CROSSING DATA FORM

PROJECT: Florida Wildlife Team DATE: 10/22/09
 LOCATION: Scioto River FIELD CREW: RED SMS

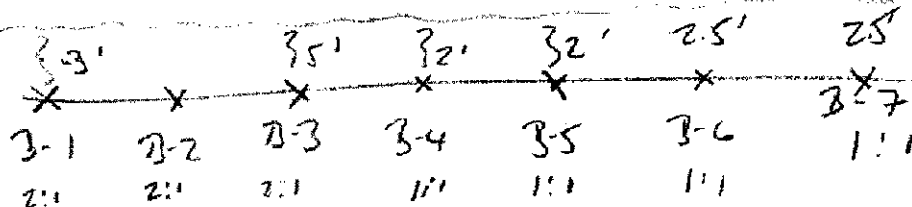
WATERBODY ID	SR001518	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-7)	
PHOTO ID and DIRECTION	Photo 11 = E 2 Drift - Photo 12 = E	
NAME (or tributary to)	Scioto River	
WATERBODY TYPE (stream/pond/ditch/culvert)	Stream	
FLOW REGIME (perennial/intermittent/ephemeral)	PERENNIAL	
WIDTH (observed/OHW)	} REFER TO BROOKSA DATA SHEET	
DEPTH (observed/OHW)		
FLOW RATE (dry/stagnant/low/moderate/high)	LOW	
FLOW DIRECTION	EAST	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	CLAY / SILT	
BANK VEGETATION (upland/wetland cover type)	OVER	

SKETCH:

Bathy 4590 w2:1



Scioto River



FISH AND WILDLIFE OBSERVATIONS:

None

NOTES:

RED CORN

marked as PERENNIAL

STUDISAD

10/21/09



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **48**

Stream & Location: Scioto River w/2,200 feet RM: --- Date: 10/21/09

NORTH of TR 106 Scorers Full Name & Affiliation: DELAHANTY / SPARKS - TTEC

River Code: --- STORET #: --- Lat./Long.: 40.6209 183.7533 Office verified location ☐

1) **SUBSTRATE** Check ONLY Two substrate TYPE BOXES. estimate % or note every type present

BEST TYPES	POOL RIFFLE	OTHER TYPES	POOL RIFFLE	ORIGIN	QUALITY
☐ BLDR /SLABS [10]	☐	☒ HARDPAN [4]	☐	☐ LIMESTONE [1]	☐ HEAVY [-2]
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐	☐ TILLS [1]	☒ MODERATE [-1]
☐ COBBLE [8]	☐	☐ MUCK [2]	☐	☐ WETLANDS [0]	☐ NORMAL [0]
☐ GRAVEL [7]	☐	☒ SILT [2]	☐	☒ HARDPAN [0]	☐ FREE [1]
☐ SAND [6]	☐	☐ ARTIFICIAL [0]	☐	☐ SANDSTONE [0]	☐ EXTENSIVE [-2]
☐ BEDROCK [5]	☐		☐	☐ RIP/RAP [0]	☐ MODERATE [-1]
(Score natural substrates; ignore sludge from point-sources)				☐ LACUSTURINE [0]	☐ NORMAL [0]
				☐ SHALE [-1]	☐ NONE [1]
				☐ COAL FINES [-2]	

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]

Comments: ---

2) **INSTREAM COVER** Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

UNDERCUT BANKS [1]	POOLS > 70cm [2]	OXBOWS, BACKWATERS [1]	AMOUNT
☒	☐	☐	Check ONE (Or 2 & average)
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☐ EXTENSIVE >75% [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ MODERATE 25-75% [7]
☐ ROOTMATS [1]			☐ SPARSE 5-<25% [3]
			☐ NEARLY ABSENT <5% [1]

Comments: FOREST South Bank SHRUB NORTH BANK

Cover Maximum **8**

3) **CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☒ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: GLIDE

Channel Maximum **8**

4) **BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST / SWAMP [3]
☒ MODERATE [2]	☒ MODERATE 10-50m [3]	☐ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☐ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]

Comments: South FOREST NORTH MID TO LATE Successional

Riparian Maximum **10**

5) **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply	Primary Contact
☒ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	Secondary Contact
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☒ SLOW [1]	(circle one and comment on back)
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]	
☐ 0.2-0.4m [1]		☐ FAST [1]	
☐ < 0.2m [0]		☐ MODERATE [1]	
		☐ INTERSTITIAL [-1]	
		☐ INTERMITTENT [-2]	
		☐ EDDIES [1]	

Comments: GLIDE w/ 38'40" w/ 9' net

Pool / Current Maximum **7**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: NO RIFFLE

Riffle / Run Maximum **8**

6) **GRADIENT** (1.25 ft/mi) ☐ VERY LOW - LOW [2-4] ☒ MODERATE [5-10] ☐ HIGH - VERY HIGH [10-5]

DRAINAGE AREA 501 **10** % POOL: 0 % GLIDE: 100 Gradient Maximum **10**

% RUN: 0 % RIFFLE: 0

SB0016

10/21/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet****QHEI Score:** 37Stream & Location: UNNAMED SCIATA RIVER RM: Date: 10/21/09Tab 1 Scorers Full Name & Affiliation: DELAHURTY / SPARKS - TSPRiver Code: STORET #: Lat/Long: 40.6901 182.7528 Office verified location ☐**1) SUBSTRATE** Check ONLY two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☒ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	Substrate 9 Maximum 20
☐ BOULDER [9]	☐ <u> </u>	☐ DETRITUS [3]	☐ <u> </u>	☐ TILLS [1]	☐ WETLANDS [0]	☐ MODERATE [-1]	
☐ COBBLE [8]	☐ <u> </u>	☐ MUCK [2]	☐ <u> </u>	☐ HEDPAN [0]	☒ SANDSTONE [0]	☐ NORMAL [0]	
☐ GRAVEL [7]	☐ <u> </u>	☐ SILT [2]	☐ <u> </u>	☒ SANDSTONE [0]	☐ RIP/RAP [0]	☐ FREE [1]	
☐ SAND [6]	☐ <u> </u>	☐ ARTIFICIAL [0]	☐ <u> </u>	☐ LACUSTURINE [0]	☐ SHALE [-1]	☐ EXTENSIVE [-2]	
☐ BEDROCK [5]	☐ <u> </u>			☐ COAL FINES [-2]	☐ NONE [1]	☐ MODERATE [-1]	

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments:

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT	
☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]
☐ ROOTMATS [1]	☒ OXBOWS, BACKWATERS [1]
	☐ AQUATIC MACROPHYTES [1]
	☒ LOGS OR WOODY DEBRIS [1]

Check ONE (Or 2 & average)

☐ EXTENSIVE >75% [1]

☐ MODERATE 25-75% [7]

☐ SPARSE 5-25% [3]

☐ NEARLY ABSENT <5% [1]

Cover Maximum 9

Comments: UPSTREAM FOREST

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [5]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☒ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☒ LOW [1]
☐ NONE [1]	☒ POOR [1]	☒ RECENT OR NO RECOVERY [1]	

Channel Maximum 5

Comments: SCORED / ERODED

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☐ NONE / LITTLE [3]	☒ WIDE > 50m [4]	☒ FOREST, SWAMP [3]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☐ SHRUB OR OLD FIELD [2]
☒ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☐ NONE [0]	☐ OPEN PASTURE, ROWCROP [0]

Indicate predominant land use(s) past 100m riparian.

☐ CONSERVATION TILLAGE [1]

☐ URBAN OR INDUSTRIAL [0]

☐ MINING / CONSTRUCTION [0]

Riparian Maximum 10

Comments:

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply	Primary Contact
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	Secondary Contact
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	(circle one and comment on back)
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ SLOW [1]	
☐ 0.2-0.4m [1]		☐ INTERSTITIAL [-1]	
☐ < 0.2m [0]		☐ FAST [1]	
		☐ INTERMITTENT [-2]	
		☐ MODERATE [1]	
		☐ EDDIES [1]	

Indicate for reach - pools and riffles.

Pool / Current Maximum 12

Comments: N/A DRY

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Riffle / Run Maximum 9

Comments: N/A DRY

6) GRADIENT 40 ft/mi
DRAINAGE AREA

GRADIENT	% POOL	% GLIDE	Gradient Maximum
☐ VERY LOW - LOW [2-4]	☒ 0	☒ 0	4
☐ MODERATE [5-10]	☒ 0	☒ 0	
☒ HIGH - VERY HIGH [10-5]	☒ 0	☒ 0	

Stream width 2'

965 → 950 = 2.526 feet

15' / 0.01 mile = 1,500 ft/mi gradient

A) SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st - sample pass - 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ LINE ☐ NORMAL ☐
- ☒ OTHER ☐ LOW ☐
- ☐ DRY ☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☒ OTHER

CLARITY

- 1st - sample pass - 2nd
- ☐ < 20 cm
- ☐ 20 - 40 cm
- ☐ 40 - 70 cm
- ☐ > 70 cm / CTB
- ☐ SECCHI DEPTH

20 meters

CANOPY

- ☐ > 85% - OPEN
- ☐ 55% - 85%
- ☒ 30% - 55%
- ☐ 10% - 30%
- ☐ < 10% - CLOSED

C) RECREATION

POOL: ☐ > 100m ☐ > 3ft

B) AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOS / SSOs / OUTFALLS

D) MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMORED / SLUMPS
- ISLANDS / SCOURED
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

E) ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs - CONSTRUCTION / SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

F) MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone $\bar{x}^2$ width
- entranch. ratio
- Legacy Tree:

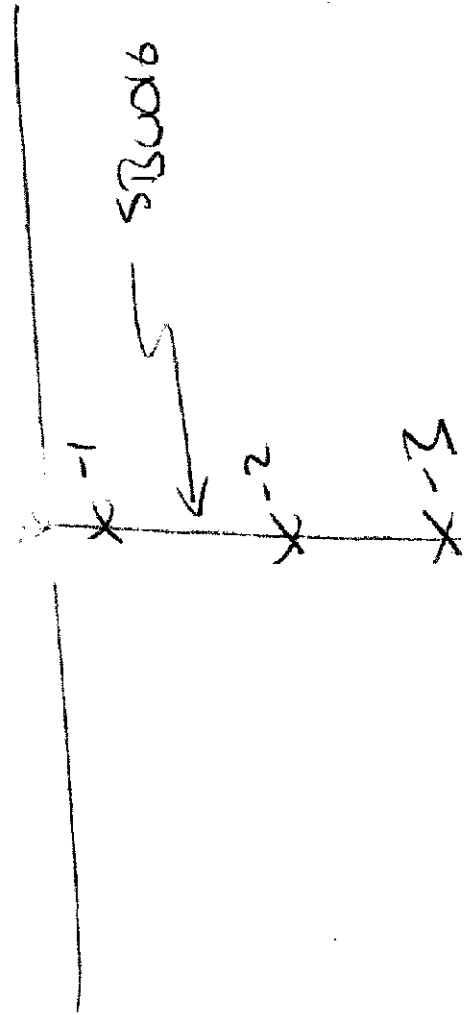
Stream Drawing:

Bank Survey
Cypress Forest Cypress Creek

D24

North

STUDIOS A/D

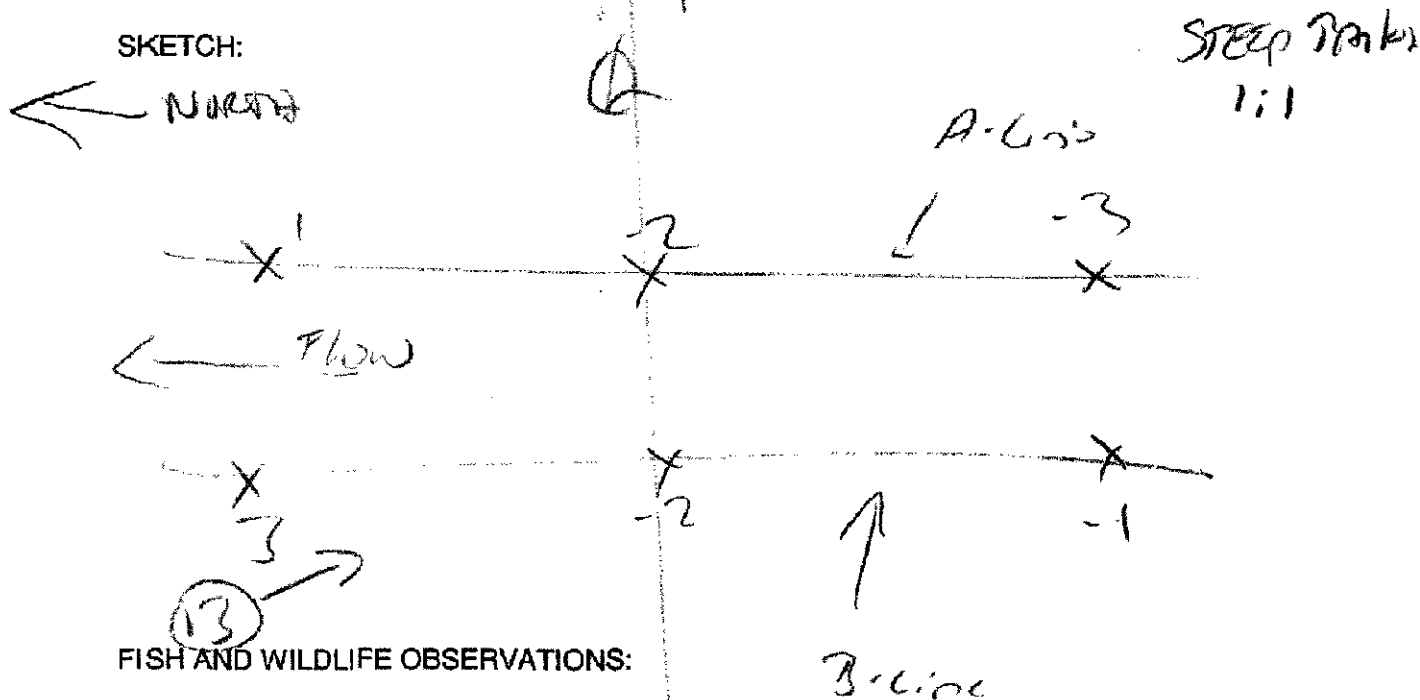


WATERBODY CROSSING DATA FORM

PROJECT: Hardin Wind Farm DATE: 10/20/09
 LOCATION: 30 South of Turbie FIELD CREW: RMS, SWS
60

WATERBODY ID	SBW 017A1B	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	13 → SW	
NAME (or tributary to)	Trib to Scioto River	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	EPHEMERAL	
WIDTH (observed/OHW)	- 18'	
DEPTH (observed/OHW)	- 13'	
FLOW RATE (dry/stagnant/low/moderate/high)	DRY	
FLOW DIRECTION	NORTH	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	CLAY / SILT	
BANK VEGETATION (upland/wetland cover type)	BOLIV SUCCUBA	

SKETCH:



NOTES:

- MARKED SOIL in RED ; Saturated soils ;
 - BOLD VEG in BOLD. Reed CHAN, CALEX SP ; TSKP VEGAIN
- named as INTERMITTENT

SBU017A/B

10/21/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet****QHEI Score:****(31)****Stream & Location:** TR 106 to Souders Creek ~400' **RM:** --- **Date:** 10/21/09**North of TR 106** **Scorers Full Name & Affiliation:** DELAWARE / SPARKS - TREC**River Code:** 0 **STORET #:** --- **Lat/Long:** 40.6863 183.7562 **Office verified location** ☐**1) SUBSTRATE** Check **ONLY** Two substrate **TYPE BOXES**, estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
	POOL RIFFLE		POOL RIFFLE				
☐ BLDR / SLABS [10]	☐	☐ HARDPAN [4]	☐	☐ LIMESTONE [1]	☐	☐ HEAVY [-2]	Substrate 5 Maximum 20
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐	☐ TILLS [1]	☐	☐ MODERATE [-1]	
☐ COBBLE [8]	☐	☐ MUCK [2]	☐	☐ WETLANDS [0]	☐	☐ NORMAL [0]	
☐ GRAVEL [7]	☐	☐ SILT [2]	☐	☐ HARDPAN [0]	☐	☐ FREE [1]	
☐ SAND [6]	☐	☐ ARTIFICIAL [0]	☐	☐ SANDSTONE [0]	☐	☐ EXTENSIVE [-2]	
☐ BEDROCK [5]	☐			☐ RIPRAP [0]	☐	☐ MODERATE [-1]	
NUMBER OF BEST TYPES: ☐ 4 or more ☒ 3 or less ☐ 0				Check ONE (Or 2 & average)		QUALITY	
Comments <u>HEAVY SILT</u>				☐ SILT ☐ EMBEDDEDNESS ☐ LACUSTURINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]		☐ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]	

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools).**AMOUNT**

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☐ EXTENSIVE > 75% [1]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☐ MODERATE 25-75% [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 5% [1]

CommentsHEAVY SILT
Cover
 Maximum 20

8

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☒ RECENT OR NO RECOVERY [1]	

Comments
Channel
 Maximum 20

5

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for **EACH BANK** (Or 2 per bank & average)

River right looking downstream

RIPARIAN WIDTH**FLOOD PLAIN QUALITY**

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☐ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]

Comments

Indicate predominant land use(s) past 100m riparian.

Riparian
 Maximum 10

7

5) POOL / GLIDE AND RIFFLE / RUN QUALITY**MAXIMUM DEPTH****CHANNEL WIDTH****CURRENT VELOCITY**

Check ONE (ONLY!)

Check ONE (Or 2 & average)

Check ALL that apply

- ☐ > 1m [6]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☐ < 0.2m [0]

- ☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE WIDTH [0]

- ☐ TORRENTIAL [-1] ☐ SLOW [1]
☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ FAST [1] ☐ INTERMITTENT [-2]
☐ MODERATE [1] ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
 (circle one and comment on back)
CommentsNA; Dry
Pool / Current
 Maximum 12

0

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]**RIFFLE DEPTH****RUN DEPTH****RIFFLE / RUN SUBSTRATE****RIFFLE / RUN EMBEDDEDNESS**

- ☐ BEST AREAS > 10cm [2]
☐ BEST AREAS 5-10cm [1]
☐ BEST AREAS < 5cm [metric=0]

- ☐ MAXIMUM > 50cm [2]
☐ MAXIMUM < 50cm [1]

- ☐ STABLE (e.g., Cobble, Boulder) [2]
☐ MOD. STABLE (e.g., Large Gravel) [1]
☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

- ☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

CommentsNA; Dry
Riffle / Run
 Maximum 8

0

6) GRADIENT (ft/mi)

(ft/mi)

☐ VERY LOW - LOW [2-4]

% POOL:

% GLIDE:

Gradient**DRAINAGE AREA**(mi²)☒ MODERATE [6-10]

% RUN:

% RIFFLE:

Maximum**Comments**NA; Dry
 Maximum 10

6

EPA 4520

08/18/08

965 > 955 => 8,687.68'10' / 1.45mi => 6.08 ft/mi. Gradient- Stream width 8'

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH
- ☒ WADE ☐ UP
- ☐ L. LINE ☐ NORMAL
- ☐ OTHER ☐ LOW
- ☐ DRY

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☒ OTHER

CLARITY

- 1st --sample pass-- 2nd
- ☐ < 20 cm
- ☐ 20-40 cm
- ☐ 40-70 cm
- ☐ > 70 cm/CTB
- ☐ SECCHI DEPTH

CANOPY

- ☒ > 85% - OPEN
- ☐ 55%-85%
- ☐ 30%-55%
- ☐ 10%-30%
- ☐ <10% - CLOSED

CJ RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

EJ AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- ☐ PUBLIC PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG-SUCCESSION-OLD
- ☐ SPRAY-SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BED/LOAD-STABLE
- ☐ ARMORED / SLUMPS
- ☐ ISLANDS / SCoured
- ☐ IMPOUNDED / DESICCATED
- ☐ FLOOD CONTROL / DRAINAGE

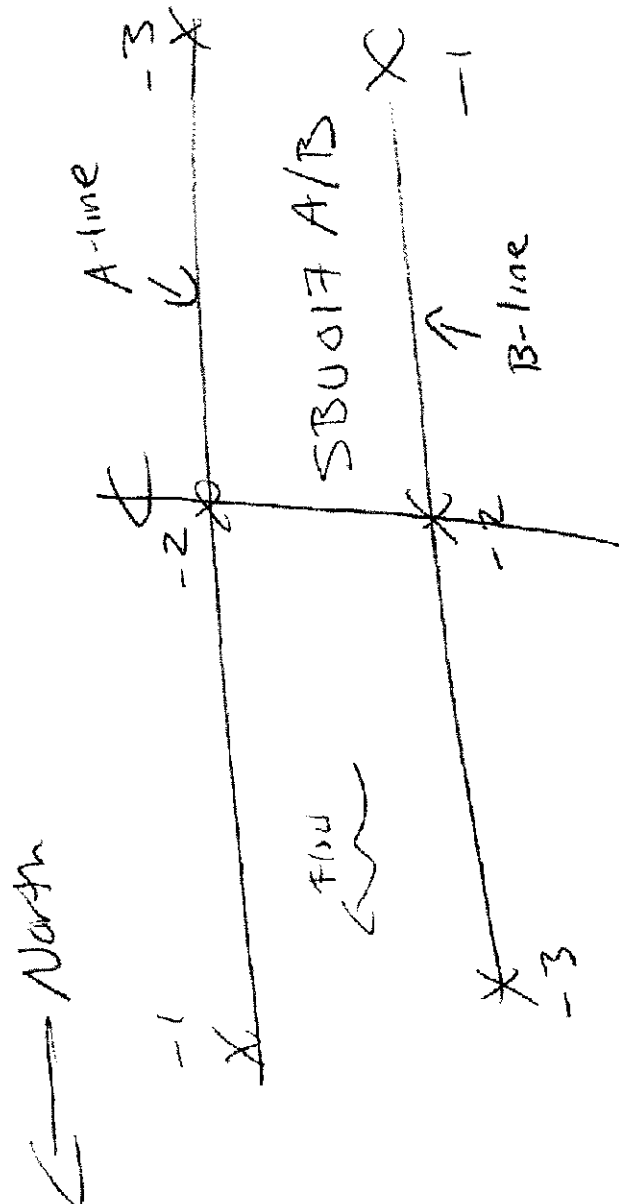
EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- ☐ width
- ☐ depth
- ☐ max. depth
- ☐ bankfull width
- ☐ bankfull x depth
- ☐ W/D ratio
- ☐ bankfull max. depth
- ☐ floodprone x² width
- ☐ entrench. ratio
- Legacy Tree:

Stream Drawing:



Comment RE: Reach consistency/Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

STBU019 A1B

WATERBODY CROSSING DATA FORM

PROJECT: HARDIN WIND FARM

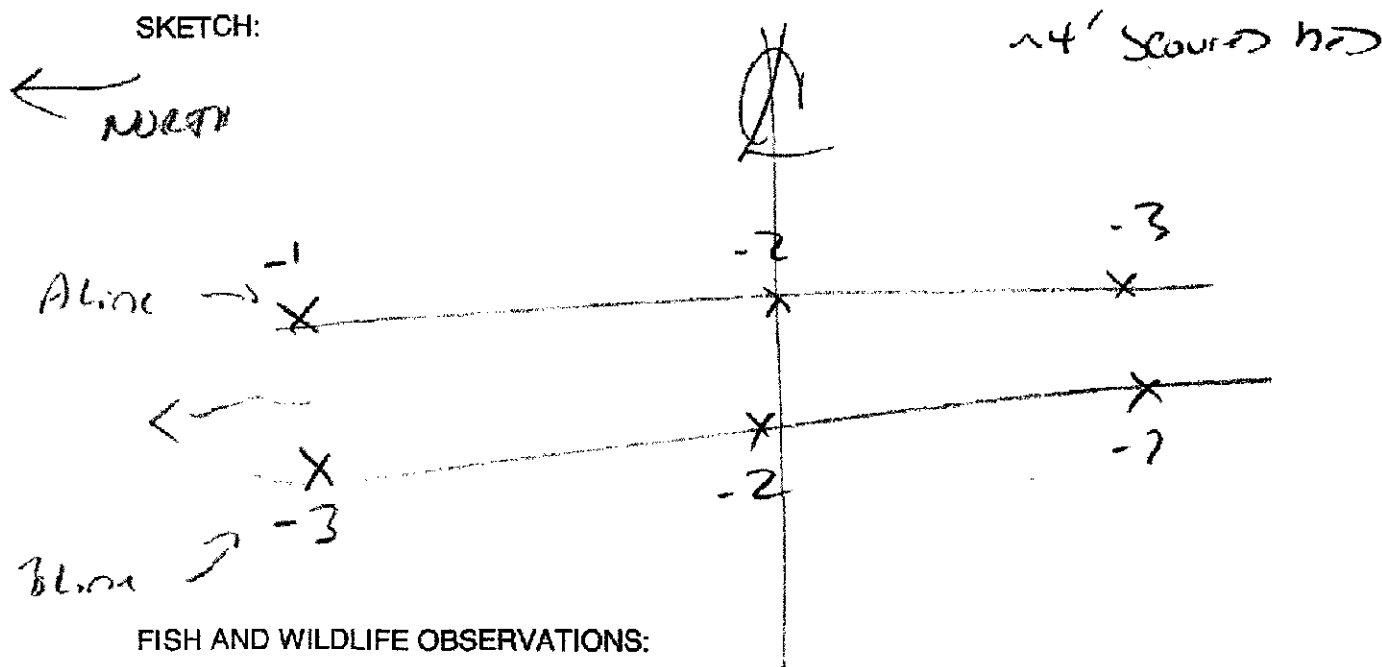
DATE: 10/21/09

LOCATION: WEST OF WTC 67

FIELD CREW: RTD, SMS

WATERBODY ID	STBU019 A1B	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	15 → South	
NAME (or tributary to)	Trib to Scioto River	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	EPHEMERAL	
WIDTH (observed/OHW)	- 18'	
DEPTH (observed/OHW)	- 14'	
FLOW RATE (dry/stagnant/low/moderate/high)	DRY	
FLOW DIRECTION	NORTH HANDS on slight top	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silty clay / clay	
BANK VEGETATION (upland/wetland cover type)	mid successional	

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

NOTES:

CRACKED substrate; SCOURED; 2:1 bank E 1:1 bank W;
no leaf litter; saturated bed
in bed

NOT mapped

SK0019A13

10/21/09



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **40**

Stream & Location: UNNAMED TRIBUTARY TO SCOTTS RIVER RM: --- Date: 10/21/09

W1,925' NORTH of CR110

Scorers Full Name & Affiliation: DELAHUNTY / SPARKS TEE

River Code: --- STORET #: --- Lat/Long: 40.6796 183.7688 Office verified location ☐ (NAD 83 - decimal)

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate 6 Maximum 20
☐ BLDR / SLABS [10]	☐	☐	☐	☒ HARDPAN [4]	☐	☐	☐	☐ LIMESTONE [1]	☐	☐ HEAVY [-2]	☐	
☐ BOULDER [9]	☐	☐	☐	☐ DETRITUS [3]	☐	☐	☐	☐ TILLS [1]	☐	☐ MODERATE [-1]	☐	
☐ COBBLE [8]	☐	☐	☐	☐ MUCK [2]	☐	☐	☐	☐ WETLANDS [0]	☐	☒ NORMAL [0]	☐	
☐ GRAVEL [7]	☐	☐	☐	☒ SILT [2]	☐	☐	☐	☒ HARDPAN [0]	☐	☐ FREE [1]	☐	
☐ SAND [6]	☐	☐	☐	☐ ARTIFICIAL [0]	☐	☐	☐	☐ SANDSTONE [0]	☐	☐ EXTENSIVE [-2]	☐	
☐ BEDROCK [5]	☐	☐	☐	(Score natural substrates; ignore sludge from point-sources)				☐ RIP/RAP [0]	☐	☐ MODERATE [-1]	☐	
NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]								☐ LACUSTURINE [0]	☐	☐ NORMAL [0]	☐	
Comments: <u>HERBALEOUS</u>								☐ SHALE [-1]	☐	☐ NONE [1]	☐	
								☐ COAL FINES [-2]	☐	☐	☐	

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

		AMOUNT	
☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ EXTENSIVE > 75% [1]	☐
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☒ MODERATE 25-75% [7]	☐
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ SPARSE 5-25% [3]	☐
☐ ROOTMATS [1]	☐	☐ NEARLY ABSENT < 5% [1]	☐
Comments: <u>HERBALEOUS</u>		Cover Maximum 9	

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	
Comments: <u>HERBALEOUS</u>			
Channel Maximum 7			

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☒ EROSION	☐ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ MODERATE 10-50m [3]	☐ FOREST SWAMP [1]	☐ CONSERVATION TILLAGE [1]
☒ MODERATE [2]	☐ MODERATE [2]	☐ NARROW 5-10m [2]	☐ VERY NARROW < 5m [1]	☒ SHRUB OR OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]
☐ HEAVY / SEVERE [1]	☐ NONE [0]	☐ NONE [0]	☐	☐ RESIDENTIAL PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]
Comments: <u>HERBALEOUS</u>		<u>HERBALEOUS</u>		☐ FENCED PASTURE [1]	☐
				☒ OPEN PASTURE, ROWCROP [0]	☐
				Indicate predominant land use(s) past 100m riparian.	
				Riparian Maximum 8	

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY):	Check ONE (Or 2 & average)	Check ONE (Or 2 & average)	Check ALL that apply			
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☐ SLOW [1]			
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]			
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☐ INTERMITTENT [-2]			
☐ 0.2-0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]			
☐ < 0.2m [0]		Indicate for reach - pools and riffles.				
Comments: <u>DRY - NA</u>				Pool / Current Maximum 2		

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). ☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
Comments: <u>DRY - NA</u>		Riffle / Run Maximum 2	

6) GRADIENT (10.5 ft/mi)

DRAINAGE AREA	% POOL	% GLIDE	Gradient Maximum
☐ VERY LOW - LOW [2-4]	☒ 0	☒ 0	10
☒ MODERATE [6-10]	☐	☐	
☐ HIGH - VERY HIGH [10-6]	☐	☐	

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT ☐ WADE ☐ L. LINE ☐ OTHER ☐ DISTANCE ☒ 0.5 Km ☐ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ☐ OTHER ☐ CLARITY 1st sample pass - 2nd ☐ < 20 cm ☐ 20-40 cm ☐ 40-70 cm ☐ > 70 cm/CTB ☐ SECCHI DEPTH ☐ meters ☒ 40

CANOPY

- > 85% - OPEN ☐ 55%-85% ☐ 30%-55% ☐ 10%-30% ☐ < 10% - CLOSED ☐

CJ RECREATION

AREA DEPTH POOL: ☐ > 100m ☐ > 3ft

BJ AESTHETICS

- NUISANCE ALGAE ☐ INVASIVE MACROPHYTES ☐ EXCESS TURBIDITY ☐ DISCOLORATION ☐ FOAM/SCUM ☐ OIL SHEEN ☐ TRASH/LITTER ☐ NUISANCE ODOR ☐ SLUDGE DEPOSITS ☐ CSO/SO₂/OUTFALLS ☐

DJ MAINTENANCE

- PUBLIC/PRIVATE BOTH/NA ☐ ACTIVE/HISTORIC BOTH/NA ☐ YOUNG SUCCESSION-OLD ☐ SPRAY/SNAG/REMOVED ☐ MODIFIED/DIPPED OUT/NA ☐ LEVEED/ONE SIDED ☐ RELOCATED/CUTOFFS ☐ MOVING-BEDLOAD-STABLE ☐ ARMOURD/SLUMPS ☐ ISLANDS/SCOURED ☒ - BED ☐ IMPOUNDED/DESICCATED ☐ FLOOD CONTROL/DRAINAGE ☐

EJ ISSUES

- WWTP/CSO/NPDES/INDUSTRY ☐ HARDENED/URBAN/DIRT&GRIME ☐ CONTAMINATED/LANDFILL ☐ BMPs-CONSTRUCTION-SEDIMENT ☐ LOGGING/IRRIGATION/COOLING ☐ BANK/EROSION/SURFACE ☐ FALSE BANK/MANURE/LAGOON ☐ WASH H₂O/TILE/H₂O TABLE ☐ ACID/MINE/QUARRY/FLOW ☐ NATURAL/WETLAND/STAGNANT ☐ PARK/GOLF/LAWN/HOME ☐ ATMOSPHERE/DATA PAUCITY ☐

FJ MEASUREMENTS

- $\bar{x}$ width ☐ $\bar{x}$ depth ☐ max. depth ☐ $\bar{x}$ bankfull width ☐ bankfull $\bar{x}$ depth ☐ W/D ratio ☐ bankfull max. depth ☐ floodprone $\bar{x}^2$ width ☐ entrench. ratio ☐ Legacy Tree: ☐

Stream Drawing:

Bank / Bed Survey 1

MEANALOGS

← NORTH

A-line

-3

-2

-1

STUDY A/B

Flow

X

X

X

-1

-2

-3

B-line

SDU020 AIR

WATERBODY CROSSING DATA FORM

PROJECT: HARDIN WIND FARM

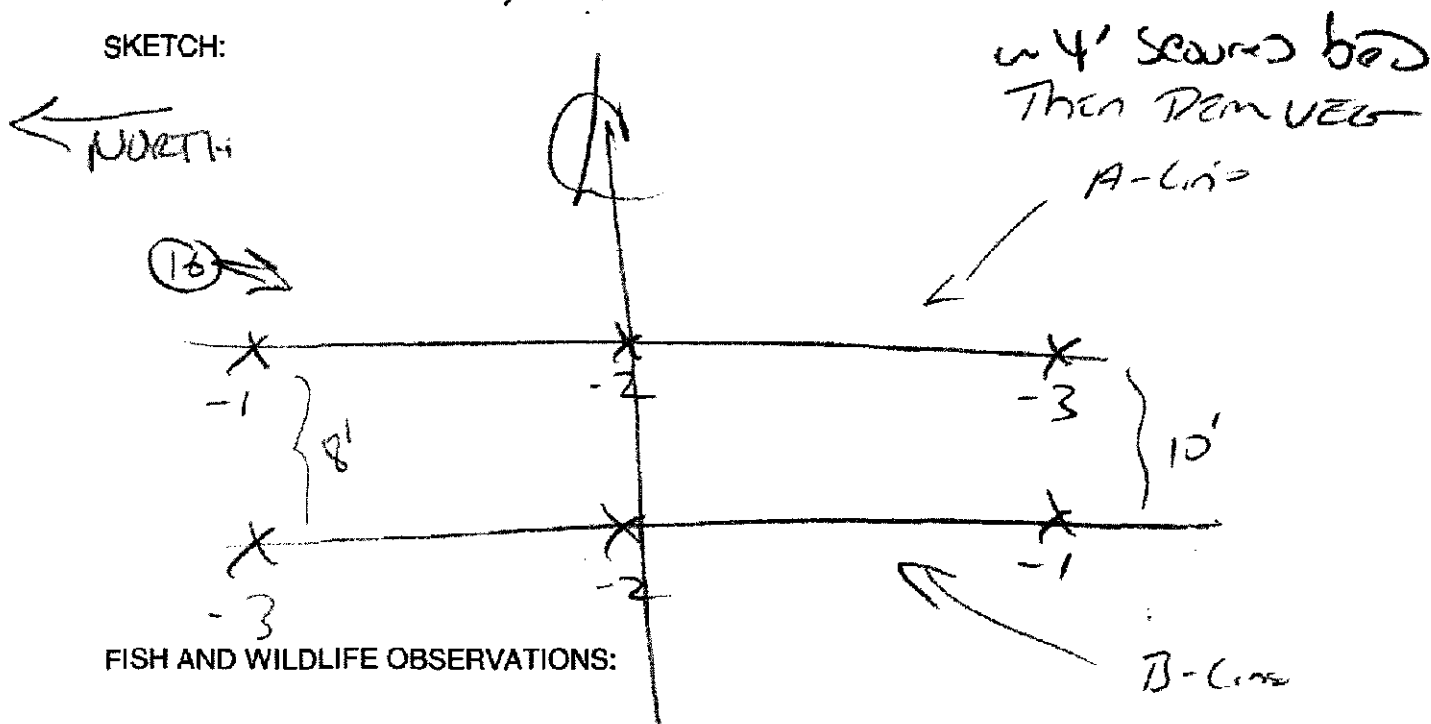
DATE: 10/21/07

LOCATION: WEST of WB 68

FIELD CREW: JOHN SMS

WATERBODY ID	SDU020 AIR	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	16 => South	
NAME (or tributary to)	Trib to Santa River	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	EPHEMERAL	
WIDTH (observed/OHW)	- 18'-10'	
DEPTH (observed/OHW)	- 13'	
FLOW RATE (dry/stagnant/low/moderate/high)	DRY	
FLOW DIRECTION	NORTH - TRODS on S. 4th Ppd	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silty Clay / Clay	
BANK VEGETATION (upland/wetland cover type)	mid successional	

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

NOTES:

NOT mapped

SBUOZA A/B

10/21/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet**

QHEI Score:

39

Stream & Location: UNNAMED Scioto River Tributary RM: Date: 10/21/09
USGS NORTH of CR 110 Scorers Full Name & Affiliation: DELANNEY / SPARKS - TTEC
 River Code: STORET #: Lat./Long.: 40.6760 183.7621 Office verified location ☐

1) SUBSTRATE Check ONLY two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

- | BEST TYPES | POOL RIFFLE | OTHER TYPES | POOL RIFFLE |
|--|--------------------------------------|--|--------------------------------------|
| ☐ BLDR / SLABS [10] | ☐ <u> </u> | ☐ HARDPAN [4] | ☐ <u> </u> |
| ☐ BOULDER [9] | ☐ <u> </u> | ☐ DETRITUS [3] | ☐ <u> </u> |
| ☐ COBBLE [8] | ☐ <u> </u> | ☐ MUCK [2] | ☐ <u> </u> |
| ☐ GRAVEL [7] | ☐ <u> </u> | ☒ SILT [2] | ☐ <u> </u> |
| ☐ SAND [6] | ☐ <u> </u> | ☐ ARTIFICIAL [0] | ☐ <u> </u> |
| ☐ BEDROCK [5] | ☐ <u> </u> | | |

ORIGIN**QUALITY**☐ LIMESTONE [1]☐ HEAVY [-2]☐ TILLS [1]☐ MODERATE [-1]☐ WETLANDS [0]☐ NORMAL [0]☒ HARDPAN [0]☐ FREE [1]☐ SANDSTONE [0]☐ EXTENSIVE [-2]☐ RIPRAP [0]☐ MODERATE [-1]☐ LACUSTURINE [0]☐ NORMAL [0]☐ SHALE [-1]☐ NONE [1]☐ COAL FINES [-2]NUMBER OF BEST TYPES: ☐ 4 or more [2] sludge from point-sources

Comments

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.**AMOUNT**

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]☐ POOLS > 70cm [2]☐ OXBOWS, BACKWATERS [1]☐ EXTENSIVE > 75% [1]☒ OVERHANGING VEGETATION [1]☐ ROOTWADS [1]☐ AQUATIC MACROPHYTES [1]☐ MODERATE 25-75% [7]☐ SHALLOWS (IN SLOW WATER) [1]☐ BOULDERS [1]☐ LOGS OR WOODY DEBRIS [1]☐ SPARSE 5-25% [3]☐ ROOTMATS [1]☐ NEARLY ABSENT < 5% [1]

Comments

Cover
Maximum
20**3) CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)**SINUOSITY****DEVELOPMENT****CHANNELIZATION****STABILITY**☐ HIGH [4]☐ EXCELLENT [7]☐ NONE [6]☐ HIGH [3]☐ MODERATE [3]☐ GOOD [5]☐ RECOVERED [4]☐ MODERATE [2]☐ LOW [2]☐ FAIR [3]☒ RECOVERING [3]☐ LOW [1]☒ NONE [1]☒ POOR [1]☐ RECENT OR NO RECOVERY [1]

Comments

Channel
Maximum
20**4) BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION**RIPARIAN WIDTH****FLOOD PLAIN QUALITY**☒ NONE / LITTLE [3]☐ WIDE > 50m [4]☐ FOREST, SWAMP [3]☐ CONSERVATION TILLAGE [1]☐ MODERATE [2]☐ MODERATE 10-50m [3]☐ SHRUB OR OLD FIELD [2]☐ URBAN OR INDUSTRIAL [0]☐ HEAVY / SEVERE [1]☐ NARROW 5-10m [2]☐ RESIDENTIAL, PARK, NEW FIELD [1]☐ MINING / CONSTRUCTION [0]☐ VERY NARROW < 5m [1]☐ FENCED PASTURE [1]☐ INDICATE predominant land use(s) past 100m riparian.☒ NONE [0]☒ OPEN PASTURE, ROWCROP [0]

Comments

Riparian
Maximum
10**5) POOL / GLIDE AND RIFFLE / RUN QUALITY****MAXIMUM DEPTH****CHANNEL WIDTH****CURRENT VELOCITY**

Check ONE (ONLY)

Check ONE (Or 2 & average)

Check ALL that apply

☐ > 1m [6]☐ POOL WIDTH > RIFFLE WIDTH [2]☐ TORRENTIAL [-1]☐ SLOW [1]☐ 0.7-1m [4]☐ POOL WIDTH = RIFFLE WIDTH [1]☐ VERY FAST [1]☐ INTERSTITIAL [-1]☐ 0.4-0.7m [2]☐ POOL WIDTH < RIFFLE WIDTH [0]☐ FAST [1]☐ INTERMITTENT [-2]☐ 0.2-0.4m [1]☐ MODERATE [1]☐ EDDIES [1]☐ < 0.2m [0]

Indicate for reach - pools and riffles.

Comments

Pool /
Current
Maximum
12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]**RIFFLE DEPTH****RUN DEPTH****RIFFLE / RUN SUBSTRATE****RIFFLE / RUN EMBEDDEDNESS**☐ BEST AREAS > 10cm [2]☐ MAXIMUM > 50cm [2]☐ STABLE (e.g., Cobble, Boulder) [2]☐ NONE [2]☐ BEST AREAS 5-10cm [1]☐ MAXIMUM < 50cm [1]☐ MOD. STABLE (e.g., Large Gravel) [1]☐ LOW [1]☐ BEST AREAS < 5cm [metric=0]☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]☐ MODERATE [0]☐ EXTENSIVE [-1]

Comments

Riffle /
Run
Maximum
8**6) GRADIENT** (10.5 ft/mi)**DRAINAGE AREA**ft²/mi☐ VERY LOW - LOW [2-4]% POOL: % GLIDE: Gradient
Maximum
10☒ MODERATE [6-10]% RUN: % RIFFLE: ☐ HIGH - VERY HIGH [10-6]

Comments

EPA 4520

06/16/06

960-955 $\Rightarrow$ 2,509.8 $\Rightarrow$ 5' / 475 $\Rightarrow$ 10.53 ft/mi. Gradient

A) SAMPLED REACH

Check ALL that apply

METHOD STAGE

1st sample pass- 2nd

- ☒ BOAT
☐ WADE
☐ L. LINE
☐ OTHER
☐ DISTANCE
☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☒ OTHER
☐ CLARITY
☐ 1st sample pass- 2nd
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/ CTB
☐ SECCHI DEPTH
☐ meters
☐ CANOPY
☒ > 85% - OPEN
☐ 55% - 85%
☐ 30% - 55%
☐ 10% - 30%
☐ < 10% - CLOSED

CLARITY

- ☐ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM/ SCUM
☐ OIL SHEEN
☐ TRASH/ LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSO/SSOs/OUTFALLS
☐ AREA DEPTH
☐ POOL: ☐ > 100ft ☐ > 3ft

CJ RECREATION

POOL: ☐ > 100ft ☐ > 3ft

BJAESTHETICS

- ☐ PUBLIC (PRIVATE) BOTH / NA
☐ ACTIVE / HISTORIC / BOTH / NA
☐ YOUNG-SUCCESSION-OLD
☐ SPRAY / SNAG / REMOVED
☐ MODIFIED / DIPPED OUT / NA
☐ LEVEED / ONE SIDED
☐ RELOCATED / CUTOFFS
☐ MOVING-BED/LOAD-STABLE
☐ ARMORED / SHAWMS
☐ ISLANDS / SCoured
☐ IMPOUND / DESICCATED
☐ FLOOD CONTROL / DRAINAGE

DJ MAINTENANCE

- ☐ PUBLIC (PRIVATE) BOTH / NA
☐ ACTIVE / HISTORIC / BOTH / NA
☐ YOUNG-SUCCESSION-OLD
☐ SPRAY / SNAG / REMOVED
☐ MODIFIED / DIPPED OUT / NA
☐ LEVEED / ONE SIDED
☐ RELOCATED / CUTOFFS
☐ MOVING-BED/LOAD-STABLE
☐ ARMORED / SHAWMS
☐ ISLANDS / SCoured
☐ IMPOUND / DESICCATED
☐ FLOOD CONTROL / DRAINAGE

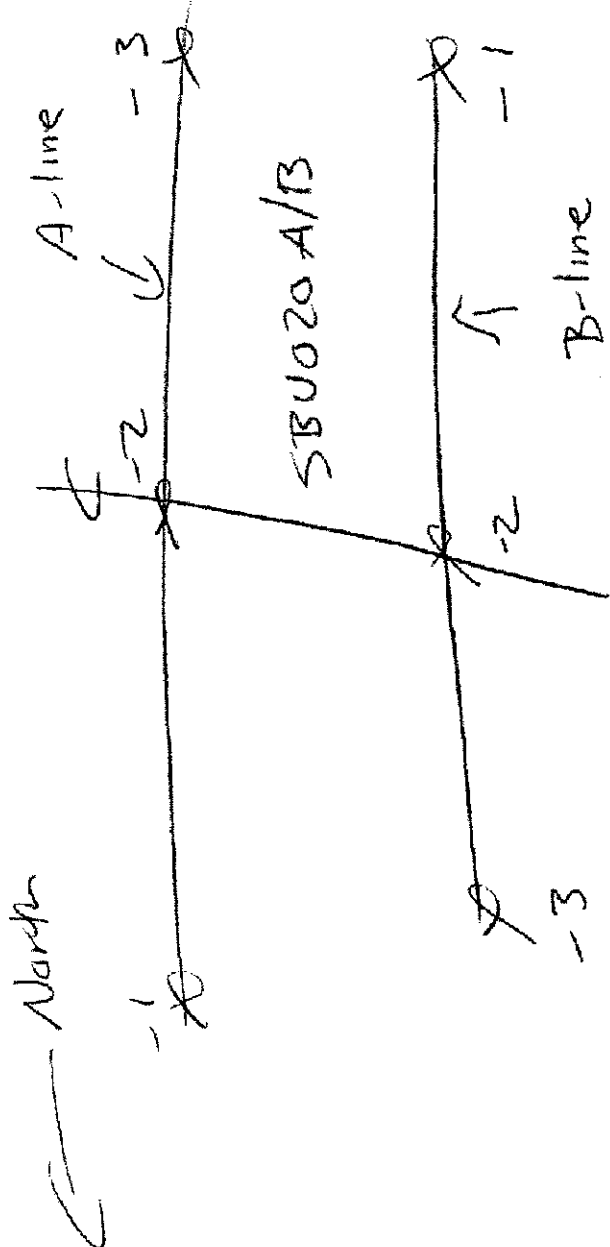
EJ ISSUES

- ☐ WWTP / CSO / NPDES (INDUSTRY)
☐ HARDENED / URBAN / DIRT&GRIME
☐ CONTAMINATED / LANDFILL
☐ BMPs-CONSTRUCTION-SEDIMENT
☐ LOGGING / IRRIGATION / COOLING
☐ BANK EROSION / SURFACE
☐ FALSE BANK / MANURE / LAGOON
☐ WASH H₂O / TILE / H₂O TABLE
☐ ACID / MINE / QUARRY / FLOW
☐ NATURAL / WETLAND / STAGNANT
☐ PARK / GOLF / LAWN / HOME
☐ ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- ☐ width
☐ depth
☐ max. depth
☐ bankfull width 8-10
☐ bankfull depth 3
☐ W/D ratio
☐ bankfull max. depth
☐ floodprone x² width
☐ entrench. ratio
☐ Legacy Tree:

Stream Drawing:



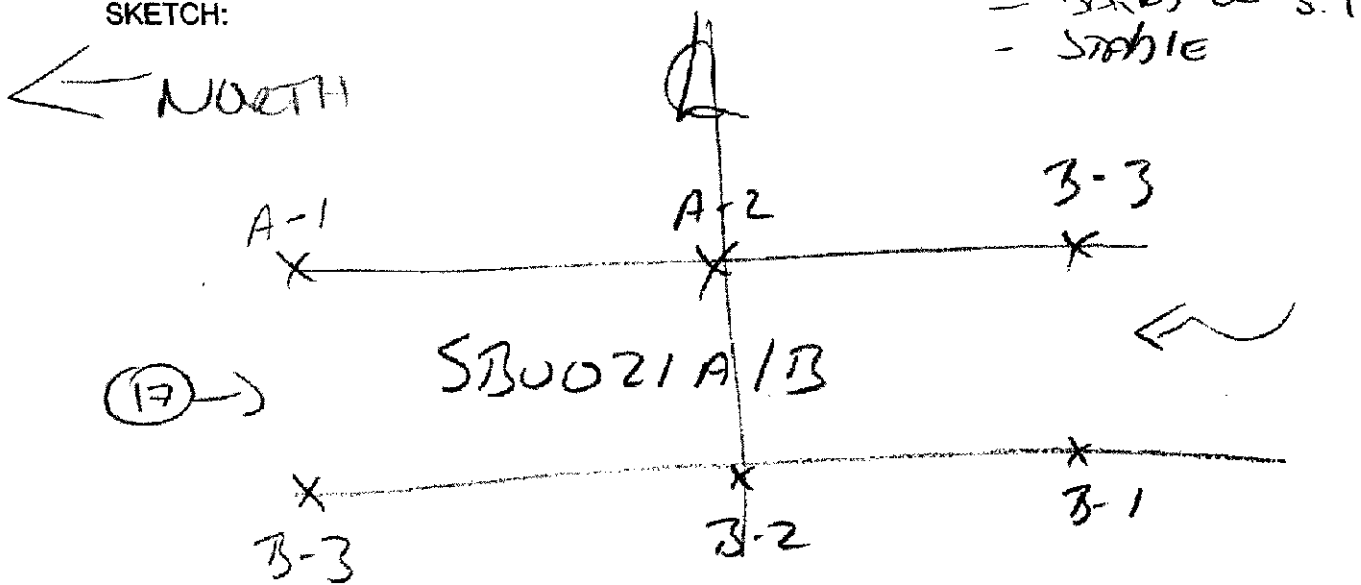
Comment RE: Reach consistency/ Is reach typical of stream? , Recreation/ Observed - Inferred , Other/ Sampling observations , Concerns , Access directions , etc.

WATERBODY CROSSING DATA FORM

PROJECT: Hoodin W. Falm DATE: 10/21/09
 LOCATION: EAST of WB 70 FIELD CREW: ATIS, SMS

WATERBODY ID	SB0021A1B	
GPS FEATURE TYPE (open/closed)(line/polygon)	line (1-3)	
PHOTO ID and DIRECTION	17-3 South	
NAME (or tributary to)	unnamed trib to Scoto River	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	EPHEMERAL	
WIDTH (observed/OHW)	- / 10'	
DEPTH (observed/OHW)	- / 1'	
FLOW RATE (dry/stagnant/low/moderate/high)	DRY	
FLOW DIRECTION	NORTH - based on slight top	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt, clay / clay	
BANK VEGETATION (upland/wetland cover type)	EARLY SUCCESSIONAL	

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

Drumstick SCAT

NOTES:

Substrate cracked; DEM Veg in channel 90% cover;

mapped as Intermittent

580021A115

12/21/09

OhioEPA

Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet

QHEI Score:

36

Stream & Location: unnamed Trib to South River RM: --- Date: 12/21/09

u830" South of CR110

Scorer's Full Name & Affiliation: DELAHUNTY / SPARKS TRECRiver Code: --- STORET #: ---Lat./Long.: 40.6719 183.7530Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES, estimate % or note every type present

BEST TYPES	POOL RIFFLE	OTHER TYPES	POOL RIFFLE
☐ BLDR/SLABS [10]	☐	☒ HARDPAN [4]	☐
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐
☐ COBBLE [8]	☐	☐ MUCK [2]	☐
☐ GRAVEL [7]	☐	☒ SILT [2]	☐
☐ SAND [6]	☐	☒ ARTIFICIAL [0]	☐
☐ BEDROCK [5]	☐		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

Check ONE (Or 2 & average)

ORIGIN	QUALITY
☐ LIMESTONE [1]	☐ HEAVY [-2]
☐ TILLS [1]	☒ MODERATE [-1]
☐ WETLANDS [0]	☐ NORMAL [0]
☒ HARDPAN [0]	☐ FREE [1]
☐ SANDSTONE [0]	☐ EXTENSIVE [-2]
☐ RIP/RAP [0]	☐ MODERATE [-1]
☐ LACUSTURINE [0]	☐ NORMAL [0]
☐ SHALE [-1]	☐ NONE [1]
☐ COAL FINES [-2]	

SILT

EMBEDDEDNESS

Substrate
Maximum
20
5

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☒ AQUATIC MACROPHYTES [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]
☐ ROOTMATS [1]		

Comments

HERRAPPOUS

AMOUNT

Check ONE (Or 2 & average)

☐ EXTENSIVE > 75% [11]
☒ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover
Maximum
20
8

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Channel
Maximum
20
7

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [3]	☐ WIDE > 80m [4]	☐ FOREST, SWAMP [3]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]

Comments

Indicate predominant land use(s) past 100m riparian.

Riparian
Maximum
10
8

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check ONE (ONLY)

☐ > 1m [6]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

☐ TORRENTIAL [-1]	☐ SLOW [1]
☐ VERY FAST [1]	☐ INTERSTITIAL [-1]
☐ FAST [1]	☐ INTERMITTENT [-2]
☐ MODERATE [1]	☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential

Primary Contact

Secondary Contact

(circle one and comment on back)

Pool /
Current
Maximum
12
10

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments

6) GRADIENT (6.08 ft/mi)

DRAINAGE AREA

☐ VERY LOW - LOW [2-4]
☒ MODERATE [6-10]
☐ HIGH - VERY HIGH [10-6]

% POOL:

% GLIDE:

% RUN:

% RIFFLE:

Gradient
Maximum
10
8

EPA 4520

06/16/06

965 → 955 → 8,687.68' 10' 1.245 mi → 6.08 ft/mi Gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ LINE ☐ NORMAL ☐
- ☒ OTHER ☐ LOW ☐
- ☐ DISTANCE ☐ DRY ☐

CLARITY

- 1st 2nd
- ☐ < 20 cm ☐
- ☐ 20-40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm C/TB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

- ☒ > 85% OPEN
- ☐ 55%-85%
- ☐ 30%-55%
- ☐ 10%-30%
- ☐ < 10% - CLOSED

CJ RECREATION

POOL: ☐ > 100ft ☐ > 3ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- ☒ PRIVATE / BOTH / NA
- ☐ PUBLIC / HISTORIC / BOTH / NA
- ☐ YOUNG SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BEDLOAD-STABLE
- ☐ ARMORED / SLUMPS
- ☐ ISLANDS / SCOURED
- ☐ IMPOUNDED / DESICCATED
- ☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- ☐ width
- ☐ depth
- ☐ max. depth
- ☐ bankfull width
- ☐ bankfull x depth
- ☐ W/D ratio
- ☐ bankfull max. depth
- ☐ floodprone x² width
- ☐ entrench. ratio
- Legacy Tree:

Stream Drawing:

Bed & Bank Survey

HERZBERG

← NORTH

A-3

A-1

A-2

STUOZ1AIRS

Flow

B-3

B-2

B-1

WATERBODY CROSSING DATA FORM

PROJECT: HARDIN WIND FARM

DATE: 10/22/09

LOCATION: _____

FIELD CREW: (RT) SMS

WATERBODY ID	SAROZZAIB	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	Photo 1 = EAST	
NAME (or tributary to)	unnamed - DRAIN to mapped Sandoz River trib (intermittent)	
WATERBODY TYPE (stream/pond/ditch/culvert)	Roaming ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	EPHEMERAL	
WIDTH (observed/OHW)	- 16'	
DEPTH (observed/OHW)	- 12'	
FLOW RATE (dry/stagnant/low/moderate/high)	DRY	
FLOW DIRECTION	WEST TOWARD SAROZZAIB	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silty clay / clay	
BANK VEGETATION (upland/wetland cover type)	Early successional	

SKETCH:

↑ N



- Banks - 45% - 55%
- minor bank erosion

CR-110

A-1
X

A-2
X

A-3
X

SAROZZAIB

B-2
X

B-2
X

B-1
X

CORN FIELD

FISH AND WILDLIFE OBSERVATIONS:

NOTES:

Substrate (vegetation) w/ perm veg

Substrate (mud/silt)

- NOT mapped - DRAIN to mapped int trib to Sandoz River

SAR022A13

10/22/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet****QHEI Score:** 38Stream & Location: unnamed Trib to Scioto River RM: Date: 10/22/09Scorers Full Name & Affiliation: DELAHUNTY, SPARKS - TTEC
River Code: STORET #: Lat./Long.: 40.6743183 -75.823 Office verified location ☐**1) SUBSTRATE** Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		POOL RIFFLE	OTHER TYPES	POOL RIFFLE	ORIGIN	QUALITY
☐ BLDG / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ HEAVY [-2]	Substrate 5 Maximum 20

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.)

AMOUNT	
☒ UNDERCUT BANKS [1] ☒ OVERHANGING VEGETATION [1] ☐ SHALLOWS (IN SLOW WATER) [1] ☐ ROOTMATS [1]	☐ POOLS > 70cm [2] ☐ ROOTWADS [1] ☐ BOULDERS [1]

Comments: HERNANDOUSE

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [8]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments:

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [1]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]

Comments: N/A

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY):	Check ONE (Or 2 & average)	Check ALL that apply
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ SLOW [1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]
☐ 0.2-0.4m [1]		☐ FAST [1]
☐ < 0.2m [0]		☐ MODERATE [1]

Comments: DRY - N/A

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: DRY - N/A

6) GRADIENT

DRAINAGE AREA	% POOL	% GLIDE
<u>112.8</u> ft ² /mi	☐ VERY LOW - LOW [2-4]	☐ VERY FAST [1]
<u>6.175</u> m ²	☒ MODERATE [6-10]	☐ INTERSTITIAL [-1]
	☐ HIGH - VERY HIGH [10-6]	☐ INTERMITTENT [-2]

Comments: 10

EPA 4520

08/16/08

965 → 950 ⇒ 6.175' 15' / 1.170 ⇒ 12.82 6' / mi - Gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
☐ WADE
☐ L. LINE
☒ OTHER
 DISTANCE
☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☒ OTHER
 CLARITY
☐ 1st - sample pass - 2nd
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/CTB
☐ SECCHI DEPTH
 meters
☒ CANOPY
☒ > 95% - OPEN
☐ 55% - 85%
☐ 30% - 55%
☐ 10% - 30%
☐ < 10% - CLOSED

STAGE

- ☐ HIGH
☐ UP
☐ NORMAL
☐ LOW
☒ DRY

CLARITY

- ☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☒ OTHER
 CLARITY
☐ 1st - sample pass - 2nd
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/CTB
☐ SECCHI DEPTH
 meters
☒ CANOPY
☒ > 95% - OPEN
☐ 55% - 85%
☐ 30% - 55%
☐ 10% - 30%
☐ < 10% - CLOSED

CJ RECREATION

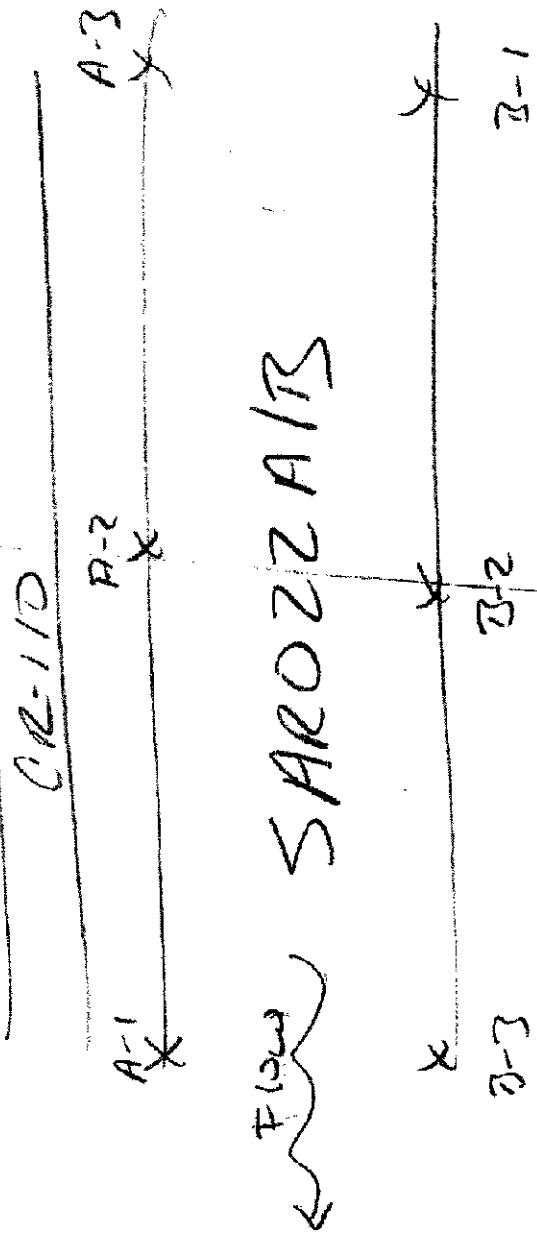
- ☐ POOL: ☐ > 100ft ☐ > 3ft

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

EJ ISSUES	FJ MEASUREMENTS
WWTP / CSO / NPDES / INDUSTRY	$\bar{x}$ width
HARDENED / URBAN / DIRT / CRIME	$\bar{x}$ depth
CONTAMINATED / LANDFILL	max. depth
BMPs - CONSTRUCTION / SEDIMENT	$\bar{x}$ bankfull width
LOGGING / IRRIGATION / COOLING	bankfull $\bar{x}$ depth
BANK / EROSION / SURFACE	WD ratio
FALSE BANK / MANURE / LAGOON	bankfull max. depth
WASH H ₂ O / TILE / H ₂ O TABLE	floodprone $\bar{x}^2$ width
ACID / MINE / QUARRY / FLOW	entrrench. ratio
NATURAL / WETLAND / STAGNANT	Legacy Tree:
PARK / GOLF / LAWN / HOME	
ATMOSPHERE / DATA PAUCITY	

Stream Drawing:

Bank & Bed Survey
MEASUREMENTS



WATERBODY CROSSING DATA FORM

PROJECT: Houlin Wing Farm DATE: 10/22/09
 LOCATION: SW West of WB 76 FIELD CREW: RTJ / SMS

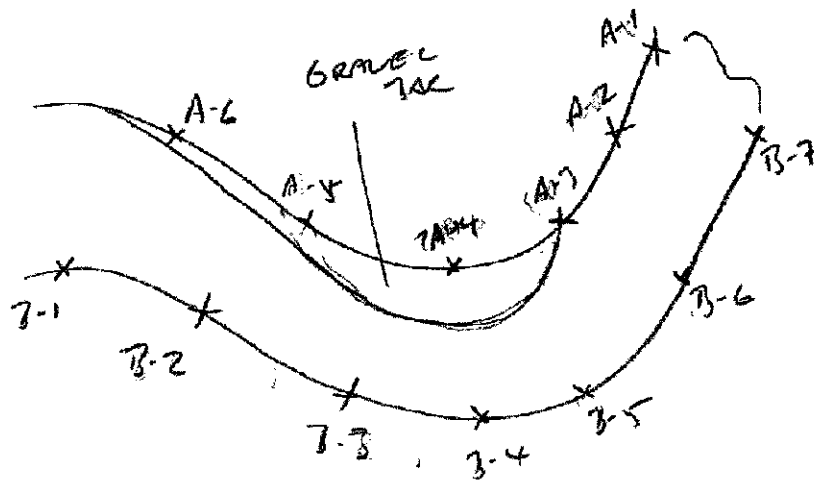
WATERBODY ID	<u>SB0023A1B</u>		
GPS FEATURE TYPE (open/closed)(line/polygon)	<u>Line (1-3)</u>		
PHOTO ID and DIRECTION	Photo 2 $\Rightarrow$ North Photo 3 $\Rightarrow$ West	Photo 4 $\Rightarrow$ SE Photo 5 $\Rightarrow$ UNID Photo 6 $\Rightarrow$ SW Photo 7 $\Rightarrow$ NW	E & musclic shell mussie
NAME (or tributary to)	<u>McCoy Run</u>		
WATERBODY TYPE (stream/pond/ditch/culvert)	<u>STREAM</u>		
FLOW REGIME (perennial/intermittent/ephemeral)	<u>PERENNIAL</u>		
WIDTH (observed/OHW)	<u>12' / 20'</u>		
DEPTH (observed/OHW)	<u>6" / 3'+</u>		
FLOW RATE (dry/stagnant/low/moderate/high)	<u>Low</u>		
FLOW DIRECTION	<u>NORTH</u>		
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	<u>Gravel / Cobble / Silt / Embankment</u>		
BANK VEGETATION (upland/wetland cover type)	<u>EARLY SUCCESSIONAL</u>		

SKETCH: Pools

← NORTH

SEVERE EROSION - WEST BANK
Sloping - EAST BANK

IRON LEANING
to SW
- water clear



-SLOPE
E-45°-3:1
W-50°-2:1

FISH AND WILDLIFE OBSERVATIONS:

42 ELONGATED MUSCIE SHELL (W3/5") / UNID MUSCIE SHELL (COLLECTED) NEAR A-4

EROSION; CRAYFISH BURROWS; MINNOWS; DEER TRACKS; SNAILS; RACCOON TRAILS

NOTES:

Summers
EXOSKELETONS

ALGAE; LEMONA; MODERATE SEVERE BANK EROSION

ALGAL MAT ON EDGES

- more as PERENNIAL
DREBBE SPIN ON TOP OF BANKS

380023A13

10/22/09

Ohio EPA

**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet**

QHEI Score: 55

Stream & Location: McCoy Run

RM: _____ Date: 10/22/09

WTS EAST 8 OR 95

Scorers Full Name & Affiliation: DELAHUNTY, SPARKS - TTR

River Code: _____ STORET #: _____

Lat./Long.: 40.6786 183.7267

Office verified location ☐

1) SUBSTRATE Check ONLY two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	Substrate 14 Maximum 20
☐ BOULDER [9]	☐ SAND [6]	☐ DETRITUS [3]	☐ SANDSTONE [0]	☒ TILLS [1]	☒ MODERATE [-1]	☐ NORMAL [0]	
☒ COBBLE [8]	☐ GRAVEL [7]	☐ MUCK [2]	☐ RIP/RAP [0]	☐ WETLANDS [0]	☐ FREE [1]	☐ EXTENSIVE [-2]	
☐ SAND [6]	☐ BEDROCK [5]	☐ SILT [2]	☐ LAGUSTURINE [0]	☐ HARDPAN [0]	☒ MODERATE [-1]	☐ NORMAL [0]	
☐ ARTIFICIAL [0]	(Score natural substrates; ignore sludge from point-sources)		☐ SHALE [-1]	☐ SANDSTONE [0]	☐ NONE [1]		
NUMBER OF BEST TYPES: ☒ 4 or more [2] ☒ 3 or less [0]				☐ COAL FINES [-2]			

Comments _____

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

☐ UNDERCUT BANKS [1]	☒ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☒ EXTENSIVE > 75% [11]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☒ MODERATE 25-75% [7]
☒ SHALLOWS (IN SLOW WATER) [1]	☒ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 5% [1]

Comments _____

Cover
Maximum 20
11

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☒ MODERATE [3]	☒ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments _____

Channel
Maximum 20
13

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY	CONSERVATION TILLAGE
☐ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]	☐ URBAN OR INDUSTRIAL [0]
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☐ MINING / CONSTRUCTION [0]
☒ HEAVY / SEVERE [1]	☐ NARROW 6-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]	
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	
	☒ NONE [0]	☐ OPEN PASTURE, ROWCROP [0]	

Comments _____

Indicate predominant land use(s) past 100m riparian.

Riparian
Maximum 10
7

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY)

Check ONE (Or 2 & average)

Check ALL that apply

☐ > 1m [6]	☒ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☒ SLOW [1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☐ INTERMITTENT [-2]
☐ 0.2-0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]
☒ < 0.2m [0]		Indicate for reach - pools and riffles.	

Comments _____

Pool / Current
Maximum 12
3

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average)

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH

RUN DEPTH

RIFFLE / RUN SUBSTRATE

RIFFLE / RUN EMBEDDEDNESS

☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☒ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☒ BEST AREAS < 5cm [metric=0]		☒ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☒ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments _____

Riffle / Run
Maximum 8
1

6) GRADIENT

DRAINAGE AREA

☐ VERY LOW - LOW [2-4]

☐ MODERATE [6-10]

☒ HIGH - VERY HIGH [10-15]

% POOL: 65

% GLIDE: 0

% RUN: 0

% RIFFLE: 35

Gradient
Maximum 10
6

EPA 4520

06/16/06

Stream width 20'

960 -> 955 = 1,373 feet

5' / .26mi = 19.23 ft/mi. (no. 1 ft)

A) SAMPLED REACH

Check ALL that apply

METHOD STAGE

- ☐ BOAT
☐ WADE
☐ L. LINE
☒ OTHER
☐ DISTANCE
☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☒ OTHER
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/CTB
☐ SECCHI DEPTH
☐ meters
☐ CANOPY
☒ > 85% - OPEN
☐ 55% - 85%
☐ 30% - 55%
☐ 10% - 30%
☐ < 10% - CLOSED

CLARITY

- ☐ 1st sample pass
☐ 2nd sample pass
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/CTB
☐ SECCHI DEPTH
☐ meters

C) RECREATION

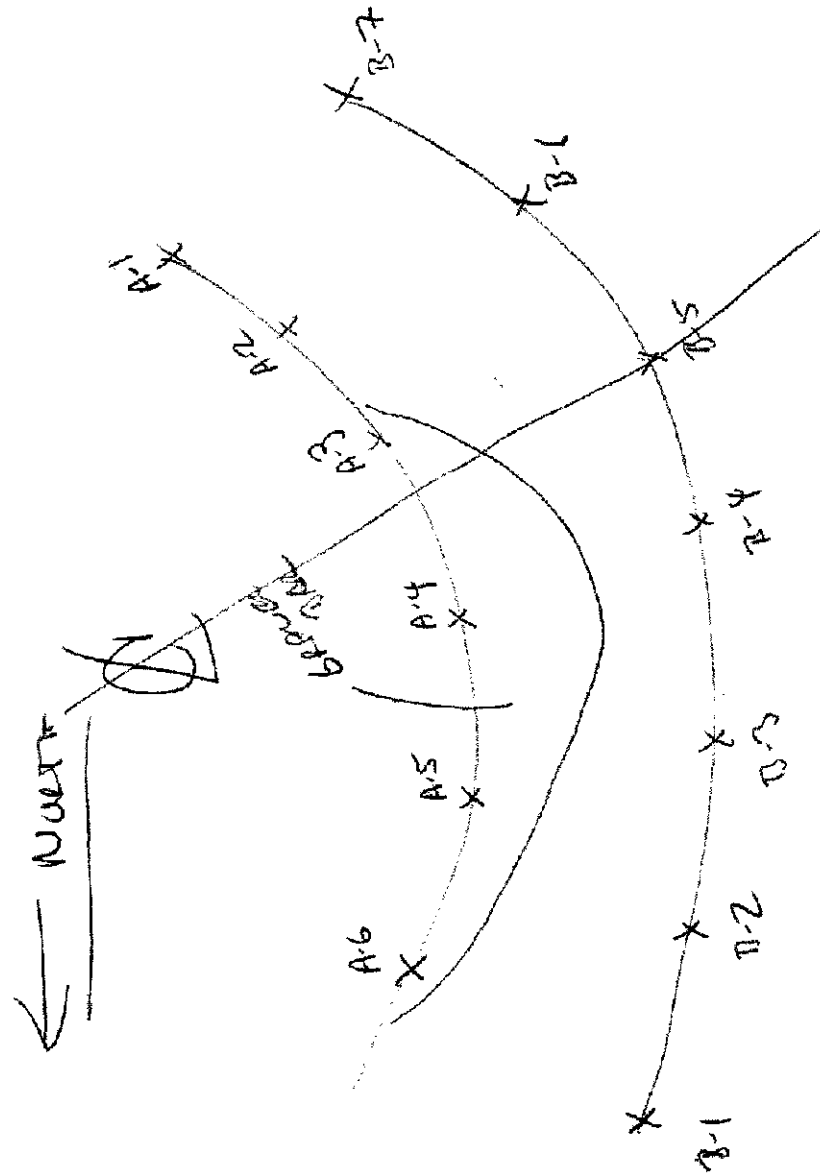
- ☐ POOL: ☐ > 100m² ☐ > 3R

Stream Drawing:

Red Bank Survey
Hearns
Hearns

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations Concerns, Access directions, etc.

D) MAINTENANCE	E) ISSUES	F) MEASUREMENTS
☒ PUBLIC (PRIVATE) / BOTH / NA ☒ ACTIVE / HISTORIC / BOTH / NA ☐ YOUNG SUCCESSION-OLD ☐ SPRAY / SNAG / REMOVED ☐ MODIFIED / DIPPED OUT / NA ☐ LEVEED / ONE SIDED ☐ RELOCATED / CUTOFFS ☐ MOVING-BED/LOAD-STABLE ☐ ARMOURING / SLUMPS ☐ ISLANDS / SCOURED ☐ IMPOUNDED / DESICCATED ☐ FLOOD CONTROL / BRAINAGE	WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT & GRIME CONTAMINATED / LANDFILL BMPs - CONSTRUCTION - SEDIMENT LOGGING / IRRIGATION / COOLING BANK EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H ₂ O / TILE / H ₂ O TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	x width 12' x depth 0.5' + max. depth x bankfull width 20' bankfull x depth 3' + W/D ratio bankfull max. depth floodprone x width entrench. ratio Legacy Tree:



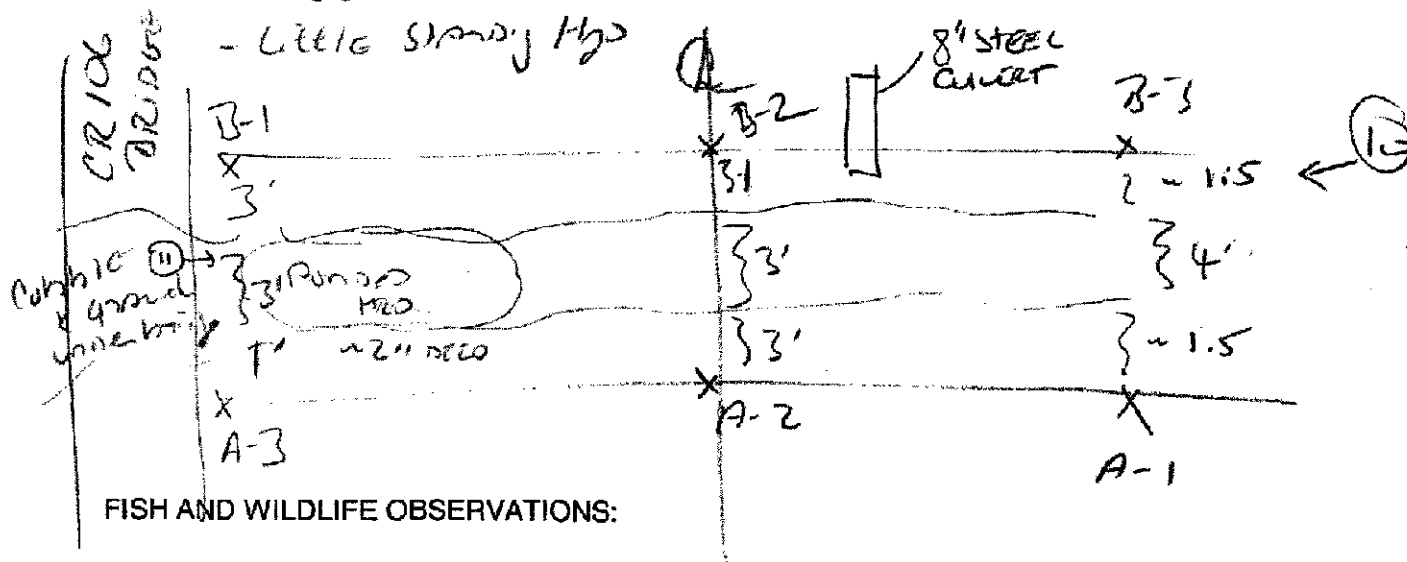
WATERBODY CROSSING DATA FORM

PROJECT: Hawthorn Wind Farm DATE: 10/22/09
 LOCATION: Robinson WGS-772179 FIELD CREW: RMS, JMS

WATERBODY ID	SB0024A1B	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	19 → South	
NAME <u>Santa River</u> (or tributary to) <u>Trinity</u>	10 → North	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	EPHEMERAL	
WIDTH (observed/OHW)	- / 7'	
DEPTH (observed/OHW)	2" / 2'	
FLOW RATE (dry/stagnant/low/moderate/high)	DRY	
FLOW DIRECTION	North (PRESUMED)	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	CLAY / SILT	
BANK VEGETATION (upland/wetland cover type)	EARLY SUCCESSIONAL	

SKETCH:
 - CRACKED SOIL - SUBSTRATE
 - SATURATED SOIL
 - SCOUR CHANNEL ~ 5' WIDE
 - LITTLE SANDY HGS

→ NORTH



NOTES:

- Slope 40% ~ 3:1

- NO EROSION

- Scouring limited to channel

- NOT MAINTAINED

STB0024A1B

10/22/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet****QHEI Score:** **(4)****Stream & Location:** UNNAMED SCUM RIVER TRIBUTARY **RM:** --- **Date:** 10/22/09~1000 feet NW of TR105/CR106 Int **Scorers Full Name & Affiliation:** Deborah Sparks - TTR**River Code:** --- **STORET #:** --- **Lat./Long.:** 40.6709 183.7113 **Office verified location** ☐**1) SUBSTRATE** Check **ONLY** Two substrate **TYPE BOXES**, estimate % or note every type present

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR /SLABS [10]	☐ POOL RIFFLE	☒ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	Substrate (5) Maximum 20
☐ BOULDER [9]	☐ DETRITUS [3]	☐ MUCK [2]	☐ LIMESTONE [1]	☐ TILLS [1]	☒ MODERATE [-1]	☐ NORMAL [0]	
☐ COBBLE [8]	☐ SILT [2]	☐ ARTIFICIAL [0]	☐ WETLANDS [0]	☒ HARDPAN [0]	☐ FREE [1]	☐ EXTENSIVE [-2]	
☐ GRAVEL [7]	☐ SAND [6]		☐ SANDSTONE [0]	☐ RIP/RAP [0]	☐ MODERATE [-1]	☐ NORMAL [0]	
☐ BEDROCK [5]			☐ LACUSTURINE [0]	☐ SHALE [-1]	☐ NONE [1]		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments: HEAVY SLUDGE FROM POINT-SOURCES

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools).

AMOUNT	
☒ UNDERCUT BANKS [1]	☐ EXTENSIVE >75% [11]
☒ OVERHANGING VEGETATION [1]	☒ MODERATE 25-75% [7]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]	☐ NEARLY ABSENT <5% [1]

Comments: HEAVY SLUDGE

Cover Maximum **(10)**

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: SLIDE

Channel Maximum **(7)**

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☒ EROSION	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]	☐ CONSERVATION TILLAGE [1]
☐ NONE / LITTLE [3]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]
☐ MODERATE [2]	☐ FAIR [3]	☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]
☐ HEAVY / SEVERE [1]	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]	

Comments: VACANT STRUCTURE TO WEST CURB TO EAST

Indicate predominant land use(s) past 100m riparian.

Riparian Maximum **(9)**

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply		
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☐ SLOW [1]	Pool / Current Maximum (8)
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]	
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☐ INTERMITTENT [-2]	
☐ 0.2-0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]	
☒ < 0.2m [0]		Indicate for reach - pools and riffles.		

Comments: ~70% POOL ~30% RIFFLES

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE / RUN SUBSTRATE		RIFFLE / RUN EMBEDDEDNESS	
Check ONE (Or 2 & average)		Check ONE (Or 2 & average)	
☐ BEST AREAS > 10cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]	Riffle / Run Maximum (8)
☐ BEST AREAS 5-10cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]	
☐ BEST AREAS < 5cm [metric=0]	☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]	

Comments: NO RIFFLES

6) GRADIENT (16.6 ft/mi)

DRAINAGE AREA		% POOL		% GLIDE		Gradient Maximum 10
☐ VERY LOW - LOW [2-4]	☒ MODERATE [5-10]	☐ TORRENTIAL [-1]	☐ SLOW [1]	☐ TORRENTIAL [-1]	☐ SLOW [1]	
☐ HIGH - VERY HIGH [10-5]		☐ VERY FAST [1]	☐ INTERSTITIAL [-1]	☐ FAST [1]	☐ INTERMITTENT [-2]	

Comments: ~70% POOL ~30% RIFFLES

EPA 4520

06/16/06

960 → 965 → 1,579 → 5' / 0.2 mi → 16.6 ft/mi gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☐ WADE
- ☐ LINE
- ☒ OTHER
- ☐ DISTANCE
- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☒ OTHER
- ☐ 40-70 cm
- ☐ > 70 cm / CTB
- ☐ SECCI DEPTH
- ☐ meters

CLARITY

- 1st - sample pass - 2nd
- ☐ < 20 cm
- ☐ 20-40 cm
- ☐ 40-70 cm
- ☐ > 70 cm / CTB
- ☐ SECCI DEPTH
- ☐ meters

CANOPY

- ☒ > 85% - OPEN
- ☐ 55% - 85%
- ☐ 30% - 55%
- ☐ 10% - 30%
- ☐ < 10% - CLOSED

CJ RECREATION

- ☐ POOL: ☐ > 10ft ☐ > 3ft

Stream Drawing:

Bed & Bank Survey
 HARDWOOD
 CLEAR WOOD

Comment RE: Reach consistency? Is reach typical of stream?; Recreation? Observed - Inferred, Other? Sampling observations, Concerns, Access directions, etc.

FJ MEASUREMENTS

- ☐ width
- ☐ depth Z'
- ☐ max. depth
- ☐ bankfull width
- ☐ bankfull x depth Z'
- ☐ W/D ratio
- ☐ bankfull max. depth
- ☐ floodprone x² width
- ☐ entrench. ratio
- ☐ Legacy Tree:

EJ ISSUES

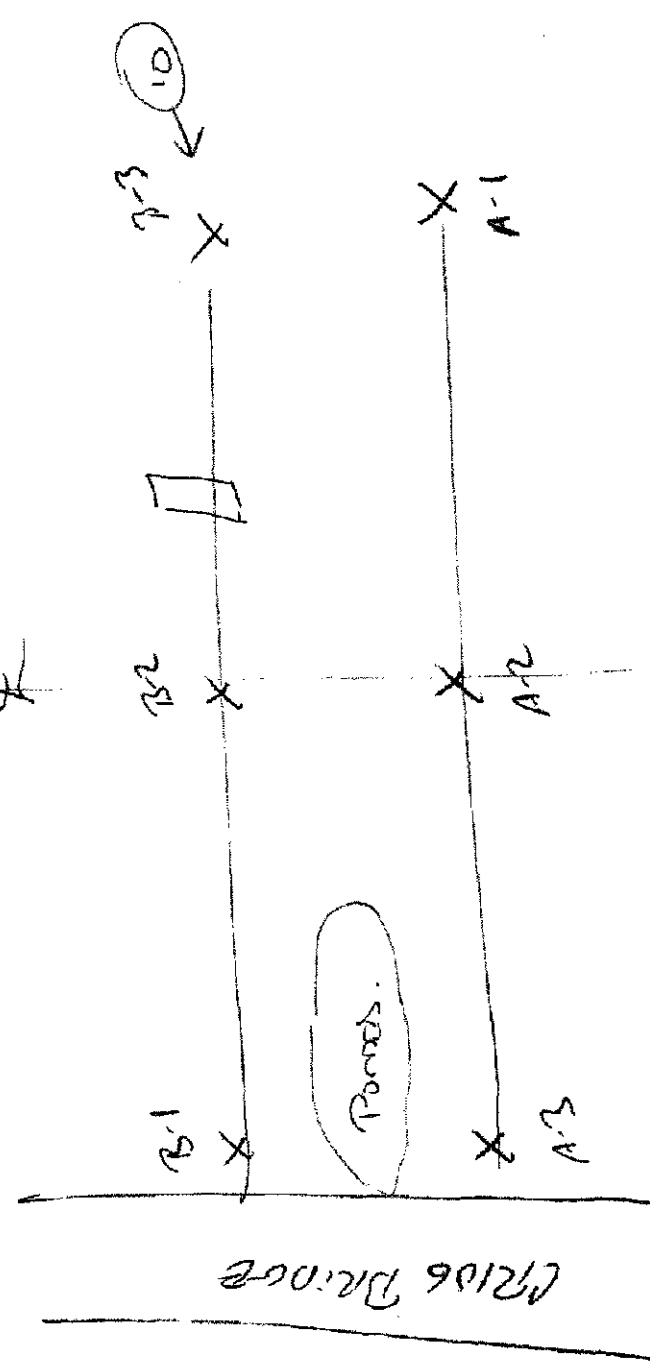
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSO/ISSOS/OUTFALLS
- AREA DEPTH
- ☐ > 10ft ☐ > 3ft



SB0025AIR

10/22/09

WATERBODY CROSSING DATA FORM

PROJECT: Hardin Wind Farm

DATE: 10/22/09

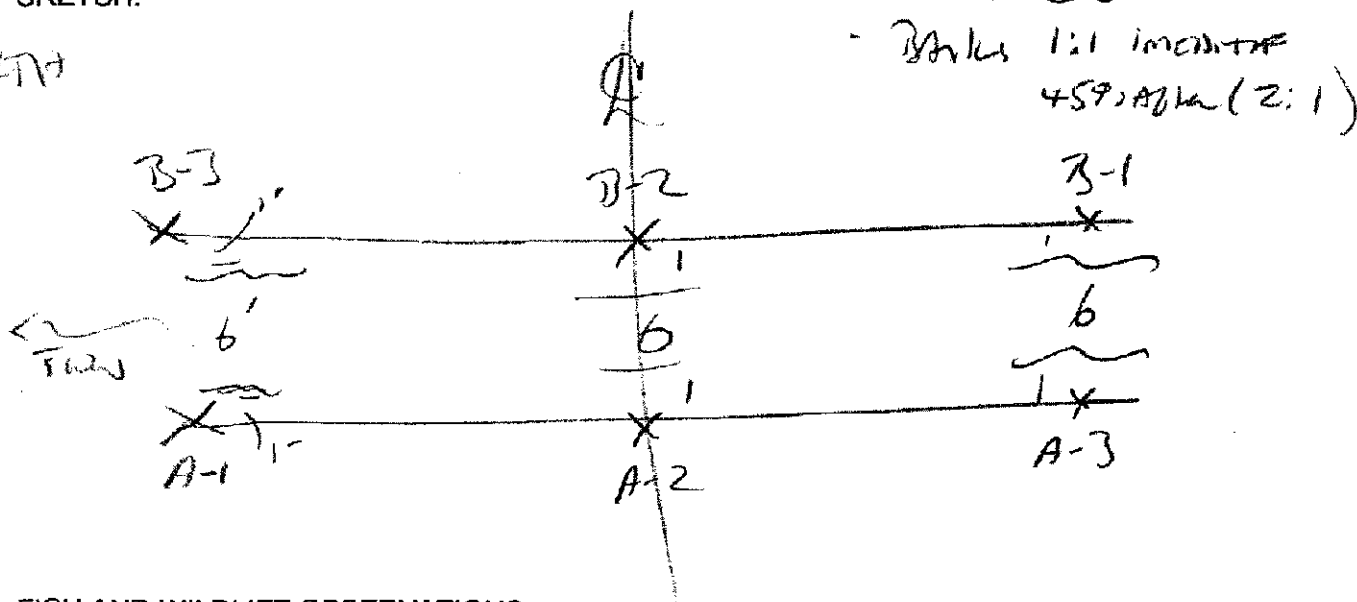
LOCATION: BO NEO, WB 80

FIELD CREW: RTA, SAS

WATERBODY ID	SB0025AIR
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)
PHOTO ID and DIRECTION	13 → EAST
NAME (or tributary to)	unnamed trib to Scared Creek
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent
WIDTH (observed/OHW)	- 18'
DEPTH (observed/OHW)	2" / 2'
FLOW RATE (dry/stagnant/low/moderate/high)	STAGNANT
FLOW DIRECTION	WEST
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt/CLAY / UEG
BANK VEGETATION (upland/wetland cover type)	Early Successional

SKETCH:

↑ NORTH



FISH AND WILDLIFE OBSERVATIONS:

None

NOTES:

Substrate sandstone / panned - clear

Shoreline shallows, STAGNANT

Slight curve (meander)

no notes erosion

SB0025A13

10/22/09



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **35**Stream & Location: UNNAMED SCIOTO RIVER TR. B RM: Date: 10/22/09

W3,300 feet East of CR 95

Scorers Full Name & Affiliation: DELAHUNTY / SPARKS - TTRRiver Code: STORET #: Lat./Long: 40.6931 183.7427 Office verified location ☐

1) SUBSTRATE

Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR /SLABS [10]	☐ POOL RIFFLE	☒ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ HEAVY [-2]	☐ MODERATE [-1]	Substrate 5 Maximum 20
☐ BOULDER [9]	☐ DETRITUS [3]	☐ TILLS [1]	☐ SANDSTONE [0]	☒ SILT	☐ NORMAL [0]	☐ FREE [1]	
☐ COBBLE [8]	☐ MUCK [2]	☐ WETLANDS [0]	☐ RIP/RAP [0]	☐ MODERATE [-1]	☐ EXTENSIVE [-2]	☐ MODERATE [-1]	
☐ GRAVEL [7]	☒ SILT [2]	☐ LACUSTURINE [0]	☐ SHALE [-1]	☐ NORMAL [0]	☐ NONE [1]		
☐ SAND [6]	☐ ARTIFICIAL [0]	☐ COAL FINES [-2]					
☐ BEDROCK [5]							

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments:

2) INSTREAM COVER

Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT	
☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]
☐ ROOTMATS [1]	☐ LOGS OR WOODY DEBRIS [1]

Check ONE (Or 2 & average)

☐ EXTENSIVE > 75% [11] ☒ MODERATE 25-75% [7] ☐ SPARSE 5-25% [3] ☐ NEARLY ABSENT < 5% [1]

Cover Maximum **20**

Comments: HEAVY ROOTS

3) CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☒ MODERATE [3]	☐ GOOD [5]	☒ RECOVERED [4]	☒ MODERATE [2]
☒ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Channel Maximum **20**

Comments:

4) BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [1]	☐ CONSERVATION TILLAGE [1]		
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]		
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]		
	☐ VERY NARROW < 5m [1]	☒ FENCED PASTURE [1]			
	☐ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]			

Indicate predominant land use(s) past 100m riparian.

Riparian Maximum **10**

Comments:

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply	Primary Contact
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	Secondary Contact
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ SLOW [1]	(circle one and comment on back)
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]	
☒ 0.2-0.4m [1]		☐ FAST [1]	
☐ < 0.2m [0]		☐ MODERATE [1]	

Indicate for reach - pools and riffles.

Pool / Current Maximum **12**

Comments: STAGNANT, BLIND ~ 2' (0.5m) DEEP

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Riffle / Run Maximum **6**

Comments: no riffles

6) GRADIENT	DRAINAGE AREA	% POOL	% GLIDE	% RUN	% RIFFLE	Gradient Maximum
<u>3.42</u> ft/mi	<u>24</u> mi ²	<u>0</u>	<u>100</u>	<u>0</u>	<u>0</u>	10

965-2985 @ 15,437'

10' / 24 mi² @ 3.42 ft/mi gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
☐ WADE
☐ L. LINE
☒ OTHER

DISTANCE

- ☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☒ OTHER

CLARITY

- 1st --sample pass-- 2nd
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm / CTB
☐ SECCHI DEPTH
 40 meters

CANOPY

- ☒ > 85% - OPEN
☐ 55%-85%
☐ 30%-55%
☐ 10%-30%
☐ < 10% - CLOSED

CJ RECREATION

POOL: ☐ > 100m ☐ > 3ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☐ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSDs / SSOs / OUTFALLS

DJ MAINTENANCE

- ☒ PUBLIC / PRIVATE / BOTH / NA
☐ ACTIVE / HISTORIC / BOTH / NA
☐ YOUNG-SUCCESSION-OLD
☐ SPRAY / SNAG / REMOVED
☐ MODIFIED / DIPPED OUT / NA
☐ LEVEED / ONE SIDED
☐ RELOCATED / CUTOFFS
☐ MOVING-BEDLOAD-STABLE
☐ ARMoured / SLUMES
☐ ISLANDS / SCoured
☐ IMPOUND / DESICCATED
☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

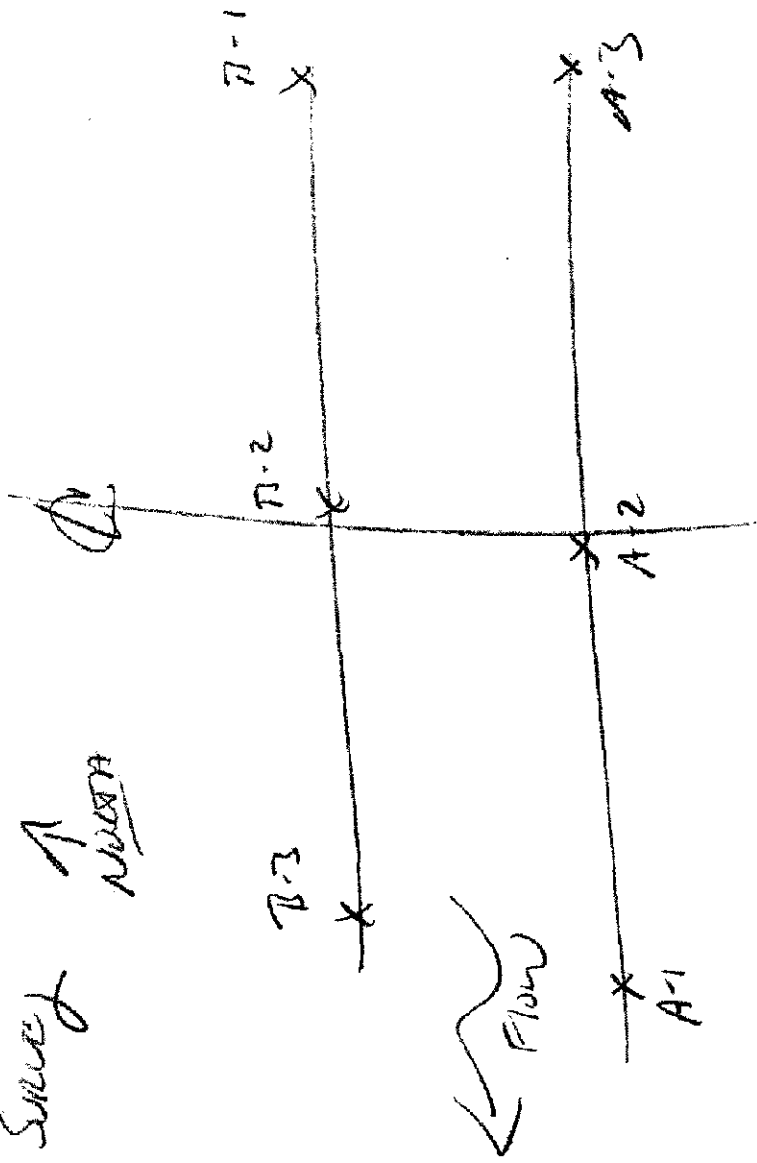
- WWTP / CSO / NPDES / INDUSTRY
 HARDENED / URBAN / DIRT & GRIME
 CONTAMINATED / LANDFILL
 BMPs - CONSTRUCTION-SEDIMENT
 LOGGING / IRRIGATION / COOLING
 BANK / EROSION / SURFACE
 FALSE BANK / MANURE / LAGOON
 WASH H₂O / TILE / H₂O TABLE
 ACID / MINE / QUARRY / FLOW
 NATURAL / WETLAND / STAGNANT
 PARK / GOLF / LAWN / HOME
 ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- x width
 x depth 2' - 8'
 max. depth
 x bankfull width
 bankfull x depth 2'
 W/D ratio
 bankfull max. depth
 floodprone x² width
 entrench. ratio
 Legacy Tree:

Stream Drawing:

Bank / Bes Survey
 14th BARENS

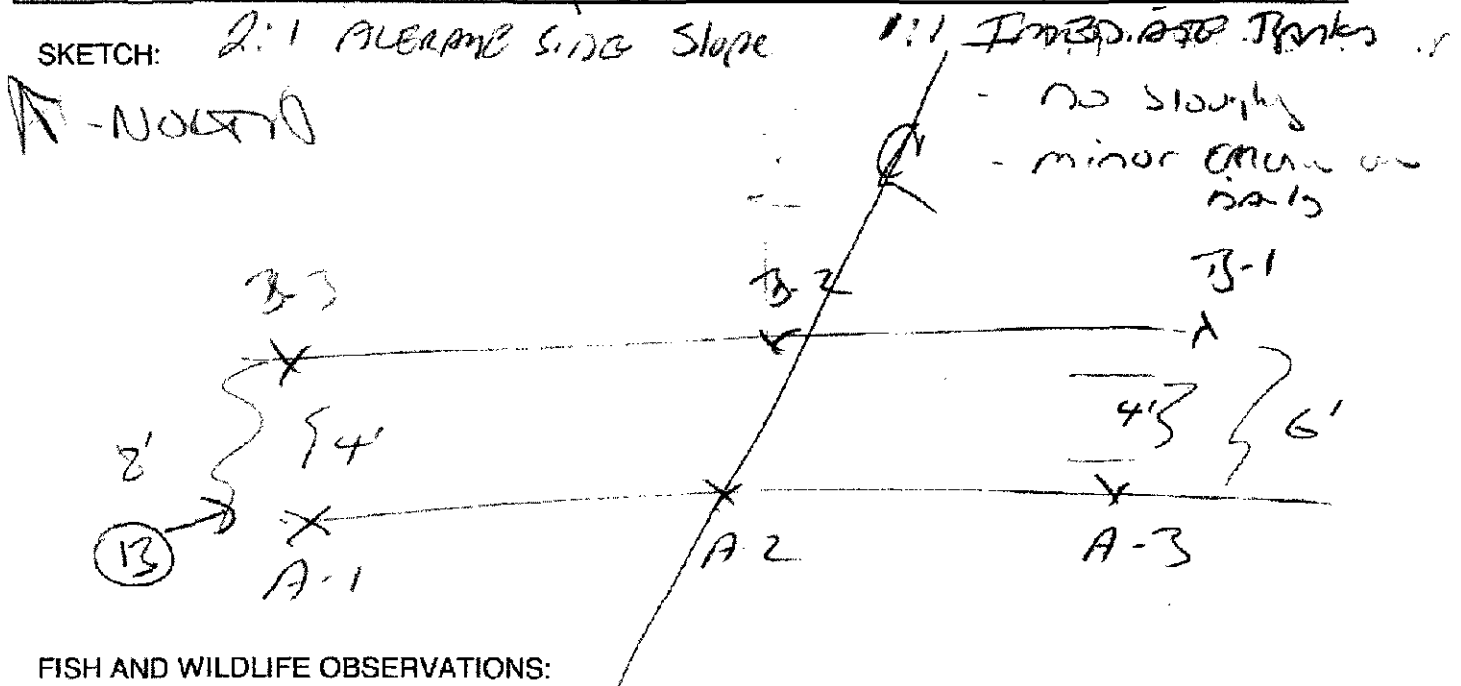


Comment RE: Reach consistency/ is reach typical of stream?, Recreation/Observed - Inferred. Other/ Sampling observations, Concerns, Access directions, etc.

WATERBODY CROSSING DATA FORM

PROJECT: Houma Wildlife Area DATE: 10/25/09
 LOCATION: _____ FIELD CREW: PAID, SMS

WATERBODY ID	SB0047 A1B	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	13 → Southeast	
NAME (or tributary to)	Flat Branch	
WATERBODY TYPE (stream/pond/ditch/culvert)	Stream	
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent	
WIDTH (observed/OHW)	4' / 6'-8'	
DEPTH (observed/OHW)	4" / 3'	
FLOW RATE (dry/stagnant/low/moderate/high)	Stagnant	
FLOW DIRECTION	Southeast (based on sl. wt. veg.)	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt / Silty clay	fine cobble
BANK VEGETATION (upland/wetland cover type)	Early Successional	



FISH AND WILDLIFE OBSERVATIONS:

Minnows - no scrouching
only shad

NOTES:

mapped as intermittent

SB0047 A13

10/25/09

OhioEPA

**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet**

QHEI Score:

35

Stream & Location: FIAT BRANCH

RM: --- **Date:** 10/25/09

River Code: 0 **STORET #:** ---

Scorers Full Name & Affiliation: DECAHURST / SPARKS - TTB

Lat/ Long: 40.6123 183.7598 **Office verified location** ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	☐ MODERATE [-1]
☐ BOULDER [9]	☐ COBBLE [8]	☐ DETRITUS [3]	☐ MUCK [2]	☐ TILLS [1]	☐ WETLANDS [0]	☐ NORMAL [0]	☐ FREE [1]
☐ GRAVEL [7]	☐ SAND [6]	☒ SILT [2]	☐ ARTIFICIAL [0]	☒ HARDPAN [0]	☐ SANDSTONE [0]	☐ EXTENSIVE [-2]	☐ MODERATE [-1]
☐ BEDROCK [5]				☐ RIP/RAP [0]	☐ LACUSTURINE [0]	☐ NORMAL [0]	☐ NONE [1]
NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]							

Comments: 3 or less [0]

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]
☐ ROOTMATS [1]		

Cover
Maximum **20**

8

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [0]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☒ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Channel
Maximum **20**

8

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

RIPARIAN WIDTH

FLOOD PLAIN QUALITY

☒ EROSION	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [2]	☐ CONSERVATION TILLAGE [1]
☒ NONE / LITTLE [3]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]
☐ MODERATE [2]	☐ NARROW 5-10m [2]	☒ RESIDENTIAL PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]
☐ HEAVY / SEVERE [1]	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]	

Indicate predominant land use(s) past 100m riparian.

Riparian
Maximum **10**

8

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY!)

Check ONE (Or 2 & average)

Check ALL that apply

☒ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☐ SLOW [1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☐ INTERMITTENT [-2]
☒ 0.2-0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]
☐ < 0.2m [0]		Indicate for reach - pools and riffles.	

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Pool / Current
Maximum **12**

8

Comments: 4-8" GLIDE (12032 mpa)

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 6-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Riffle / Run
Maximum **10**

8

6) GRADIENT (18.9 ft/mi)

DRAINAGE AREA

☐ VERY LOW - LOW [2-4]

☐ MODERATE [6-10]

☒ HIGH - VERY HIGH [10-5]

%POOL: ☒

%GLIDE: ☒

%RUN: ☒

%RIFFLE: ☒

Gradient
Maximum **10**

8

1,400' - 1005' = 1010

1.26mi @ 18.87 ft/mi Gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- ☐ BOAT
☐ WADE
☐ L LINE
☒ OTHER
☐ DISTANCE
☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.12 Km
☐ OTHER
☐ CLARITY
☐ 1st sample pass... 2nd
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm / CTB
☐ SECCHI DEPTH
☐ meters
☐ CANOPY
☐ 85%-OPEN
☐ 55%-85%
☐ 30%-55%
☐ 10%-30%
☐ <10%-CLOSED

CLARITY

- ☐ 1st sample pass... 2nd
☐ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm / CTB
☐ SECCHI DEPTH
☐ meters

CANOPY

- ☐ 85%-OPEN
☐ 55%-85%
☐ 30%-55%
☐ 10%-30%
☐ <10%-CLOSED

CJ RECREATION

AREA DEPTH
POOL: ☐ >100ft: ☐ >3ft

BJ AESTHETICS

- ☒ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☒ OIL SHEEN
☐ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- ☒ PRIVATE / BOTH / NA
☐ ACTIVE / HISTORIC / BOTH / NA
☐ YOUNG-SUCCESSION-OLD
☐ SPRAY / SNAG / REMOVED
☐ MODIFIED / DIPPED OUT / NA
☐ LEVEED / ONE SIDED
☐ RELOCATED / CUTOFFS
☐ MOVING-BEDLOAD-STABLE
☐ ARMOURED / SLUMPS
☐ ISLANDS / SCoured
☐ IMPOUNDED / DESICCATED
☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- ☐ WWTP / CSO / NPDES / INDUSTRY
☐ HARDENED / URBAN / DIRT / GRIME
☐ CONTAMINATED / LANDFILL
☐ BMPs-CONSTRUCTION-SEDIMENT
☐ LOGGING / IRRIGATION / COOLING
☐ BANK / EROSION / SURFACE
☐ FALSE BANK / MANURE / LAGOON
☐ WASH H₂O / TILE / H₂O TABLE
☐ ACID / MINE / QUARRY / LELOW
☐ NATURAL / WETLAND / STAGNANT
☐ PARK / GOLF / LAWN / HOME
☐ ATMOSPHERE / DATA PAUCITY

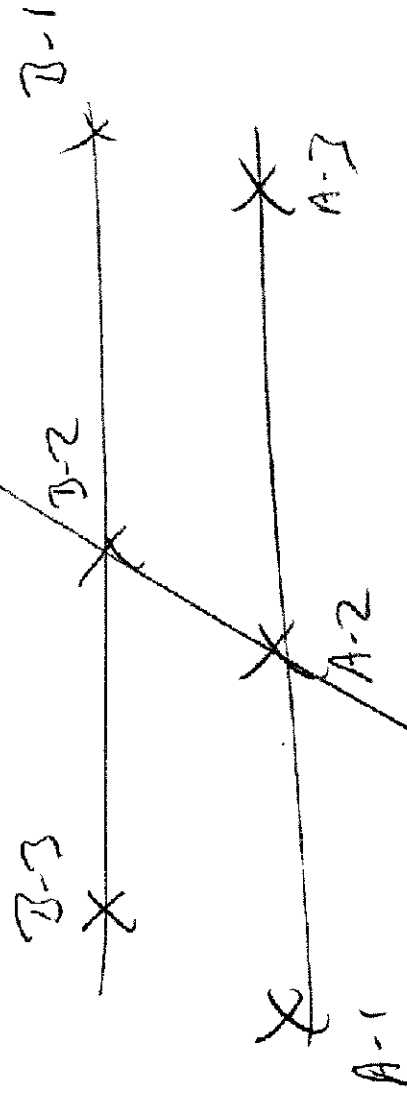
FJ MEASUREMENTS

- ☐ width 4'
☐ depth 4'-8"
☐ max. depth
☐ bankfull width 6'-8"
☐ bankfull x depth 3'
☐ WFD ratio
☐ bankfull max. depth
☐ floodprone x² width
☐ entrench. ratio
☐ Legacy Tree:

Stream Drawing:

Bark & Bed Survey

NW 1/4



SB0048 A10

10/25/09

WATERBODY CROSSING DATA FORM

PROJECT: Hoodin West Fall

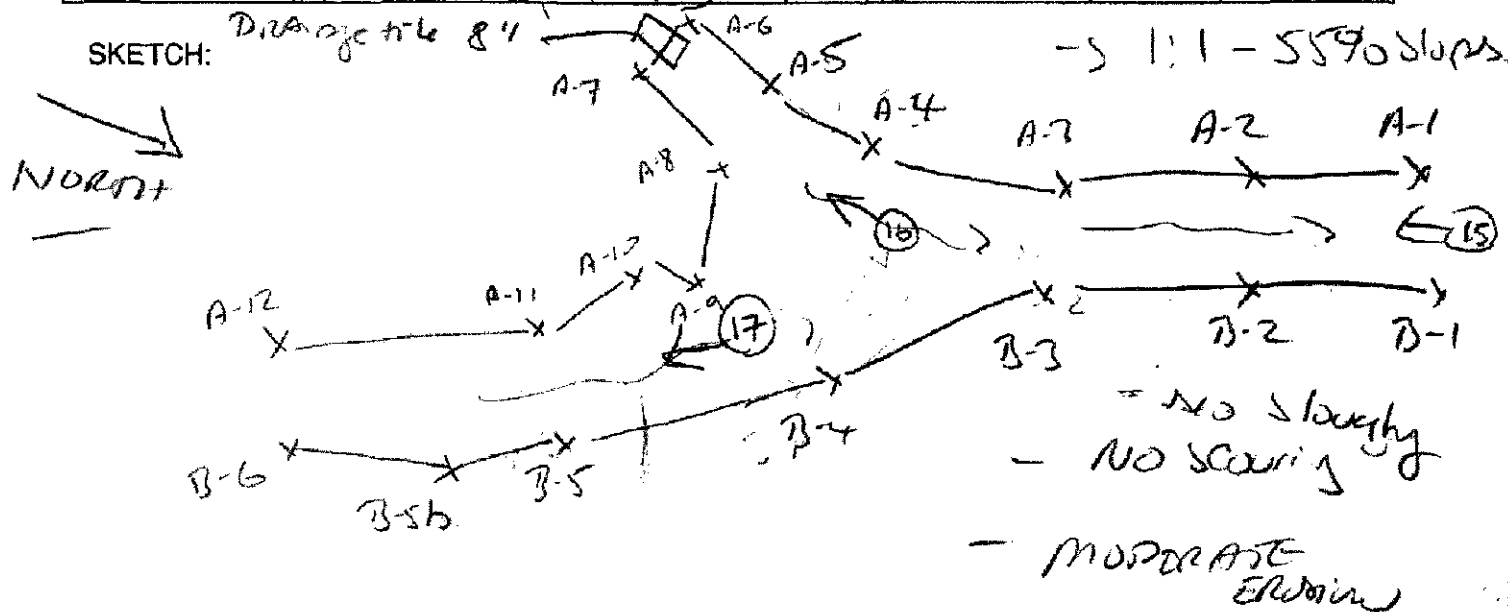
DATE: 10/25/09

LOCATION: WTS 140

FIELD CREW: JOH, SAMS

WATERBODY ID	SB0048 A10
GPS FEATURE TYPE (open/closed)/(line/polygon)	Line (1-6/12)
PHOTO ID and DIRECTION	Photo 15 $\Rightarrow$ South / 16 $\Rightarrow$ SW / 17 $\Rightarrow$ S
NAME (or tributary to)	Tributary to South River
WATERBODY TYPE (stream/pond/ditch/culvert)	STREAM
FLOW REGIME (perennial/intermittent/ephemeral)	EPHEMERAL
WIDTH (observed/OHW)	- 1.6'
DEPTH (observed/OHW)	- 1.2'
FLOW RATE (dry/stagnant/low/moderate/high)	DRY
FLOW DIRECTION	NORTH
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt
BANK VEGETATION (upland/wetland cover type)	UPLAND - MIDSUCCINIAL / EARLY Sec.

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

DEER / RACCOON TRACKS / Buck Rubs

NOTES:

Colorado EAST

South to West

MAPPED AS INTERMITTENT

- gradient change

- meandering

580048 M15

10/25/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet**QHEI Score: **36**Stream & Location: Unnamed tributary to Scioto River RM: 19.25 Date: 10/25/09

W1,200' WEST OF CR75

Scorers Full Name & Affiliation: DEAN W. J. SPARKS - TTECRiver Code: --- STORET #: --- Lat/Long: 40.6012 183.7641 Office verified location ☐**1) SUBSTRATE** Check ONLY Two substrate TYPE BOXES:
estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	☐ MODERATE [-1]
☐ BOULDER [9]	☐ POOL RIFFLE	☐ DETRITUS [3]	☐ POOL RIFFLE	☐ TILLS [1]	☐ WETLANDS [0]	☐ NORMAL [0]	☐ FREE [1]
☐ COBBLE [8]	☐ POOL RIFFLE	☐ MUCK [2]	☐ POOL RIFFLE	☐ HARDPAN [0]	☐ SANDSTONE [0]	☐ EXTENSIVE [-2]	☐ MODERATE [-1]
☐ GRAVEL [7]	☐ POOL RIFFLE	☐ SILT [2]	☐ POOL RIFFLE	☐ RIPRAP [0]	☐ LACUSTURINE [0]	☐ NORMAL [0]	☐ NONE [1]
☐ SAND [6]	☐ POOL RIFFLE	☐ ARTIFICIAL [0]	☐ POOL RIFFLE	☐ SHALE [-1]	☐ COAL FINES [-2]	☐ NONE [1]	
☐ BEDROCK [5]	☐ POOL RIFFLE						

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments: Score natural substrates, ignore sludge from point-sources

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools).

AMOUNT

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☒ EXTENSIVE > 75% [11]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☐ AQUATIC MACROPHYTES [1]	☒ MODERATE 25-75% [7]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 5% [1]

Comments: Herbaceous of some shrubsCover
Maximum
20**3) CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☒ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: ChannelChannel
Maximum
20**4) BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

RIPARIAN WIDTH

FLOOD PLAIN QUALITY

☐ EROSION	☐ WIDE > 50m [4]	☒ FOREST SWAMP [3]	☐ CONSERVATION TILLAGE [1]
☒ NONE / LITTLE [3]	☒ MODERATE 10-50m [3]	☐ SHRUB OR OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]
☒ MODERATE [2]	☒ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]
☒ HEAVY / SEVERE [1]	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	
	☐ NONE [0]	☐ OPEN PASTURE, ROWCROP [0]	

Comments: moderate west side to eastIndicate predominant land use(s)
past 100m riparian.
Riparian
Maximum
10**5) POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY!)

Check ONE (Or 2 & average)

Check ALL that apply

☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☐ SLOW [1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☐ INTERMITTENT [-3]
☐ 0.2-0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]
☐ < 0.2m [0]			

Comments: DRYPool /
Current
Maximum
12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: No rifflesRiffle /
Run
Maximum
6**6) GRADIENT**

DRAINAGE AREA

ft²/mi)☐ VERY LOW - LOW [2-4]☐ MODERATE [6-10]☒ HIGH - VERY HIGH [10-6]%POOL: 0%GLIDE: 0%RUN: 0%RIFFLE: 0Gradient
Maximum
10

EPA 4520

06/16/06

1035-1045 : 1,200'

10' / 227mi = 446ft/mi gradient

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L. LINE ☐ NORMAL ☐
- ☒ OTHER ☐ LOW ☐
- ☐ DISTANCE ☐ SHY ☐

CLARITY

- 1st sample pass 2nd
- ☐ < 20 cm ☐
- ☐ 20-40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

- 1st 2nd
- ☐ > 85% - OPEN ☐
- ☒ 55% - 85% ☐
- ☐ 30% - 55% ☐
- ☐ 10% - 30% ☐
- ☐ < 10% - CLOSED ☐

CJ RECREATION

AREA DEPTH

POOL: ☐ > 100ft ☐ > 3ft

BJAESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSO/SO/SO/OUTFALLS

DJ MAINTENANCE

- ☒ PUBLIC / PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG-SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BED/LOAD-STABLE
- ☐ ARMoured / SLUMPS
- ☐ ISLANDS / SCoured
- ☐ IMPOUNDED / DESICCATED
- ☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- WD ratio
- bankfull max. depth
- floodprone $\bar{x}$ width
- entrench. ratio
- Legacy Tree:

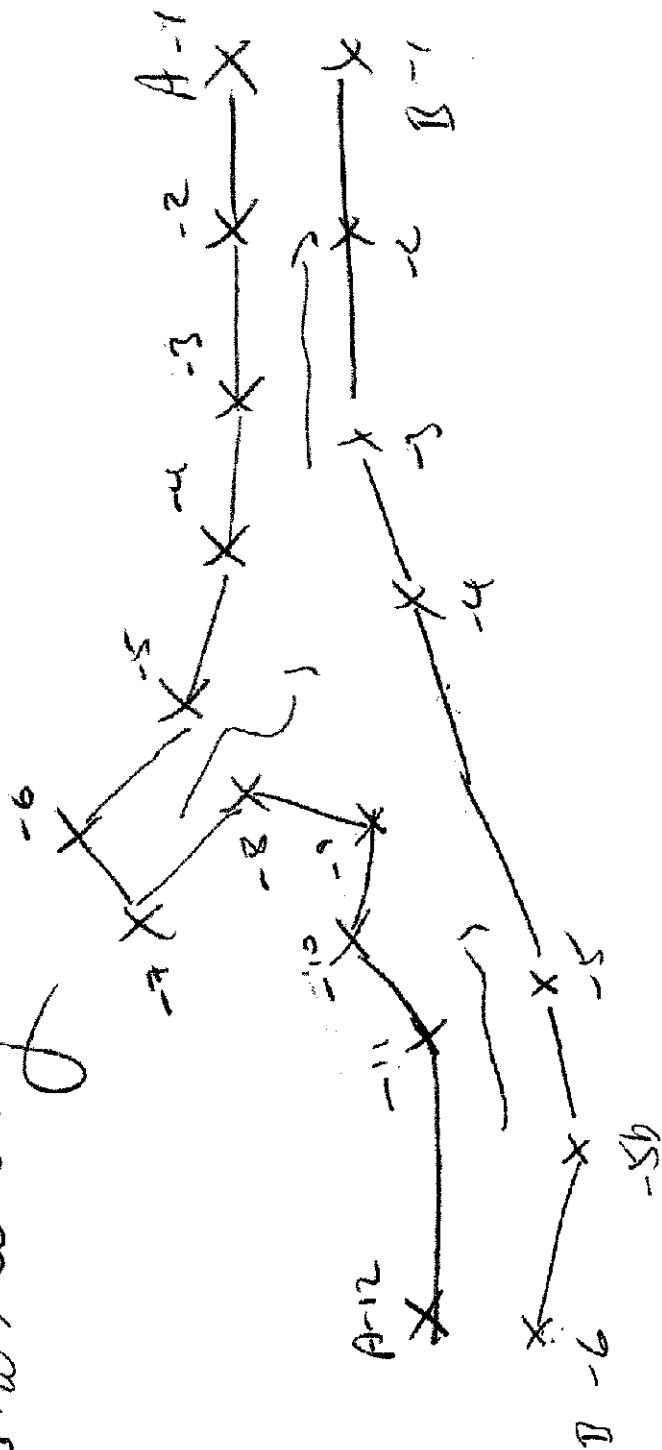
Stream Drawing:

Back Bank

Some tree & shrub overhang



North

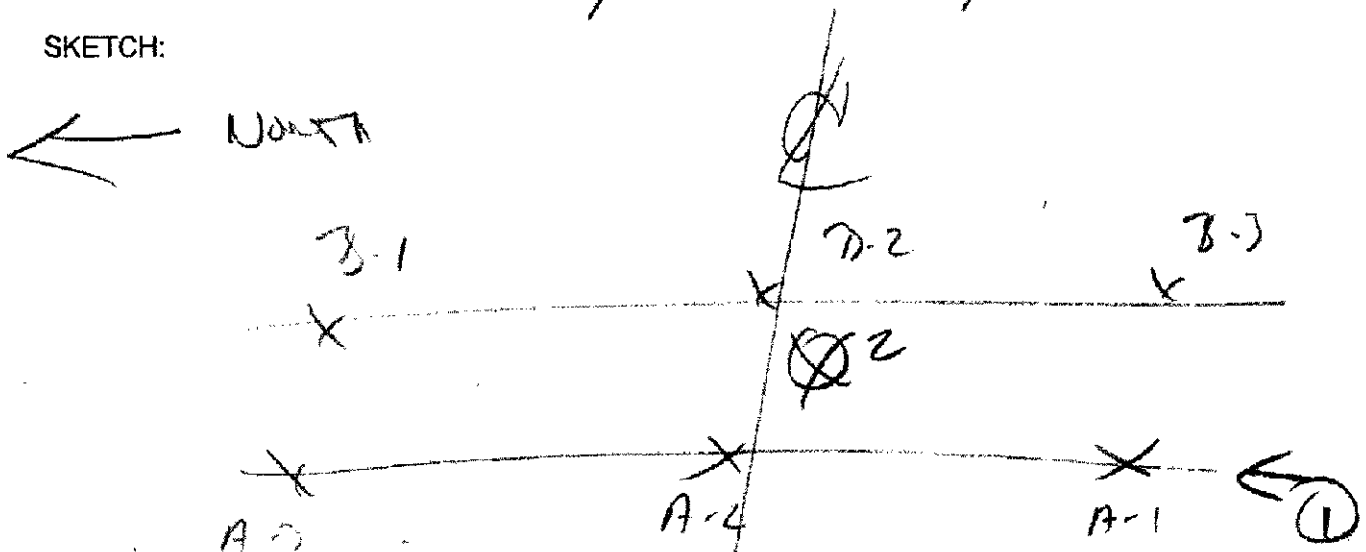


WATERBODY CROSSING DATA FORM

PROJECT: Harris Win Farm DATE: 10/26/09
 LOCATION: 30 WEST of WB 161 FIELD CREW: RMS, SWS

WATERBODY ID	STUD 49 A13
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)
PHOTO ID and DIRECTION	1 => Substrate / 2 NORTH
NAME (or tributary to)	UNNAMED Trib to Flat Branch
WATERBODY TYPE (stream/pond/ditch/culvert)	STREAM - AG
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent
WIDTH (observed/OHW)	8' / 10'
DEPTH (observed/OHW)	4" / 2.5'
FLOW RATE (dry/stagnant/low/moderate/high)	STAGNANT
FLOW DIRECTION	NORTH
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt / Cobble
BANK VEGETATION (upland/wetland cover type)	EARLY SUCCESSIONAL / CORN

SKETCH:



FISH AND WILDLIFE OBSERVATIONS:

NOTES:

- SIDE SLOPE 3:1 / Immediate Bank 1:1
- minor Sloughing
- MODERATE EROSION

580049 AITB

10/26/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet**QHEI Score: **38**Stream & Location: UNNAMED FLAT BRANCH TIER RM: --- Date: 10/26/09River Code: 475 DOWN OF CRISO Scorers Full Name & Affiliation: DELANITY / SPARKS - TTEC
STORET #: --- Lat./ Long.: 40.6280183, 79.93 Office verified location ☐**1) SUBSTRATE** Check ONLY Two substrate TYPE BOXES, estimate % or note every type present

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ HEAVY [-2]	☐ MODERATE [-1]	Substrate 9 Maximum 20
☐ BOULDER [9]	☐ POOL RIFFLE	☐ DETRITUS [3]	☐ POOL RIFFLE	☐ TILLS [1]	☐ MODERATE [-1]	☐ MODERATE [-1]	
☒ COBBLE [8]	☐ POOL RIFFLE	☐ MUCK [2]	☐ POOL RIFFLE	☐ WETLANDS [0]	☐ MODERATE [-1]	☐ MODERATE [-1]	
☐ GRAVEL [7]	☐ POOL RIFFLE	☒ SILT [2]	☐ POOL RIFFLE	☒ HARDPAN [0]	☐ MODERATE [-1]	☐ MODERATE [-1]	
☐ SAND [6]	☐ POOL RIFFLE	☐ ARTIFICIAL [0]	☐ POOL RIFFLE	☐ SANDSTONE [0]	☐ MODERATE [-1]	☐ MODERATE [-1]	
☐ BEDROCK [5]	☐ POOL RIFFLE			☐ RIPRAP [0]	☐ MODERATE [-1]	☐ MODERATE [-1]	
NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]				Check ONE (Or 2 & average)		☐ EXTENSIVE >75% [1] ☐ MODERATE 25-75% [7] ☐ SPARSE 5-25% [3] ☐ NEARLY ABSENT <5% [1]	

Comments: ---

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent, 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools).

AMOUNT	
☒ UNDERCUT BANKS [1]	☐ POOLS >70cm [2]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]
☐ ROOTMATS [1]	☐ OXBOWS, BACKWATERS [1]
	☐ AQUATIC MACROPHYTES [1]
	☐ LOGS OR WOODY DEBRIS [1]

Comments: HTER MEADS

Cover Maximum **8****3) CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [0]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☒ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: ---

Channel Maximum **7****4) BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☐ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [3]	☐ CONSERVATION TILLAGE [1]		
☒ MODERATE [2]	☐ MODERATE 10-50m [3]	☐ SHRUB OR OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]		
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]		
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]			
	☒ NONE [0]	☒ OPEN PASTURE, ROWCROP [0]			

Comments: ---

Indicate predominant land use(s) past 100m riparian. Riparian Maximum **6****5) POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY	
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply			
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☐ SLOW [1]		
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]		
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☐ INTERMITTENT [-2]		
☐ 0.2-0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]		
☒ < 0.2m [0]		Indicate for each - pools and riffles.			

Comments: 4' DEEP GLIDE (1.016 METER)

Recreation Potential
Primary Contact
Secondary Contact
 (circle one and comment on back)
Pool / Current Maximum **8**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH		RUN DEPTH		RIFFLE / RUN SUBSTRATE		RIFFLE / RUN EMBEDDEDNESS	
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]				
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]				
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]				
			☐ EXTENSIVE [-1]				

Comments: NO RIFFLE

Riffle / Run Maximum **8****6) GRADIENT**

DRAINAGE AREA		% POOL		% GLIDE		% RIFFLE	
☐ VERY LOW - LOW [2-4]	☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]
☒ HIGH - VERY HIGH [10-5]		☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]	☐ MODERATE [5-10]

Comments: 1197 (mi)

Gradient Maximum **8**

EPA 4520

06/16/06

990 → 985 ⇒ 1,340 feet

5/25.4 ⇒ 19.69 ft/mi. head loss

A) SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st sample pass- 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ L- LINE ☐ NORMAL ☐
- ☒ OTHER ☒ SLOW ☐
- ☐ DRY ☐

DISTANCE

- ☐ 0.5 Km ☐ CLARITY
- ☐ 0.2 Km ☐ 1st sample pass- 2nd
- ☐ 0.15 Km ☐ < 20 cm
- ☐ 0.12 Km ☐ 20-40 cm
- ☒ OTHER ☐ 40-70 cm
- ☐ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐
- meters

CANOPY

- ☒ > 85% - OPEN
- ☐ 85% - < 85%
- ☐ 30% - < 30%
- ☐ 10% - < 10%
- ☐ < 10% - CLOSED

C) RECREATION

POOL: ☐ > 100 ft ☐ > 3ft

B) AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSO/SISO/OUTFALLS

D) MAINTENANCE

- ☒ PUBLIC / PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG-SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BEDLOAD-STABLE
- ☐ ARMoured / SLUMPS
- ☐ ISLANDS / SCoured
- ☐ IMPOUNDED / DESICCATED
- ☐ FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

E) ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRTY GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

F) MEASUREMENTS

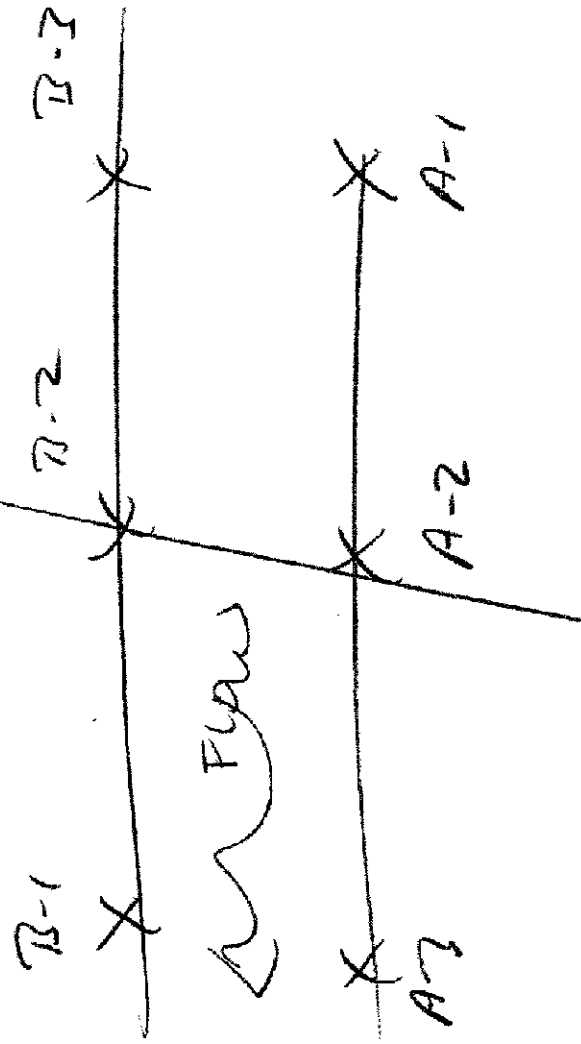
- $\bar{x}$ width 8
- $\bar{x}$ depth 4'
- max. depth 10'
- $\bar{x}$ bankfull width 2.5'
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone $\bar{x}$ width
- entranch. ratio
- Legacy Tree:

Stream Drawing:

RED Fork Survey

CLEAR WOOD

← NAD 83

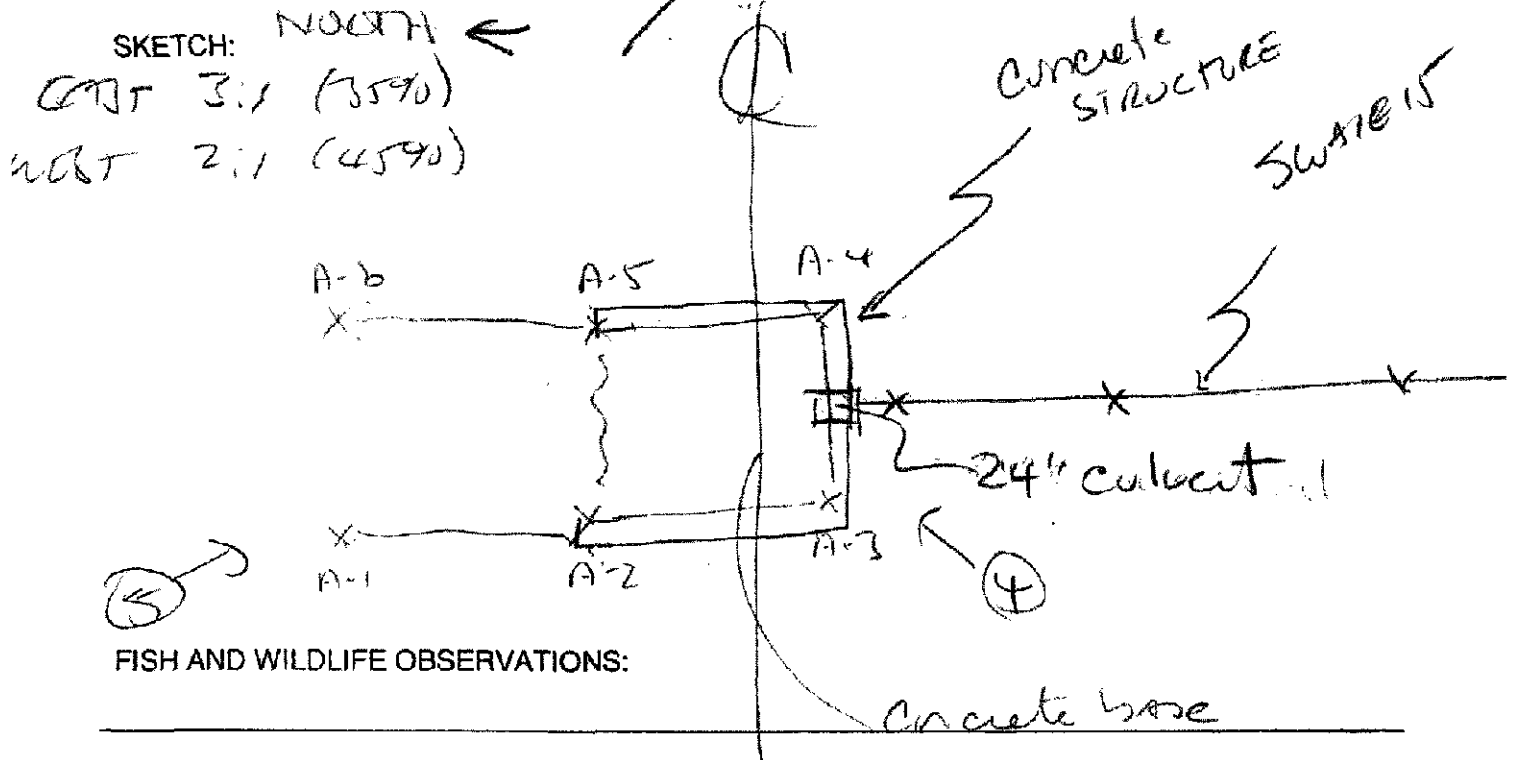


WATERBODY CROSSING DATA FORM

PROJECT: Hardin Wing Farm DATE: 10/26/09

LOCATION: _____ FIELD CREW: RTD / SMS

WATERBODY ID	SRUDSDA	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-6)	
PHOTO ID and DIRECTION	4 ⇒ NEAR concrete structure / 5 ⇒ SE	
NAME (or tributary to)	UNNAMED FLAT BRANCH TRIBUTARY	
WATERBODY TYPE (stream/pond/ditch/culvert)	AG Ditch	
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent	
WIDTH (observed/OHW)	10' / 12'	
DEPTH (observed/OHW)	4'4" / 3'	
FLOW RATE (dry/stagnant/low/moderate/high)	STAGNANT	
FLOW DIRECTION	NORTH	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt / concrete	
BANK VEGETATION (upland/wetland cover type)	Early successional	



NOTES:

- mapped as intermittent

560050A

10/26/09

OhioEPA**Qualitative Habitat Evaluation Index
and Use Assessment Field Sheet****QHEI Score:****32****Stream & Location:** UNNAMED TRIBUTARY TRIPS**RM:** _____ **Date:** 10/26/09**River Code:** 6751 South of CRISO**STORET #:** _____**Scorers Full Name & Affiliation:** DELAHAY / SPARKS - TTEC**Lat./Long.:** 40.6246 181.7489**Office verified location** ☐**1) SUBSTRATE** Check ONLY Two substrate TYPE BOXES.
estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
POOL RIFFLE		POOL RIFFLE					
☐ BLDR/SLABS [10]	☐	☐ HARDPAN [4]	☐	☐ LIMESTONE [1]	☐	☐ HEAVY [-2]	Substrate ☒ MODERATE [-1] ☐ NORMAL [0] ☐ FREE [1] ☐ EXTENSIVE [-2] ☐ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]
☐ BOULDER [9]	☐	☐ DETRITUS [3]	☐	☐ TILLS [1]	☐	☐	
☐ COBBLE [8]	☐	☐ MUCK [2]	☐	☐ WETLANDS [0]	☐	☐	
☐ GRAVEL [7]	☐	☒ SILT [2]	☐	☒ HARDPAN [0]	☐	☐	
☐ SAND [6]	☐	☒ ARTIFICIAL [0]	☐	☐ SANDSTONE [0]	☐	☐	
☐ BEDROCK [5]	☐		☐	☐ RIPRAP [0]	☐	☐	
NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]							
Comments: <u>Sludge from point-sources</u>							

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.**AMOUNT**

Check ONE (Or 2 & average)

☒ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]	☐ OXBOWS, BACKWATERS [1]	☒ EXTENSIVE > 75% [11]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]	☒ AQUATIC MACROPHYTES [1]	☒ MODERATE 25-75% [7]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]	☐ LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
☐ ROOTMATS [1]			☐ NEARLY ABSENT < 5% [1]

Comments: Emergent**Cover**
Maximum 20**8****3) CHANNEL MORPHOLOGY** Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [3]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: Channel**Channel**
Maximum 20**7****4) BANK EROSION AND RIPARIAN ZONE** Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY	
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☒ FOREST, SWAMP [3]	☐ CONSERVATION TILLAGE [1]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☒ SHRUB OR OLD FIELD [2]	☐ URBAN OR INDUSTRIAL [0]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ MINING / CONSTRUCTION [0]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	
	☐ NONE [0]	☒ OPEN PASTURE, CROPCROP [0]	

Comments: Indicate predominant land use(s) past 100m riparian.Indicate predominant land use(s)
past 100m riparian.**Riparian**
Maximum 10**8****5) POOL / GLIDE AND RIFFLE / RUN QUALITY****MAXIMUM DEPTH**

Check ONE (ONLY!)

☐ > 1m [5]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☒ < 0.2m [0]
CHANNEL WIDTH

Check ONE (Or 2 & average)

☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE WIDTH [0]
CURRENT VELOCITY

Check ALL that apply

☐ TORRENTIAL [-1] ☐ SLOW [1]
☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ FAST [1] ☐ INTERMITTENT [-2]
☐ MODERATE [1] ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
 (circle one and comment on back)
Pool / Current
Maximum**0**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]**RIFFLE DEPTH****RUN DEPTH****RIFFLE / RUN SUBSTRATE****RIFFLE / RUN EMBEDDEDNESS**

☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: NO RIFFLE**Riffle / Run**
Maximum**0****6) GRADIENT** (19.3 ft/mi)
DRAINAGE AREA
☐ VERY LOW - LOW [2-4]
☐ MODERATE [8-10]
☒ HIGH - VERY HIGH [10-6]
% POOL: 0**% GLIDE:** 100**Gradient****Maximum****10****% RUN:** 0**% RIFFLE:** 0**Gradient****Maximum****10**

EPA 4520

06/16/06

995-985' = 2,738.23'

10' / 518 mi = 19.31 ft/mi / 9 Absent

AJ SAMPLED REACH

Check ALL that apply

METHOD STAGE

- 1st - sample pass - 2nd
- ☐ BOAT ☐ HIGH ☐
- ☐ WADE ☐ UP ☐
- ☐ LINE ☐ NORMAL ☐
- ☐ OTHER ☐ LOW ☐
- ☐ DRY ☐

DISTANCE

- ☐ 0.5 Km ☐ CLARITY
- ☐ 0.2 Km ☐ 1st - sample pass - 2nd
- ☐ 0.15 Km ☐ < 20 cm
- ☐ 0.12 Km ☐ 20-40 cm
- ☐ OTHER ☐ 40-70 cm
- ☐ > 70 cm / CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

- ☐ 85% - OPEN
- ☐ 55% - 85%
- ☐ 30% - 55%
- ☐ 10% - 30%
- ☐ < 10% - CLOSED

CJ RECREATION

AREA DEPTH

POOL: ☐ > 100m² ☐ > 3ft

BJ AESTHETICS

- ☒ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSO / SSO / OUTFALLS

DJ MAINTENANCE

- ☒ PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG-SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BEDLOAD-STABLE
- ☐ ARMORED / SLUMPS
- ☐ ISLANDS / SCoured
- ☐ IMBEDDED / DESICCATED
- ☒ FLOOD CONTROL / DRAINAGE

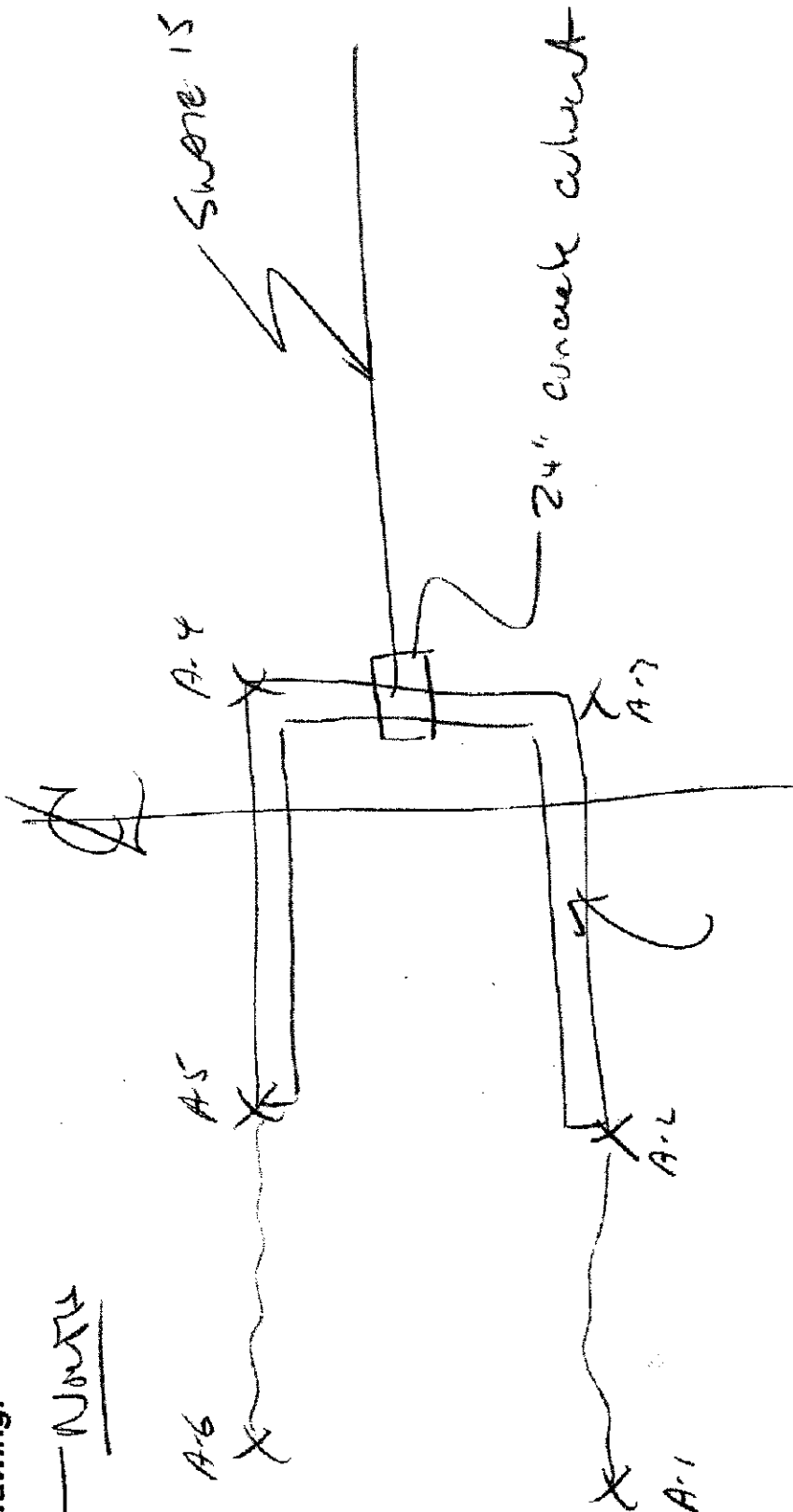
EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRIAL
- HARDENED / URBAN / DIRT & GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / THIRME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- $\bar{x}$ width 10
- $\bar{x}$ depth 4.5
- max. depth
- $\bar{x}$ bankfull width 12
- bankfull $\bar{x}$ depth 3
- W/D ratio
- bankfull max. depth
- floodprone $\bar{x}$ width
- entranch. ratio
- Legacy Tree:

Stream Drawing:



WATERBODY CROSSING DATA FORM

PROJECT: Hoodman Run

DATE: 10/26/09

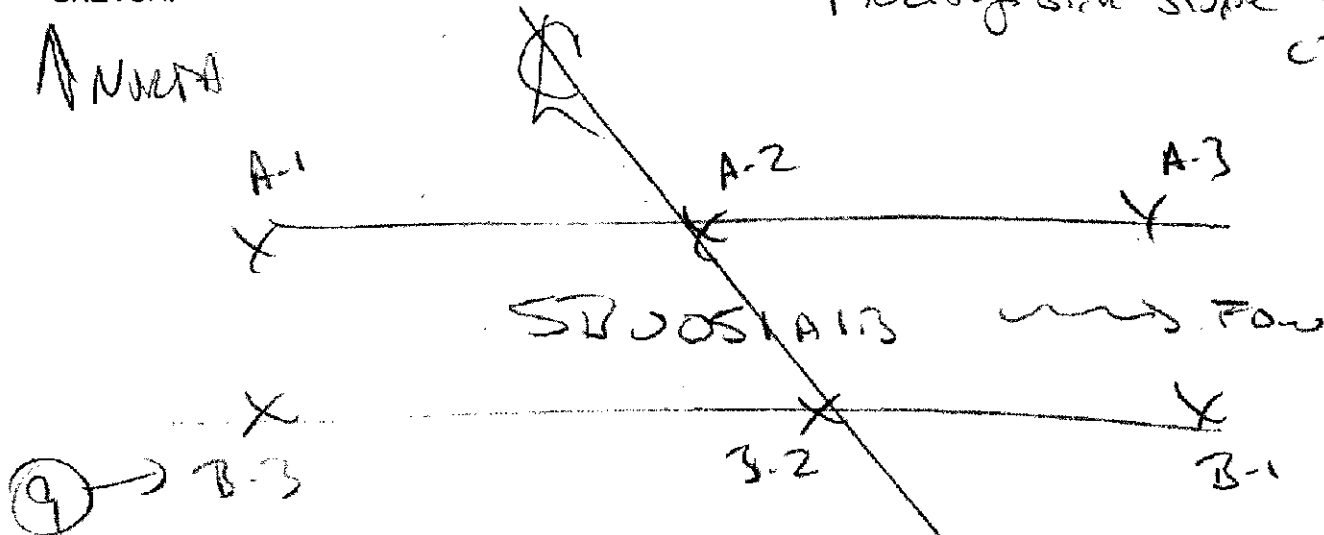
LOCATION: B. S. of WB 116

FIELD CREW: RJS, SMS

WATERBODY ID	SRUOSIA13	
GPS FEATURE TYPE (open/closed)(line/polygon)	Line (1-3)	
PHOTO ID and DIRECTION	9=SEAST	
NAME (or tributary to)	UNNAMED MCCORMAN TRIBE	
WATERBODY TYPE (stream/pond/ditch/culvert)	STREAM (A1 change)	
FLOW REGIME (perennial/intermittent/ephemeral)	Intermittent	
WIDTH (observed/OHW)	8' / 10' - 12'	
DEPTH (observed/OHW)	- / 3'	
FLOW RATE (dry/stagnant/low/moderate/high)	DRY	
FLOW DIRECTION	EAST	
SUBSTRATE (mud/silt/gravel/cobble/boulders/bedrock)	Silt (100% veg, cover)	
BANK VEGETATION (upland/wetland cover type)	Early Successional	

SKETCH:

Average bank slope ~ 45% (2:1)



FISH AND WILDLIFE OBSERVATIONS:

NOTES:

no diving or sloughing
no scum

Heavily vegetated / snake
marked as intermittent

BUOSIA113

10126129



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **33**

Stream & Location: UNNAMED MCCORMACK TILLY RM: --- Date: 10/26/09

W/ 150' NORTH EAST OF 72154 / 7285 #4. Scorers Full Name & Affiliation: DELAHUNTY / SPARKS - TTEC

River Code: --- STORET #: --- Lat/Long: 40.6158182 73.57 Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY		
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	Substrate 3 Maximum 20	
☐ BOULDER [9]	☐ MUCK [2]	☐ DETRITUS [3]	☐ SILT [2]	☐ TILLS [1]	☐ WETLANDS [0]	☐ MODERATE [-1]		
☐ COBBLE [8]	☐ SAND [6]	☐ ARTIFICIAL [0]	☐ SANDSTONE [0]	☐ RIP/RAP [0]	☐ LACUSTURINE [0]	☐ NORMAL [0]		
☐ GRAVEL [7]	☐ BEDROCK [5]		☐ SHALE [-1]	☐ COAL FINES [-2]	☐ NONE [1]	☐ EXTENSIVE [-2]		
						☐ MODERATE [-1]		
						☐ NORMAL [0]		

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

Comments: HEAVY

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT	
☐ UNDERCUT BANKS [1]	☐ POOLS > 70cm [2]
☒ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]
☐ SHALLOWS (IN SLOW WATER) [1]	☐ BOULDERS [1]
☐ ROOTMATS [1]	☐ LOGS OR WOODY DEBRIS [1]

Check ONE (Or 2 & average)

☐ EXTENSIVE > 75% [1]

☒ MODERATE 25-75% [7]

☐ SPARSE 5-25% [3]

☐ NEARLY ABSENT < 5% [1]

Comments: HEAVY

Cover Maximum **20**

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [0]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☒ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: HEAVY

Channel Maximum **20**

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☒ NONE / LITTLE [3]	☐ WIDE > 50m [4]	☐ FOREST, SWAMP [0]
☐ MODERATE [2]	☐ MODERATE 10-50m [3]	☐ SHRUB OR OLD FIELD [2]
☐ HEAVY / SEVERE [1]	☐ NARROW 5-10m [2]	☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]
	☐ NONE [0]	☐ OPEN PASTURE, ROWCROP [0]

Indicate predominant land use(s) past 100m riparian.

Comments: HEAVY

Riparian Maximum **10**

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ SLOW [1]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ VERY FAST [1]
☐ 0.2-0.4m [1]		☐ FAST [1]
☐ < 0.2m [0]		☐ MODERATE [1]
		☐ INTERMITTENT [-2]
		☐ EDDIES [1]

Indicate for reach - pools and riffles.

Comments: DIRTY

Pool / Current Maximum **12**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments: DIRTY

Riffle / Run Maximum **8**

6) GRADIENT (2.1 / 100mi) DRAINAGE AREA (2,500' 1040-1030)

% POOL	% GLIDE	% RUN	% RIFFLE
☒ 0	☒ 0	☒ 0	☒ 0

Gradient Maximum **10**

2,500' 1040-1030 10/473 = 2.148/mi 6' crest

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT ☐ WADE ☐ UP ☐ L. LINE ☐ OTHER ☒ DISTANCE ☐ 0.5 Km ☐ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ☐ OTHER ☒ CLARITY 1st - sample pass - 2nd ☐ < 20 cm ☐ 20-40 cm ☐ 40-70 cm ☐ > 70 cm/ CTB ☐ SECCHI DEPTH ☐ meters

CANOPY

- > 85% - OPEN ☒ 55% - 85% ☐ 30% - 55% ☐ 10% - 30% ☐ < 10% - CLOSED ☐

CJ RECREATION

AREA DEPTH POOL: ☐ > 100m² ☐ > 3R

BJ AESTHETICS

- NUISANCE ALGAE ☐ INVASIVE MACROPHYTES ☐ EXCESS TURBIDITY ☐ DISCOLORATION ☐ FOAM / SCUM ☐ OIL SHEEN ☐ TRASH / LITTER ☐ NUISANCE ODOR ☐ SLUDGE DEPOSITS ☐ CSOs/SSOs/OUTFALLS ☐

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA ☐ ACTIVE / HISTORIC / BOTH / NA ☐ YOUNG-SUCCESSION-OLD ☐ SPRAY / SNAG / REMOVED ☐ MODIFIED / DIPPED OUT / NA ☐ LEVEED / ONE SIDED ☐ RELOCATED / CUTOFFS ☐ MOVING-BEDLOAD-STABLE ☐ ARMoured / SLUMPS ☐ ISLANDS / SCOURED ☐ IMPOUNDED / DESICCATED ☐ FLOOD CONTROL / DRAINAGE ☐

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY ☐ HARDENED / URBAN / DIRT & GRIME ☐ CONTAMINATED / LANDFILL ☐ BMPs-CONSTRUCTION-SEDIMENT ☐ LOGGING / IRRIGATION / COOLING ☐ BANK / EROSION / SURFACE ☐ FALSE BANK / MANURE / LAGOON ☐ WASH H₂O / TILE / H₂O TABLE ☐ ACID / MINE / QUARRY / FLOW ☐ NATURAL / WETLAND / STAGNANT ☐ PARK / GOLF / LAWN / HOME ☐ ATMOSPHERE / DATA PAUCITY ☐

FJ MEASUREMENTS

- $\bar{x}$ width ☐ $\bar{x}$ depth ☐ max. depth ☐ $\bar{x}$ bankfull width 10' - 12' ☐ bankfull $\bar{x}$ depth 3' ☐ W/D ratio ☐ bankfull max. depth ☐ floodprone $\bar{x}^2$ width ☐ entrench. ratio ☐ Legacy Tree: ☐

Stream Drawing:

Red Bank Survey

ANNUAL

